

**DEVELOPMENT OF ACADEMIC STAFF EVALUATION SYSTEM FOR
ATILIM UNIVERSITY**

A MASTER'S THESIS

in

Computer Engineering

Atilim University

by

MELTEM ERYILMAZ

JANUARY 2008

**DEVELOPMENT OF ACADEMIC STAFF EVALUATION SYSTEM FOR
ATILIM UNIVERSITY**

**A THESIS SUBMITTED TO
THE GRADUATE SCHOOL OF NATURAL AND APPLIED SCIENCES**

**OF
ATILIM UNIVERSITY**

**BY
MELTEM ERYILMAZ**

**IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
DEGREE OF**

MASTER OF SCIENCE

IN

THE DEPARTMENT OF COMPUTER ENGINEERING

JANUARY 2008

Approval of the Graduate School of Natural and Applied Sciences.

Prof.Dr. Abdurrahim Özgenoğlu

Director (Acting)

I certify that this thesis satisfies all the requirements as a thesis for the degree of Master of Science.

Prof.Dr. İbrahim Akman

Head of Department

This is to certify that we have read this thesis and that in our opinion it is fully adequate, in scope and quality, as a thesis for the degree of Master of Science.

Instructor Ziya Karakaya

Supervisor

Examining Committee Members

Prof.Dr. Ali Yazıcı

Assoc.Prof.Dr. Mohammad Rehan

Asst.Prof.Dr. Çiğdem Turhan

Asst.Prof.Dr. Murat Koyuncu

Inst. Ziya Karakaya

ABSTRACT

DEVELOPMENT OF ACADEMIC STAFF EVALUATION SYSTEM FOR ATILIM UNIVERSITY

Eryılmaz, Meltem

M.S., Computer Engineering Department

Supervisor: Instructor Ziya Karakaya

January 2008, 66 pages

This thesis is a study for the development of the online basis Academic Staff Evaluation System for Atilim University. In recent years, like most of the universities abroad, in the universities of our country, Turkey, quality improvement studies have increased and have taken an important place in the agenda of the university managements. A discussion was made to investigate the methods of the academic staff evaluation in the Turkish Universities at the beginning of this study. Several universities in different regions were selected and contacts with related departments were achieved. As a result of these discussions, it has been concluded that the evaluations for the yearly activities of the staff were realised by means of simple forms filled by hand or with “Word” documents prepared by the staff and submitted to the university secretarials. As there was not a standard in most of these universities for the evaluation system, forms were filled improperly.

In Atilim University, academic staff evaluation was also made by means of the “Word” documents prepared by the staff and delivered to the university secretarial. Based on the discussions with the top management of the Atilim University, an online database system for the academic staff evaluation was decided to be necessary and was initiated. The online Academic Staff Evaluation system including all the data about the university staff was also decided to be very useful as a data file including all the staff data.

A software was developed in consequence of this study. Software engineering methods were used during the development of this system. The developed evaluation system was a web based system and web technologies were also used.

Keywords:

online evaluation system; online evaluation; web-based evaluation; instructor ratings; instructor performance; performance measurement; academic staff evaluation

ÖZ

ATILIM ÜNİVERSİTESİ İÇİN AKADEMİK PERSONEL DEĞERLENDİRME SİSTEMİ GELİŞTİRİMİ

Eryılmaz, Meltem

Yüksek Lisans, Bilgisayar Mühendisliği Bölümü

Tez Yöneticisi: Öğretim Görevlisi Ziya Karakaya

Ocak 2008, 66 sayfa

Bu tez Atılım Üniversitesi için bir Akademik Personel Değerlendirme Sistemi Geliştirimi çalışmasıdır. Son yıllarda yurtdışındaki pek çok üniversitede olduğu gibi, Türkiye'deki üniversitelerde de, kalite geliştirme çalışmaları artmakta ve üniversite yönetimlerinde önemli bir gündem maddesi oluşturmaktadır. Çalışmanın başlangıcında, Türkiye'deki üniversitelerde Akademik Personelin değerlendirilmesine ilişkin bir araştırma yapılmış, farklı bölgelerden üniversiteler seçilerek ilgili birimleri ile irtibat kurulmuştur. Görüşmelerin sonucunda, akademik personelin yıllık çalışmalarını Word dökümanı olarak ya da elle doldurdıkları ve üniversite sekreterliklerine gönderdikleri görülmüştür. Birçok üniversitede bu formlarla ilgili bir standart olmadığı için formların usule uygun doldurulmadığı tespit edilmiştir.

Atılım Üniversitesinde de akademik personel değerlendirme işlemi, Word dökümanı olarak hazırlanan formların personel tarafından doldurulup üniversite sekreterliklerine gönderilmesi sureti ile yürümektedir. Üniversite üst yönetimi ile yapılan görüşmeler sonucunda çevrimiçi bir akademik personel değerlendirme sisteminin üniversitenin yararına olacağı düşüncesi ile bu sistem geliştirilmiştir.

Bu çalışmanın sonucunda bir yazılım geliştirilmiştir. Yazılım geliştirilirken yazılım mühendisliği metodolojileri kullanılmıştır. Sistem web tabanlı bir uygulama olduğu için web teknolojilerinden de faydalanılmıştır.

Anahtar Kelimeler:

Çevrimiçi Değerlendirme Sistemi, Çevrimiçi Değerlendirme, Web tabanlı değerlendirme, akademik personel sınıflaması, akademik personel performansı, performans ölçümü, akademik personel değerlendirme

GCCRIS

To My Parents...

GCCRIS

ACKNOWLEDGMENTS

I express sincere appreciation to my supervisor Instructor Ziya KARAKAYA for his guidance and insight throughout the research. Thanks also go to juri members, Assoc. Prof. Dr. Mohammad REHAN, Asst. Prof.Dr.Çiğdem TURHAN, Asst. Prof. Dr. Murat KOYUNCU and Prof. Dr.Ali YAZICI for their suggestions and comments.

I offer sincere thanks to my husband, Koray, for his continuous support and patience during this period.

I finally, offer sincere thanks to my lovely daughters Yağmur and Damla.

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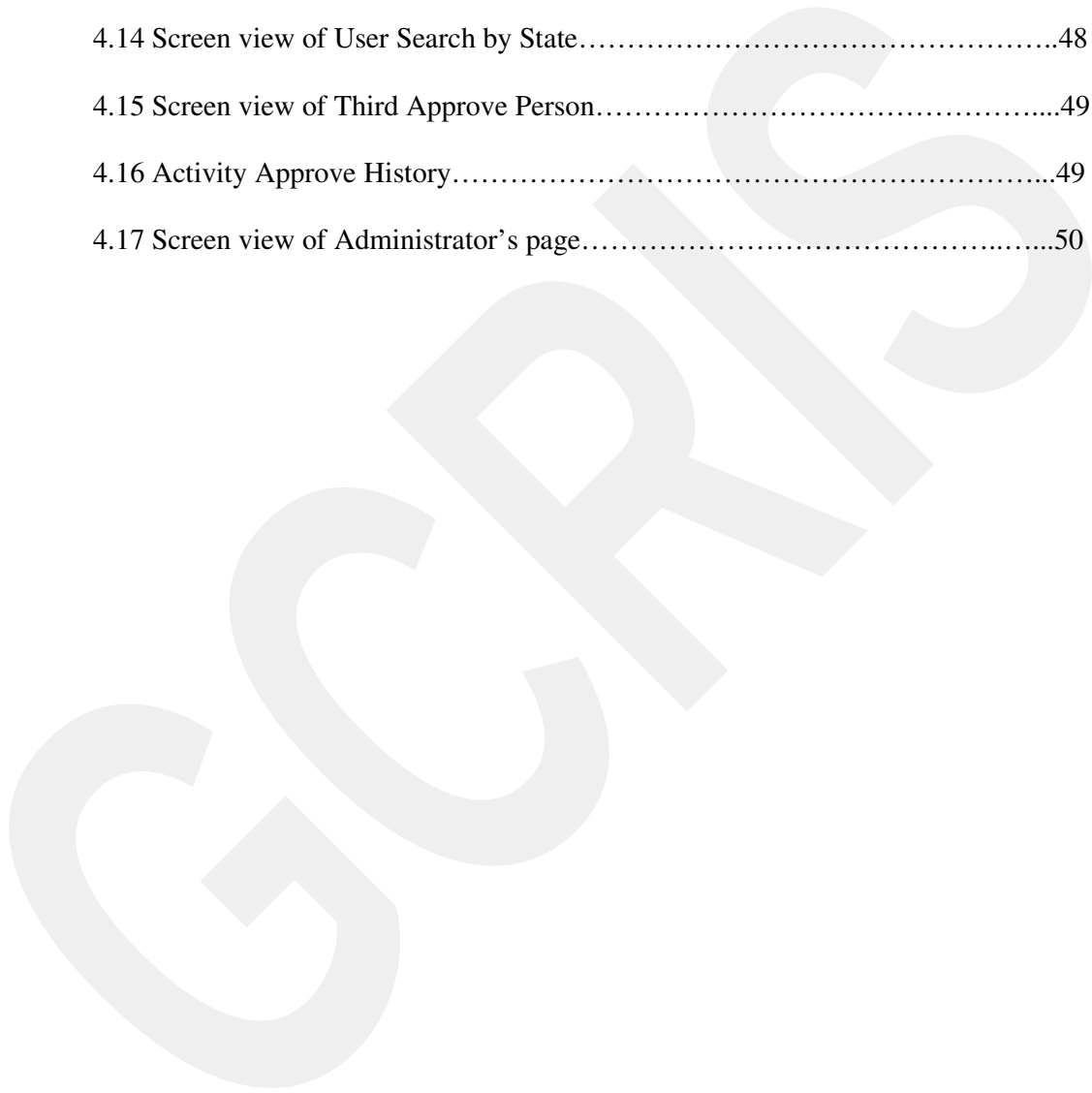
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LIST OF ABBREVIATIONS

NF	-	Normal Form
UML	-	Unified Modelling Language
CV	-	Curriculum Vitae
UID	-	Update, Insert, Delete
SP	-	Stored Procedure
ASP	-	Active Server Pages
HTML	-	Hypertext Markup Language

CHAPTER 1

INTRODUCTION

In recent years, the most important goal of university administrations not only in Europe and the United States but also in some developing countries such as Turkey is to improve the performance of academic institutions and of their staff. Due to this fact, the governments have allocated resources to higher education by increasing the share of public funds for academic institutions, (Şenses, 2003; Fish, 2003).

The emphasis on the performance evaluation of academic staff serves the purpose of managing and controlling the activities of academic institutions. In this context, 'Academic Staff Evaluation System' has gained importance.

Research output of academic staff appears to be an important criteria (Butler, 2003) for performance evaluation. To increase the research output of their academic staff, universities have begun to offer a set of incentives, including the reduction of course load and provision of a variety of financial incentives, such as facilitating participation in conferences. Likewise, in some countries, allocation of research funds among different universities and within various departments of the same university is based on research performance of academic staff as measured by the number of publications weighted as per the place of the publication (Laband and Tollison, 2003 ; Butler, 2003).

In Turkey, the universities whose training is mostly in English, have been trying to enhance their qualities also. Increased emphasis on the quality has been accompanied by the adoption of various assessment schemes by these universities which have always attached top priority to the research and publication performance

of their academic staff. Two closely interrelated factors playing a major role in this process are as follows:

- Efforts of universities to have an accreditation from an international body with the aim of increasing their national and international standing.
- Implementation of more strict criteria for academic appointments and promotions (Şenses, 2003).

Related to this issue, the measurement of Academic Staff Evaluation plays an important role to perform faculty evaluations. Although there has been a large agreement on the objective of a more efficient usage of resources, the selection of criteria for performance evaluation has appeared as a highly negotiable subject. There are several opinions that may be changed for different universities and different countries. Especially in developing countries like Turkey, performance evaluation criterias may also show differences as per the needs of departments of universities, (Tekeli & Şenses, 2003; Siune, 1998).

1.1 Background of the Problem

The Academic Staff Evaluation Systems, both paper based and online Internet based, allow academicians to evaluate their own academic careers for each semester. There are some researches in the literature (Liegle & McDonald, 2004; Pougatchev, George , Lue & Williams 2006), conducted on the comparison of verbal, paper based and online forms of assessment. As a result of the efficiency comparison, it has been revealed that the achievement in online evaluation form is sometimes better than the others. In some cases, verbal and paper based form assessment may be problematic. For instance, problems in the verbal one are as below:

- There is no written record
- The objectives can not clearly be defined
- It is hard to remember points to make

- Time is limited

On the other hand, the paper based form assessment has the following defects:

- It takes long time
- It can not include everything
- All skills are not considered properly
- It may not fully communicate staff's intent

According to the study of Pougatchev, George , Lue & Williams (2006), the demand for immediacy in the academic staff evaluation feedback has been an important issue for the academic staff, who apply the paper based system which provides little useful feedback because of the time lag between completion of the forms and receipt of the report of the results. It has been observed that the old paper based evaluation system required surveys to be shipped off site for analyzing and the entire process took months to complete. Faculties may sometimes be insufficient in improving their staff in terms of reports evaluation, because the evaluation reports have not been returned until well after the following semester. Some of the academic personnel have not filled the forms properly. Additionally, the human effort of administering the paper based system has been a significant issue and the storage required to accommodate the volume of paper evaluations has been a real burden.

However, the study of Pougatchev, George, Lue & Williams (2006) has showed that, the on-line Academic Staff Evaluation System will allow academicians to perform evaluations in a more comfortable environment at any time. It will provide an immediate positive impact on the quality of Academic life for academicians by providing the following solutions (Aleamoni,1987) :

- Allowing for more efficient data analysis of the evaluations
- Reducing errors in data collection
- Allowing academicians to evaluate themselves easily
- Generating quick data and reports for data analysis

According to Pougatchev, George, Lue & Williams (2006), online Academic Staff Evaluation System is flexible, secure, efficient and customizable. Since online systems are mostly database driven, data can be converted to useful information instantaneously with strong reporting capabilities that can aid effective decision making.

As indicated before, the evaluation criteria may change for different universities and different countries. Especially in developing countries like Turkey, performance evaluation criteria may show differences according to the needs of departments of universities. The online system aggregates these criteria and provides feedback in a legible, typed format, with concise, on-demand reports that may be viewed online or be printed.

In recent years, evaluation process in Turkey has enhanced the emphasis on the publications and academic promotions. “Academic Audits and Quality Improvement Regulations for Institutions of Higher Education” published by The Council of Higher Education (HEC), (TR OJ of Sept 20th 2005, Release 25942), set out the rules for improving the quality of instructional, educational and research activities (YÖK, 2007). At this extent, universities generate annual auditing reports, which include the results of academic audits and quality improvement efforts held during each year. Those universities having successfully founded an internal auditing committee, have specified a number of rules in order to support the activities being carried out. The external audits have the similar rules while auditing universities. Both the internal and the external audits attract attention to the following criteria:

- number of publications per teaching staff member (SCI- expanded, SSCI and AHCI)
- number of completed thesis studies per lecturer
- weekly average class hours per teaching staff
- number of scientific organizations participated by teaching staff (congress, conference notifications, expositions etc.)
- number of prizes and awards per teaching staff

- number of DPT, TUBITAK and other public financed studies, completed and delivered within a year, per teaching staff
- number of teaching staff attending regular classes
- number of thesis studies completed per teaching staff

The Institutions are expected to use the above criteria as feedback to support of their own auditing efforts and they are drafted down in the Academic Audit and Quality Improvement Reports, as a result thereof, (YÖK, 2007).

Because of the criteria for “Academic Audits and Quality Improvement Regulations for Institutions of Higher Education” indicated by HEC, presence of a system, where annual activities and efforts performed by academic staff at universities are maintained, has become important. In many universities in Turkey, such information is gathered through forms which are generally prepared as word documents and completed by academicians either manually or in assistance of computers. As previously stated, there are some researches in the literature (Maurer, Jensen & Wright, 2001) which point out the effectiveness of on-line Academic Staff Evaluation System allowing academicians to perform evaluations in a more comfortable environment at any time. According to Maurer, Jensen & Wright (2001); the advantages of online Academic evaluation system are:

1. To encourage Academic Staff to make international publications and to have a progress in academic rank. In such a case, developing an Academic evaluation system grants easiness
2. To provide an opportunity to present Academicians’ activities
3. To get feedback for self-improvement
4. To provide a consistent opportunity to build a record on performance for use in promotion
5. To provide a strong communication between staff members and their supervisors

These advantages have some important effects:

1. The first and the most important effect of this system is that it allows to save time, money and resources
2. The second important effect is that it lets easy evaluation of academician's studies as per years
3. Besides, it allows the superior to see the mistakes, to warn the subordinate and to give feedback about the study as soon as possible.

1.2 Purpose of Study:

The purpose of this study is to develop an internet based Academic Staff Evaluation System. As indicated in the background of problem, there are some important defects when using paper based and verbal evaluation systems. In addition to those defects indicated before, in paper based system, some academicians do not fill the forms because of various reasons or the completion of the forms takes time (Pougatchev, George, Lue & Williams, 2006; Tinoco, Barnette & Fox, 2006).

However, by using the online evaluation system,

- Faculty and administration can view results immediately
- The different performance evaluation criteria mentioned before, can be assembled
- Universities can perform evaluations at any time during the year
- Academic Staff can login and take evaluations electronically, (Eval Systems, 2007)

A number of interviews made with the Rectorate of Atilim University have revealed the imminent need for a self driven online Academic Staff Evaluation System. Considering all of the advantages and effects of the online staff evaluation system mentioned above, this study purposes to rationalize and develop an internet

based Academic Staff Evaluation System capable of coping with the need for Atilim University.

In Atilim University the process for activity reporting is as follows:

At the beginning of each academic term, an activity reporting document containing data and information on activities of the preceding term is sent to all departments. Then, Academic Staff fill and properly complete this document in word format and subsequently submit it to the departmental secretariat. Afterwards, each department collects and collates documents concerning its own academic staff to hand them to the Dean's Office. Once reviewed and approved by or on behalf of Faculty Deans, the documents are then sent to the Rectorate whereby they are further attested and shipped to the HEC, along with other documentary feedback from the faculties and schools of the University.

Evaluation records of Atilim University, have revealed that some of the academic personnel completed the forms inaccurately or did not complete the forms due to the various reasons (such as not being in the office, or not having enough time for it).

This study has been conducted by taking the fact into consideration that an Academic Personnel Evaluation System which is made available and prepared on the internet environment will be more reliable and accurate (Pougatchev, George & Lue, 2006). By the help of online system, academic personnel from each of the departments may enter their academic activities of previous years to the system on internet environment, the chairmen of the departments may view the studies which are done in their departments and approve them, and if required, they may ask for alterations. After the first approval, the related deanships will certify the studies, and finally, the rectorate is able to calculate the points determined by the university following approval of the documents received from the entire faculties.

The online system supplies immediate access to the studies by the entire academic personnel throughout the year. Any error or mistake can be corrected on the first approval stage. At the end of the year, the points shall be calculated with

respect to the studies completed by each of the academic personnel and shall be utilized in the evaluations.

This system may be useful not only for the personnel budgeting evaluations but also for gathering and obtaining information and data on the status of the studies carried out by the university in one year. This also provides (Juedes, 2003) monitoring the activities realised by the university lecturers in the past year and gives a hint on the status of the faculties.

The rest of the thesis is organized as follows: In Chapter 2, firstly the studies done related with this subject both in Turkey and in the world are analyzed. Then, the methods to develop a software are mentioned. In Chapter 3, the process stages followed in the study are explained. The technologies used for development are given. In Chapter 4, the developed software is shown by the help of some examples of screen views.

CHAPTER 2

REVIEW OF LITERATURE

In recent years, evaluation is one of the most difficult and time consuming tasks that academicians are required by the universities to perform. Nevertheless, academic staff evaluation as a part of education system (Angelo & Cross, 1993; Juedes, 2003), can be a powerful tool for quality improvement if done properly. On the other hand, traditional methods of academic evaluation using pen and paper have significant limitations since detailed information regarding type and the frequency of corrections is not easily accessible. Moreover, traditional methods of evaluation usually provide only limited feedback to academic staff, (Angelo & Cross, 1993; Maron & Ralston, 1999).

In contrast to the above points, according to the study of Maurer, Jensen & Wright (2001), Academic Staff members of different universities accept the importance of these evaluations for the reasons mentioned below:

By using Evaluation System, staff members:

- have an opportunity to present activities
- get feedback for self-improvement
- provide a consistent opportunity to build a record on performance to get promotion
- identify career opportunities and develop a plan to achieve them

2.1 Recent Trends in Evaluation Practices

The increased emphasis on the quality of higher education by governments has resulted in an increment of various organizations in a number of countries. The main aim of these organizations is to monitor the quality and then to accredit the higher education institutions that pass their evaluation criteria. Although this is done by government organizations in most countries, as many as 19 nongovernmental accrediting organizations (CHEA Research, 2007) are active in the United States in order to monitor and review the quality of colleges and universities. Similarly, the emphasis on quality in the European context according to the Bologna Declaration in 1999 has led to the establishment of the European Network for Quality Assurance in Higher Education (ENQA, 2007), with aim of increasing co-operation in performance evaluation of the universities among European countries.

The emphasis on evaluation of academic performance has not shown any results on the emergence of a common practice since the early 1980s. Instead, assessment criteria in various countries and its implementation methods have shown a great deal of variation across countries over time, (ERC Research Center, 2007). In the United Kingdom for example, for the evaluation of university departments, main emphasis has been given on publications, research culture and research organization. In the Netherlands these criteria have been based on quality, productivity, relevance and viability. Denmark has, on the other hand, adopted a more qualitative assessment procedure based on information gathered through visits to individual departments, (Siune, 1998).

2.1.1 Evaluation Process in Turkey

In recent years, evaluation process in Turkey, particularly those pertaining to academic promotions, have increasingly emphasized publications (Şenses, 2003). The information on publication performance of academic staff compiled by The Higher Education Council from all universities, clearly distinguishes between national and international publications and publishes the results each year. It implicitly encourages international publications and considers the rise in their number as a strong sign of academic progress, (Tekeli & Şenses, 2003).

The Middle East Technical University for example, has strict criteria for academic appointments and promotions which require candidates to have at least two international publications as a prerequisite for promotion to the rank of associate professor and another two for promotion to full professorship, (Feas, METU, 2007). Some other universities have similar criteria with some actually resorting to international referees for certain appointments which by discarding altogether publications in the Turkish language, place emphasis on international publications to new heights (Şenses, 2003).

Most of the universities which are the members of European University Association (EUA) in Turkey, also offer financial rewards for such publications, (EUA Members Directory, 2007). Ankara Hacettepe University, Mersin University, Erzurum Atatürk University, Samsun Ondokuz Mayıs University, İstanbul Kadir Has University, Adapazari Sakarya University, Van Yuzuncu Yil University are examples of these universities.

In this study, because of the geographical difficulties to access the universities outside Ankara, phone calls have been preferred to get information. The interviews (shown in Appendix A) made with the academicians of that universities have showed that the activity reporting has been similar to Atilim University. It has been revealed as a result of the interviews that an activity reporting document to encompass data and information on activities of the preceding term has been sent to all departments at the beginning of each academic term. After completing the document, the academic staff submit it to the department secretariat. It has been noted that the national and international publications, books, papers, participation in national and international conferences, course load have been also critical points for academic promotions and evaluation of university performance.

Institutions which support Academic Performance in Turkey:

There are various institutions which support academic researches in our country. Out of them, the Scientific and Technological Research Council of Turkey (TÜBİTAK) and the Turkish Academy of Sciences (TÜBA) are the most widely known ones. TÜBİTAK provides scholarships with the aim of supporting the post-

doctorate researchers and their participation in Scientific Events. The resource boosts provided by TÜBİTAK on the study basis and substantiates to the scientific publications have been significantly contributing to the Research and Development activities of our country (TÜBİTAK, 2007; YÖK, 2007).

The Turkish Academy of Sciences (TÜBA) has a scheme which offers financial rewards for international publications such as papers in SSCI journals and books and such as chapters in books published by international publishers up to this year. There has a long list of journals divided into several categories according to their impact levels with papers published in them rewarded on different scales. More significantly, the acceptance to membership of the Academy of Sciences and the competence to receive annual awards conferred by the Academy has depended on the performance evaluated on the basis of the metric of international publications and citations, (TÜBA, 2007).

In the field of Social Sciences, the Academy has offered service and substantiate rewards, has encouraged scientific publications in the related fields, has prepared programs supporting the international meetings, has provided support for scientific journals, for post-doctorate has oversead research scholarship and for participation in domestic/ international scientific events, and has fostered considerably successful young scientists with the purpose of rewarding them, (TÜBA, 2007; YÖK, 2007)

2.1.2 Evaluation Process in Atilim University

Atilim University, within its own body, provides a sum of monetary awards to the academic personnel whose publications are published in the magazines and journals within the scope of SCI-Exp and SSCI, in respect of the publication amounts. In addition, it also provides financial support to the academic personnel who would like to participate in the scientific national and international meetings and gatherings. As previously stated, providing such supports is only possible by monitoring the studies conducted by the academic personnel in an accurate and healthy manner.

2.2 Performance Evaluation Tools

The Academic Staff Evaluation Systems-both paper-based and online Internet based- allow to evaluate academicians each semester of their academic life (Maurer, Jensen & Wright, 2001). Based on several years experience of using traditional paper-based system, the Office of Curriculum and Evaluation of the University of Technology, Jamaica (UTech) has decided to test whether an on-line Instructor Evaluation System improves the evaluation process by substituting an on-line evaluation system for the instructors (Pougatchev, George, Lue & Williams, 2006; Ha, Marsh & Jones, 1998). The study has showed that, the on-line Academic Staff Evaluation System allows academicians to perform evaluations in a more comfortable environment at any time.

According to the study of Price, Walters & Xiao, 2006; officials at the educational institutions in Deakin University in Australia, Columbia University and three Chinese Universities (HKUST, HKU, and HKPU in Hong Kong) have noticed the following superiorities of the web-based evaluation system over the former paper based systems:

- Online systems are much easier to administer than paper based evaluations
- Immediate and flexible feedback available to reviewers
- Since the forms are already in a digital format, time and money typically spend on overhead tasks are saved
- Digitally stored data can also be readily used for analysis and establishing historical trends and comparisons
- Instructors can view detailed formative results and department chairs and deans can have immediate access to statistical results

Pougatchev, George, Lue and Williams (2006), also have underlined that the online system provides a concise feedback in a legible typed format, and that on-demand reports that can be viewed online or be printed.

Research comparing online vs. paper based evaluations in general has found no significant difference in the results (Martz, 1999). One factor influencing the

scores is the potential effects of unfilled forms in case that only a limited number of staff complete the forms, (Thorpe, 2002). In terms of comparing respondents vs. non-respondents in online system, some demographic differences have been found (Underwood, Kim & Matier,2000; Hendel,Tomsic & Matross, 2000) in terms of sex, familiarity with the internet, concerns for privacy and confidentiality (Archer, 2003 ; Handwerk, Carson, and Blackwell, 2000).

According to the studies of Couper, (2000) and Archer, (2003) advantages of the online evaluation can be summarized as shown in Table 2.1 below:

Error-free data entry
Reduced costs of online research (personel, mailing, printing,etc)
Low administration costs
Rapid dissemination of results
The ease of reaching representative samples of a population
The ability to validate data during collection

Table2.1 Advantages of the online evaluation (Couper, 2000; Archer, 2003)

Also according to the study of Hmieleski and Champagne (2000), items below are summarized as some other advantages of the web based evaluation system:

- Cost of Conversation
- Quality of data analysis and reporting
- Rate of return
- Response quality

According to Liegle & McDonald, (2004), the problems about the paper based evaluations are:

- Risk of departments forgetting to administer papers altogether
- Risk of missing some
- Waste of time in compilation of the results and of cost in terms of machinery, paper and manpower

Based on the researches above, this study has been conducted by taking the fact into consideration that Academic Staff Evaluation System which is made available and prepared on the Internet Environment would be more healthy and accurate.

2.3 Software Process Model

Since this study is about developing a software for Academic Staff Evaluation System, it is important to understand software process models.

The software process model may be defined as a simplified description of a software process (Afonso & Botia, 2005; Sommerville, 2005; Kruchten, 2000) presented from a particular perspective. The software process models are important while developing a software because they provide guidance on the order (phases, increments, prototypes, validation tasks, etc.) in which a study carries out its major tasks. Many software studies have come to grief because they pursue their various development and evolution phases in the wrong order, (Boehm, 1988). Because of this, choosing the adequate model is an important decision for the success of the study. Every software development study should describe a unique set of framework activities for the software process it adopts (Pressman, 2005).

CHAPTER 3

DEVELOPMENT PROCESS

3.1 Overview

This thesis is a study for the development of an online basis Academic Staff Evaluation system for Atılım University. A software would be developed in consequence of this study. For this reason, software process models and the set of framework activities would be decided before development.

Software process models have been applied for many years in an effort to bring order and structure to software development. As mentioned in the previous chapter, each of these models suggests a somewhat different process flow, but all of them perform the same set of framework activities: Communication, Planning, Modelling, Construction and Deployment, (Pressman, 2005; Royce, 1987). These activities can be used during the development of small programs, the creation of large Web applications, and for the engineering of large computer-based systems.

According to McConnell & Tripp (2007), the framework activities will always be applied on every project but the tasks for each activity will vary according to:

- the type of project
- characteristics of the project
- common sense judgment
- concurrence of the project team

Because of the above mentioned reasons, not only specific one but also a combination of acceptable models would be used as software model in this study. As per these models, the framework activities will alternate the following:

- Communication
- Planning
- Analysis
- Design
- Coding
- Testing

Because the requirements of the university may change , a process model has been designed to accommodate a system that evolves over time like Evolutionary Process Models, (Lehman & Belady, 1985).

In this study, software would be developed in a series of evolutionary releases. Like a spiral model which is also an evolutionary software process model, during early iterations, the release would be a prototype. During subsequent iterations, more complicated versions of the system would be produced.

3.2 Process Stages in the Study

3.2.1 Communication Stage

Before user requirements are analyzed, modeled or specified they must be gathered through a communication activity, (Pressman, 2005). The communication – another words requirement elicitation-helps to define project’s overall goals and objectives.

As emphasized in the previous chapters that in the consultation conducted with the Rectorate of Atilim University, it has been said that Atilim University has needed an online Academic evaluation system.

In the first part of this stage, it has been researched whether such a similar study has been conducted or not in the other universities previously. It has been seen that a similar system called “Academic CV” has been utilized in the Middle East Technical University since the year 1999.

In the second part of this stage, the Computer Center of Middle East Technical University has been visited and information regarding the system has been received from the team who developed it. As a result of the face to face consultations it has been noted that the system in METU was established on Informix database based on HTML. Following a short demonstration of the system, commentaries about deficiencies and ways to improve it were discussed.

As a result of the consultations, it has been seen that the system considered to be utilized in Atilim University, bears similar features and characteristics with the system already utilized in the Middle East Technical University. However, it has been decided to use new technologies in the new system.

3.2.2 Planning Stage

The planning activity encompasses a set of management and technical practices that enable to define a road map. At the stage of planning, the contributions and benefits of such a system to be utilized in Atilim University have been kept at the forefront.

In Atilim University, the academicians fill in a form regarding their academic studies throughout the year and forward it to the secretariats of the departments. However, as previously stated, it has been revealed that some of the academicians either filled the forms inaccurately or never filled them due to various reasons; and therefore implementation of a healthy control mechanism regarding this matter failed. It has also been realized that some papers might be lost or departments might forget to administer papers altogether (Liegle & McDonald, 2004). Sometimes, Academicians can not remember the whole activities that they have done during the year.

By the help of the system which will be developed, the academicians will be able to enter the entire activities that they have conducted throughout the year at any time and anywhere. There are three stages to approve those activities. At the first stage, department chair will be able to view only the studies in his/her own departments on personnel basis and will be able to approve them at the end of the year. At the second stage, dean of a faculty will be able to view the studies of whole departments in that faculty on personnel basis and will be able to approve at the end

of the year. Finally, the office of Rectorate may approve the studies conducted on the entire faculty basis.

There will be point calculation mechanism for the activities conducted by the academicians on faculty basis and at the end of the year, the academicians will be able to receive a total point for their entire activities. As the result of the information obtained, it has been acknowledged that the activity list utilized in METU has been emerged after long years of studies conducted by a commission composed of the academicians of METU. For this reason, types and names of the activities have been observed within the knowledge of the METU. Following a consultation held with the Rectorate of Atilim University, the names found to be appropriate have been included in the study and inappropriate ones have been replaced with new names as shown in Appendix B.

It has been thought that the point areas, where the activity points are entered, should be left blank and authorization should be granted to edit the activity name. Therefore, for each of the faculty, the activity points which are based on years can be entered in the system in a different manner. Likewise, in case of any requirement for an alteration or a modification on the names of the activities, it will be possible to edit and modify the activity in question.

Technological Requirements:

Because this is an internet based study, a framework will be needed for building, deploying, and running Web applications and Web Services. The notable web application frameworks, used for creating web applications (Action-links, 2007; Wikipedia, 2008) are listed below:

- Client-side
 - ActionScript
 - JavaScript
- Server-side
 - ASP.NET
 - ColdFusion
 - Java

- JavaScript
- Perl
- PHP
- Python
- Ruby
- Other languages/Multiple languages

Many languages listed below have an associated web application framework, (Wikipedia, 2008):

- Java
- C# and VB.net
- PHP
- Perl, Python and Ruby
- TCL
- Smalltalk
- JavaScript

Internet and Web based infrastructures are:

- Java
- .Net

With very few exceptions, web application frameworks are based upon platform independent languages that run on a variety of platforms. While some frameworks recommend particular configurations, most of them can run on Windows, Linux, Mac and other Unix-based platforms.

Many web developers are self-taught, learning HTML, and then moving on to a programming language such as PHP. From there, they often learn to integrate this with a database. Mention foreign keys, or referential integrity, and met with a blank stare. Oracle, SQL Server, My SQL, PostgreSQL and Access are examples of these databases. Small databases can be easily designed with little database theory knowledge. But large databases may easily get out of hand when badly designed, leading to poor performance, and resulting in a requirement to rebuild the whole database later, (TechRepublic 2007).

Similar online evaluation systems have been implemented with SQL, Perl, HTML in Drexel University (1998), implemented with SQL, PHP, HTML in Columbia University (1997), (Walters, 2005) and .Net for Internet and Web based infrastructure.

The goal of the Academic Evaluation System at Atilim University is to:

- Create a multi-purpose evaluation system
- Implement best features of other systems
- Use new technologies

In this study, developer prefers to use Microsoft SQL Server as a relational database management system (RDBMS), ASP.Net (Kamath, 2007; Developerfusion, 2007) as web application to design interfaces, C# for programming languages server code, and Visual Studio for development.

3.2.3 Analysis Stage

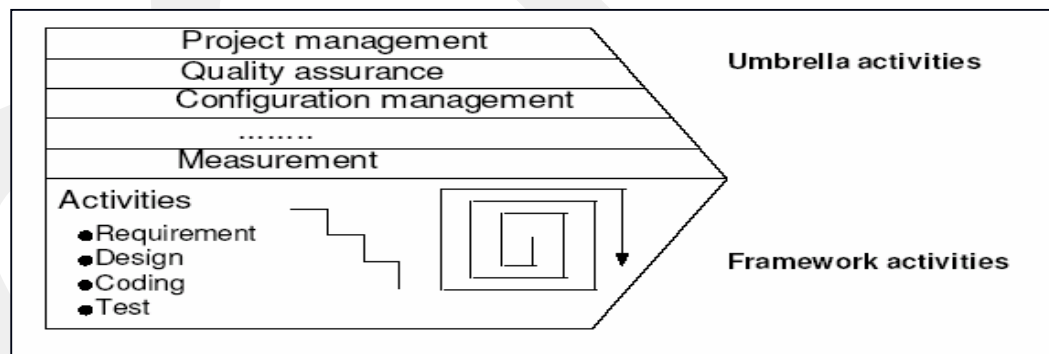


Figure 3.1 Analysis Modeling, (Pressman, 2005).

Analysis modeling in Figure 3.1, which is called structured analysis, considers data and the processes that transform the data as separate entities. Data objects are modeled in a way that defines their attributes and relationships. Processes that manipulate data objects are modeled in a manner that shows how they transform data as data objects flow through the system. A second approach is object oriented

analysis focusing on the definition of classes and on the manner in which they collaborate with one another to meet user requirements, (Pressman, 2005).

The analysis model used in this study combines features of both approaches. At the first step of analysis, data objects have been defined. The activity names have been determined as the names of the tables composing the database. Primarily, a user table (Figure 3.2) has been created and the other tables have been created from this user table. Field types have been formed for the each of the table. The set of attributes which is appropriate for a given data object, have been determined. Data objects have been connected to one another in different ways. Primary and foreign keys have been stated. Association transaction has been conducted between the tables.

UserID	FacultyID	Departmen...	UserName	Password	Name	Surna...	Personel...	UDate	UID
21	NULL	NULL	Administrator	D6kt2y9HUepPV...	Admin	User	admin	29.10.2007 2...	1
49	19	19	meltem	yR8MdqC+no/Y...	Meltem	Eryilmaz	Instructor	05.01.2008 1...	21
50	19	19	ali	MUoECCIUzI5e1...	ali	erkan	bb	06.01.2008 0...	21
51	19	19	a	GZP5jQtMY6niJA...	a	a	a	06.01.2008 1...	21
52	19	19	c	TbGBPGE2LEj0F...	c	c	c	06.01.2008 1...	21

Figure 3.2 Screen view of user table

At the second stage, classes have been identified. All classes in the study have been inherited from tables as shown in Figure 3.3. The properties of all classes equivalent to columns of the tables. On the other hand, UID and UDate columns have not been defined as 'Class Property' (MSDN Developer Center, 2007), because they have been provided as a database log.

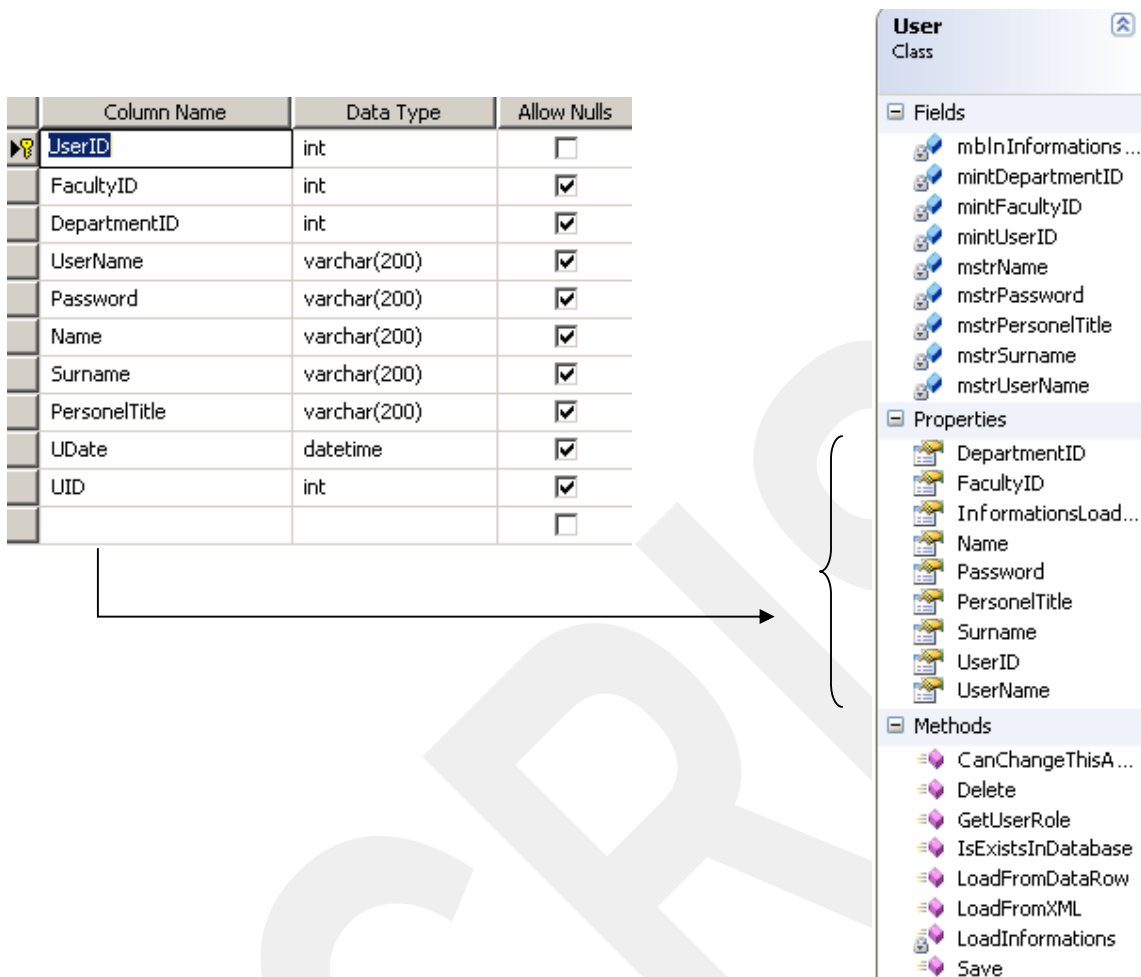


Figure 3.3 User table and User Class

3.2.3.1 Normalization:

According to Sommerwille, (2005), the definition of Normalization is:

- The process of decomposing unsatisfactory "bad" relations by breaking up their attributes into smaller relations

Normal form is:

- Condition using keys and FDs of a relation to certify whether a relation schema is in a particular normal form

In the normalization process of this study, the rules shown in Table 3.1 have been considered:

Normal Form	Test	Normalization
First (1NF)	Relation should have no multivalued attributes or nested relations	Form new relations for each multivalued attribute or nested relation
Second (2NF)	For relations where primary key contains multiple attributes, no nonkey attribute should be functionally dependent on a part of the primary key	Decompose and set up a new relation for each partial key with its dependent attribute(s). Make sure to keep a relation with the original primary key and any attributes that are fully functionally dependent on it
Third (3NF)	Relation should not have a nonkey attribute functionally determined by another nonkey attribute (or by a set of nonkey attributes). That is, there should be no transitive dependency of a nonkey attribute on the primary key	Decompose and set up a relation that includes the nonkey attribute(s) that functionally determine(s) other nonkey attribute(s).

Table 3.1 Summary of Normal Forms Based on Primary Keys and Corresponding Normalization , (Sommerwille, 2005).

3.2.3.2 UML Diagrams

The UML diagrams (Martin & Scott, 1999) in the study are:

- Use Case: Which users perform which actions?
- State: In what order are actions performed?
- Security: Which users may perform each action?

Use Case:

A use-case (Alistair, 2001; Jorgensen, 2001) captures the interactions that occur between producers and consumers of information and within the system itself. Use-cases (Use case, 2007) are particularly important parts of analysis modeling for user interfaces (Alexander & Zink, 2002; Daryl & Guiney, 2000). To begin developing a set of use-cases, the functions or activities performed by a specific actor have been listed.

In the study, as shown in Figure 3.4, it has been thought that a five-way authorization and responsibility mechanism should be utilized as different from the one utilized in METU.

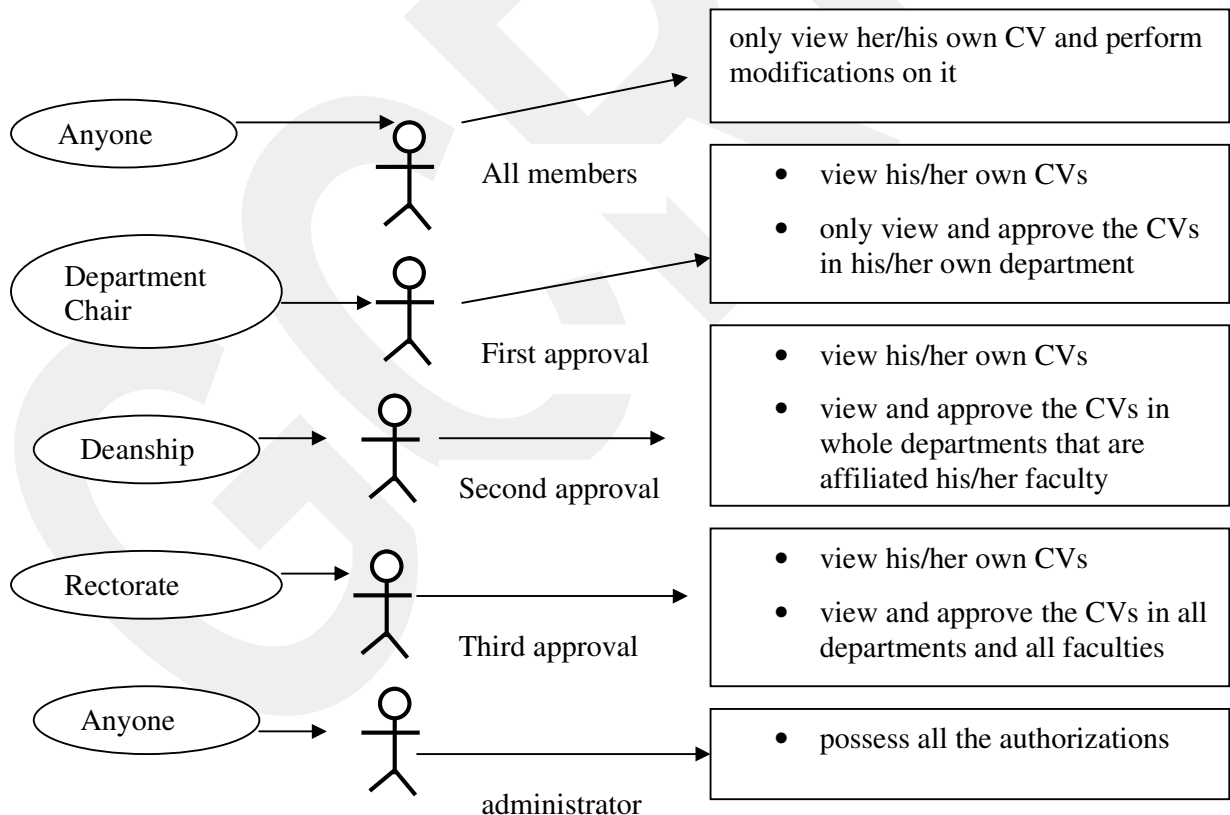


Figure 3.4 Authorization and Responsibility Mechanism of this study

The accounts of the faculties, departments and users will be created by the administrator. The administrator, at the same time, may determine the activity years and the authorizations of persons and may have the right to edit the activity names. The entire user control transactions will be conducted by the Administrator.

State:

The sample case diagram shown in Figure 3.5 has been designed to show the operational role of Department Chair of First Approval within the system. Execution will begin at the top of the diagram and proceed towards the bottom, starting with a login attempt. After First Acceptance operation, Second Acceptance Process will start.

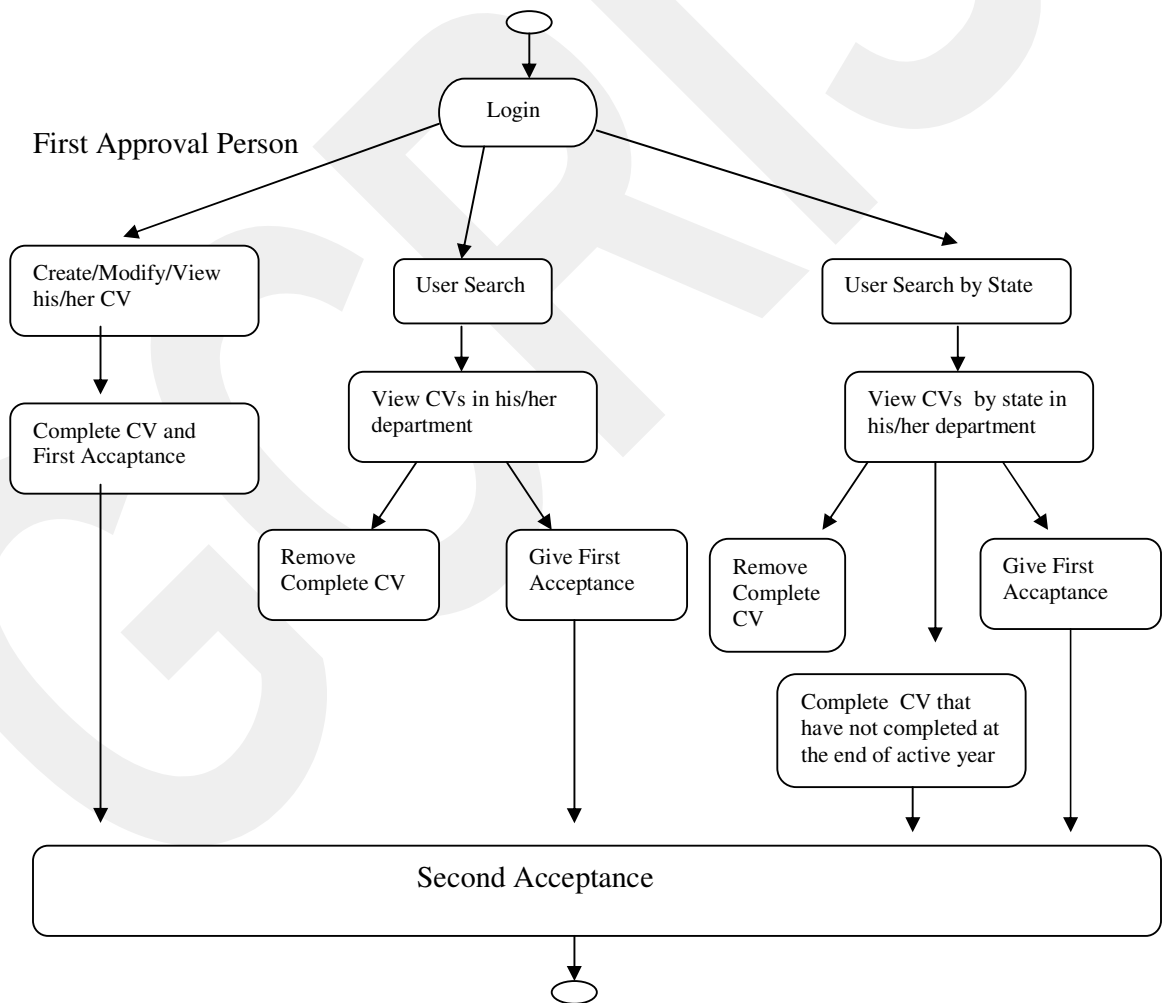


Figure 3.5 State UML Diagram for First Approval Person

Security:

The security diagram shown in Figure 3.6 has been designed to show the administrator's operations which are different from other users within the system.

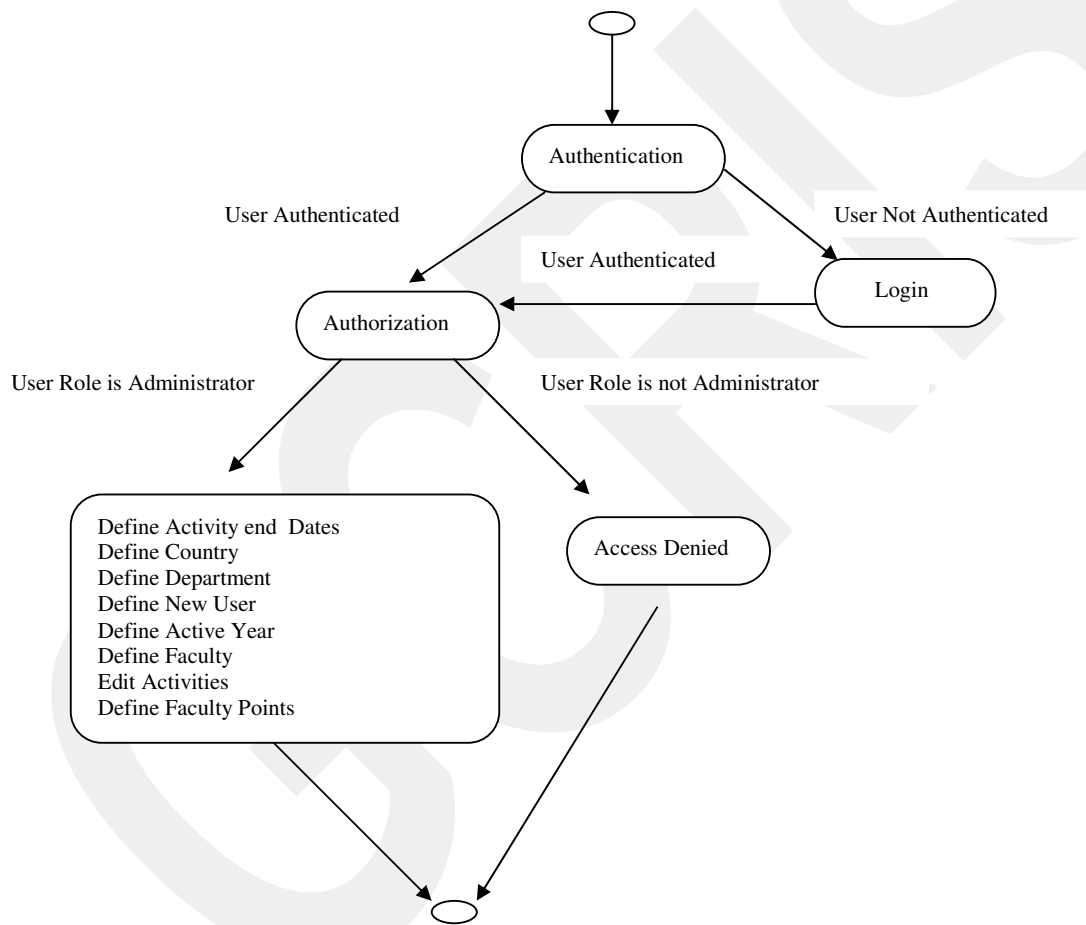


Figure 3.6 Security UML Diagram for Administrator

3.2.4 Design Stage

Each of the elements of the analysis model provides information that is necessary to create the four design models required for a complete specification of design. The flow of information during software design is illustrated in the Figure 3.7 below, (Pressman, 2005) :

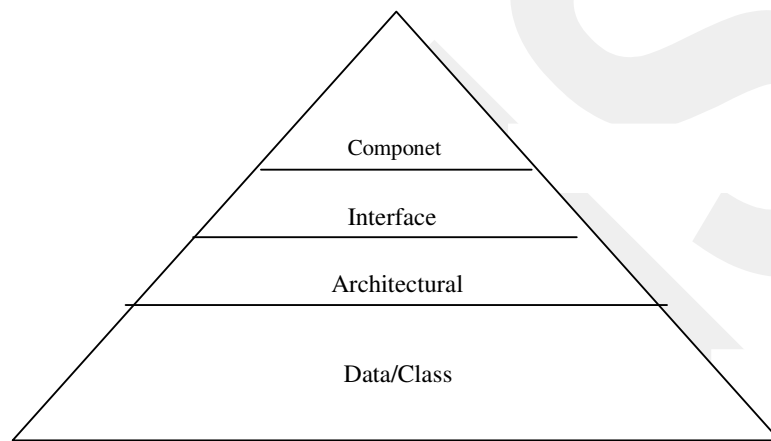


Figure 3.7 Design Model (Pressman, R., 2005)

In the design of this study, the design flow steps above have mostly been followed.

3.2.4.1 Data/Class Design level:

In this design level, the information which is to establish the database has been gathered. Stored Procedures have been formed for all tables. Afterwards, related classes have been developed.

Developing Classes:

All data classes in the study are inherited from tables. The properties of all classes equivalent to columns of the tables. On the other hand, UID and UDate columns are not defined as 'Class Property', because they are provided as a database

log. After getting information about related object from database, by using LoadfromDatarow method, object properties are filled from datarow.

The main class folders in the study are:

CV Class: Includes the classes in business layer of the study. There are two folders in this class. The first one is the Authority Folder. It includes the classes of processes for Authorization. The other is the Activity Folder. It controls user activities. There are two folders under the Authority and Activity Folders. Class and Stored Procedure (SP) Folders include the classes of stored procedure parameters for whole activities.

UtilCoreClass: It includes the classes in the Database Abstraction layer (Stevens, Peter, Ken & Stuart, 1998) of the study. It looks like a library that supplies easiness during programming.

3.2.4.2 Architectural level:

The database diagram of this study has been created in this level.

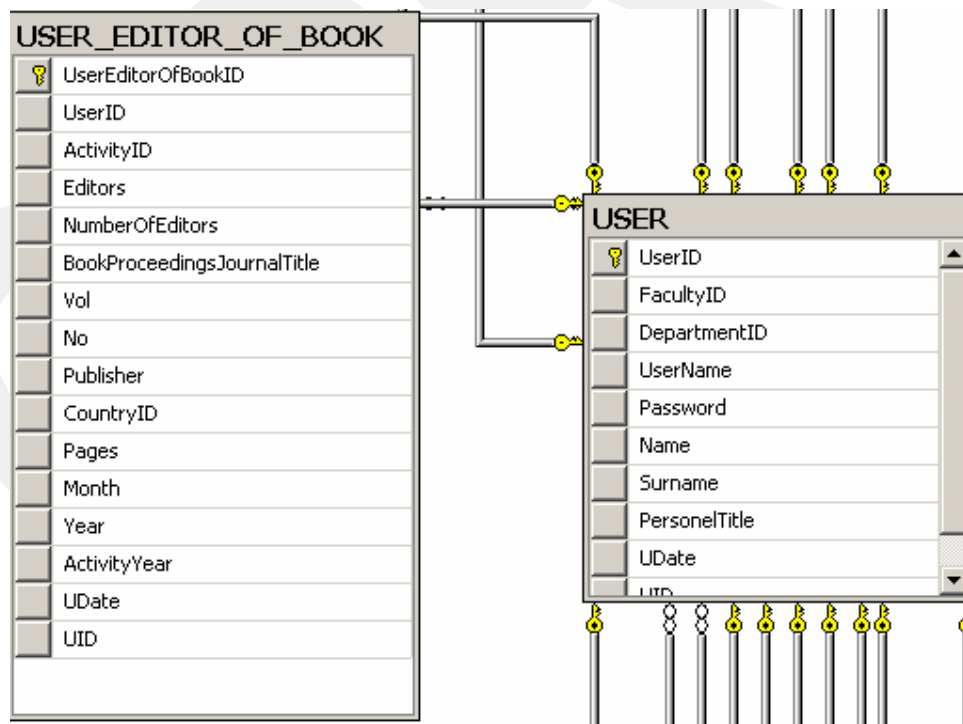


Figure 3.8 A part of the database diagram

The sub-systems about Authorization and Security have been designed in this level also.

Authorization:

There are five authorization mechanisms in the system. Administrator, All Members, First, Second and Third Approval. The tasks of these people are explained detaily in the System Features part.

Security:

The related methods and attached classes about Cryptography stand in the UtilCore class. The method of decryptdata under Cryptoutil.cs file in the security class of Utilcoreclass and usercontrol method under user.cs file, supplies security of the program. There is a “ User Login” box in the opening part. In order to use the system, username and password should be entered by the user. If there are any mismatches in either field, the user will not be allowed to use the other parts of the system.

3.2.4.3 Interface Level:

The analysis and design process for user interfaces of this study is iterative and can be represented using a spiral model (Figure 3.9).

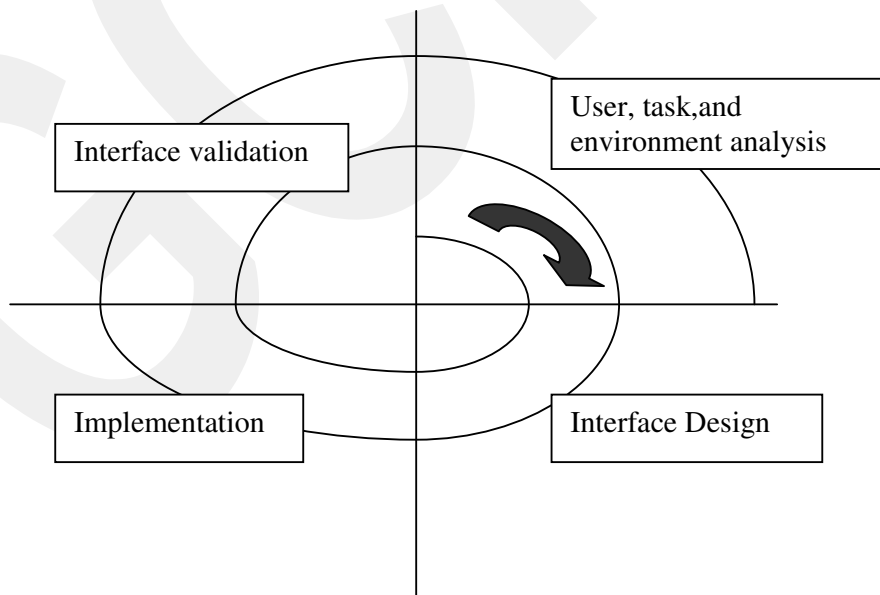


Figure 3.9 Spiral Model

Referring to the Figure 3.9 above, the user interface analysis and design process encompasses four distinct framework activities:

- User, task and environment analysis and modelling
- Interface design
- Interface implementation
- Interface validation (Pressman, 2005; Ian, 2002)

In the interface level of this study, the framework activities stated above have been followed. The profile of the users that will interact with the system, are the Academic Staff of Atilim University. Different user categories have been defined in the task analysis part; like administrator, all members, first, second and third approval. First approval person refers to department chair, Second approval person refers to dean of a faculty, Third approval person refers to rector of the university. “All members” refers to the whole academic staff of the university.

In the first part of the interface design, the objects and actions have been defined and elaborated iteratively. A description of a use-case has been written. Based on the use-case tasks, objects and data items have been identified:

- Main Page called MainPage.aspx , has been designed by using ASP.Net (WeblogsAsp.Net, 2007)
- Enters User Name and password to allow remote access
- Checks System Status

In the implementation part of user interfaces, ASP.Net has been used. The following four main folders have been created. Activity, ASCX, ASCX General Folder and Authority Folder.

ASCX : Includes User Controls of the Study.

ASCX General Folder: Includes javascripts, pictures and css files of the user controls.

Authority Folder: Includes the interfaces related to authorization.

Activity Folder: Includes the interfaces that show the whole activities.

3.2.4.4 Component Level:

In the component level design of the study, the internal details of each interface have been planned.

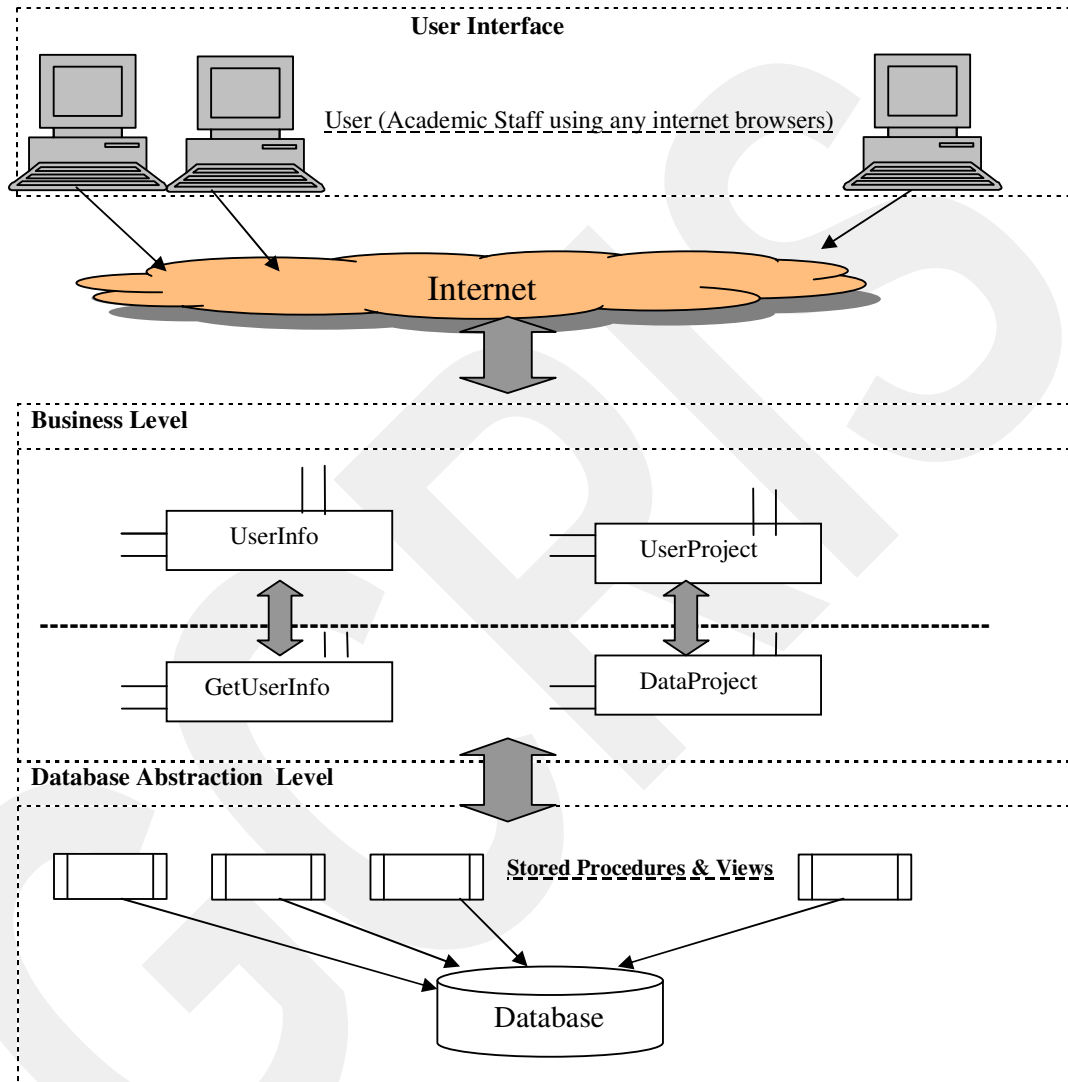


Figure 3.10 Structure of the Online Academic Staff Evaluation System

There are three levels in the structure of the system as shown in Figure 3.10. Database Abstraction Level, Business Level and User Interface Level.

The Database Abstraction Level is responsible for:

- Storage of data
- Retrieval of data, using stored procedures
- Integrity of data

These functions are supported by the Stored Procedures and views developed for this system and system facilities of Microsoft SQL Server 2005 (TechRepublic, 2007).

The Business Level is responsible for:

- Receiving input from the presentation tier (user interface)
- Interacting with the data services to perform the business operations the application of which has been designed to automate (for example, user registration, login access etc.)
- Sending the processed results to the presentation tier

Business Level is divided into two parts:

The first one is presented by two components, User Info and User Project, which provide exchange data between User Interface and the second part of the business level (GetUserInfo). It protects direct access to the data on the server, warranting an appropriate level of security and integrity of data, (Pougatchev, George, Lue & Williams, 2006 ; Jacobson, 1992; Ian & Kiedaisch, 2002). The second part is presented by two components GetUserInfo and Data Project. These components are responsible for exchange data between the first part of the business level and the data level of system interacting with the database through the stored procedures and views on the server.

Business rules of this study are the set of routings that carry out a range of functions (methods), which are represented by the components described in the Figure 3.1.

The User Interface Level is responsible for:

- Gathering information from the user (login to the system, registration)

- Presenting those results to the user

3.2.5 Coding Stage

In the Coding Part, C# (C# Corner, 2007) object oriented programming language have been used for creating all classes. This study has been developed in the C# .NET programming language, using HTML and JavaScript for client-side code and C# server-side code (which includes server-side script embedded in HTML pages). System takes full advantage of role-based authorization in the .NET (Wright & Maurer, 2000) security model and also implements its own web services that can be called by various other web applications on the Internet. The following sections describe the implementation of the major components of system.

Authentication and Authorization:

The .NET security model operates in two basic modes: windows authentication and forms authentication. Windows authentication uses a user's login information, as provided when they log into the Windows operating system installed on their local machine, to authenticate a user. For web-based system like Academic Staff Evaluation , the forms authentication method is much more practical, (Walters, 2005). Forms authentication allows a user to log in with a username and password they provide on an HTML form. If valid login information for all system users is stored in a SQL Server database, as it is for system, forms authentication looks up a username and password in the database to authenticate a user attempting to log into the system.

The sibling component of forms authentication is URL authorization. URL, or rolebased authorization may be considered as folder-based protection. When a user is authenticated with forms authentication, their roles are assigned to their identity in the form of an Internet cookie that is used for authorization. A web configuration file is used to specify which folders can be accessed by users of specific roles. If a user is not authenticated (has not provided a valid login) or attempts to access a folder she/he is not authorized to access, she/he will be redirected to a web page specified in the web configuration file.

When a user logs into system, she/he specifies the account that she/he logs into and provides a username and password. Her/his username and password are looked up in the specified account database's "Users" table to authenticate the user.

Furthermore, an authenticated user's ID is looked up in each of the account database's role tables to build a list of the user's roles. The user's ID is also looked up in the system database's "User" table to determine if the user is the account's administrator. All of the user's roles, since users may be members of multiple roles, are attached to their identity in the form of a cookie used to authorize them on system web pages. After successfully logging into the system, users are taken to an action page that dynamically presents options to them based on their roles. Users who are not authenticated or authorized are redirected to the system home page, which is also the system login page.

3.2.6 Testing Stage

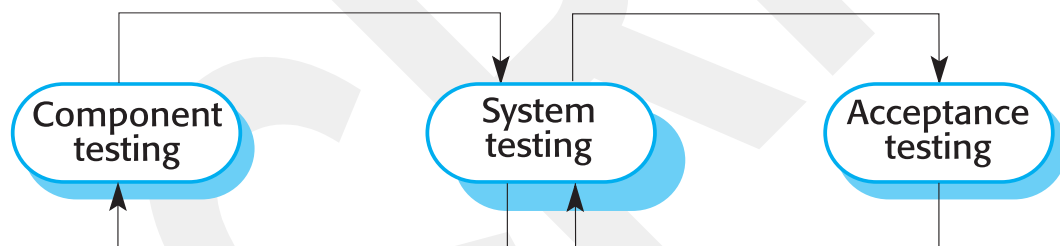


Figure 3.11 Testing Stages of the Study

The Testing Stage of the study is divided into three parts as shown in Figure 3.11 (Summerville, 2005), but has not been completed fully due to time constraint. Only part of the system testing has been accomplished by the advisor of this thesis.

1. Component or unit testing

- Individual components should be tested independently;
- Components may be functions or objects or coherent groupings of these entities.

In this study, operations within the class are the smallest testable units.

2. System testing

- Testing of the system as a whole. Testing of emergent properties is particularly important.

In this step, the advisor of this thesis has logged into the system with different user roles, entered his own test data and run the application. Whole system testing is not completed.

3. Acceptance testing

- Testing with customer data to check whether the system meets the customer's needs, (Summerville, 2005; Jackson, 2001).

CHAPTER 4

SYSTEM FEATURES

4.1 User Page Layout



The image shows a user login interface for Atilim University. At the top, there is a blue header bar with a logo on the left and the text "ATILIM UNIVERSITY Academic CV Program" on the right. Below the header is a red-bordered box titled "User Login". Inside this box, there are two input fields: "User Name :" and "Password :". Below the password field is a blue "Login" button.

Figure 4.1 Screen view of starting page

In the entry page, as shown in Figure 4.1, there is a “ User Login” box. In order to use the system, user has to enter his/her username and password pairs. If those pairs are mismatched in either field, the user will not be allowed to use the

other parts of the system. After sending a valid username and password, system will open a session for this user. All the session information is stored in the server.

The system recognizes the user level so that it behaves in a different fashion to different user levels. There are five type of user levels identified in the system:

- Administrator
- All Members
- First Approval
- Second Approval
- Third Approval



Figure 4.2 Screen view of intro page of administrator

For instance, as shown in Figure 4.2, when administrator logs into the system, two options appear on the left side of the page. On the other hand, if a staff who is identified as “AllMembers” logs into the system, a different page appears as shown in Figure 4.3.



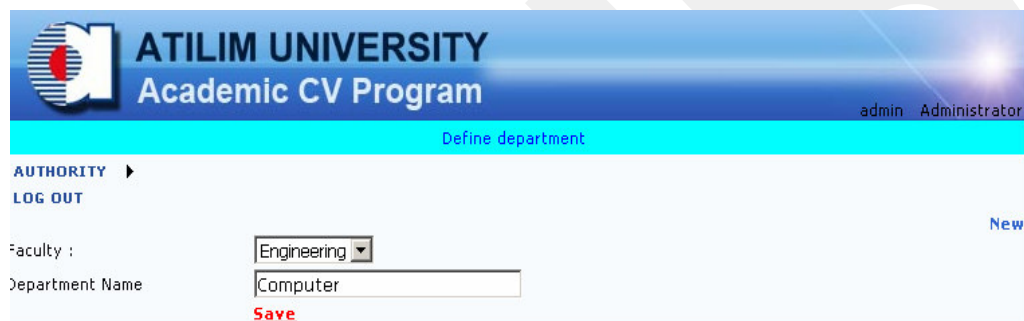
Figure 4.3 Screen view of first page for “AllMembers”

A staff who is identified as “administrator”, will be responsible for all the processes below:

- Definition of New User
- Definition of Department
- Definition of Faculty
- Definition of Faculty Points
- Definition of Activity Termination Dates
- Definition of Country
- Definition of Active Year
- User Search
- User Search by State
- Edit Activities
- View of Faculty Points

4.1.1 Data Entry to the System

Data Entry to the system is defined to be done by the administrator. At the beginning of the process, the administrator creates a Faculty. If there is no Faculty identified to the system, administrator can not create a department and can not create a new user. After identifying a Faculty, administrator can define a new department which is related to the faculty identified before as shown in Figure 4.4.



The screenshot displays the 'Define Department' page. At the top, there is a blue header with the ATILIM UNIVERSITY logo and the text 'ATILIM UNIVERSITY Academic CV Program'. To the right of the header, the user is identified as 'admin Administrator'. Below the header, the page title 'Define department' is centered. On the left side, there are links for 'AUTHORITY' and 'LOG OUT'. The main form area contains a 'Faculty' dropdown menu with 'Engineering' selected, and a 'Department Name' text input field containing 'Computer'. A red 'Save' button is located below the form. A 'New' link is visible on the right side of the form area.

Figure 4.4 Screen view of Define Department page

For instance, as shown in Figure 4.5, when administrator presses “Save” option, there appears “Save Completed” message with the names of the faculty and the department. If administrator writes the same department name multiple times, a warning message appears on top of the page. To control the data entry, New, Edit and Delete options are also present on the page.



Figure 4.5 Screen view of Define Department (Continue)

4.1.1.1 New User Definition

The other important part of the data entry is to define a New User. As shown in Figure 4.6, administrator can define a new user by selecting his/her faculty and department name, and then enters user name, password.

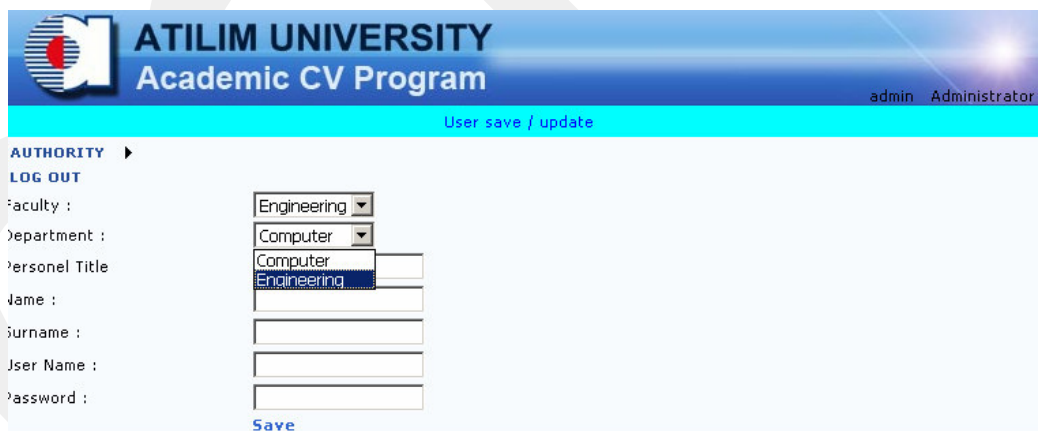


Figure 4.6 Screen view of User save/update

Administrator is also responsible for the authorization of the users. As shown in Figure 4.7, the staff created previously, can be authorized with the “Authorize” option.

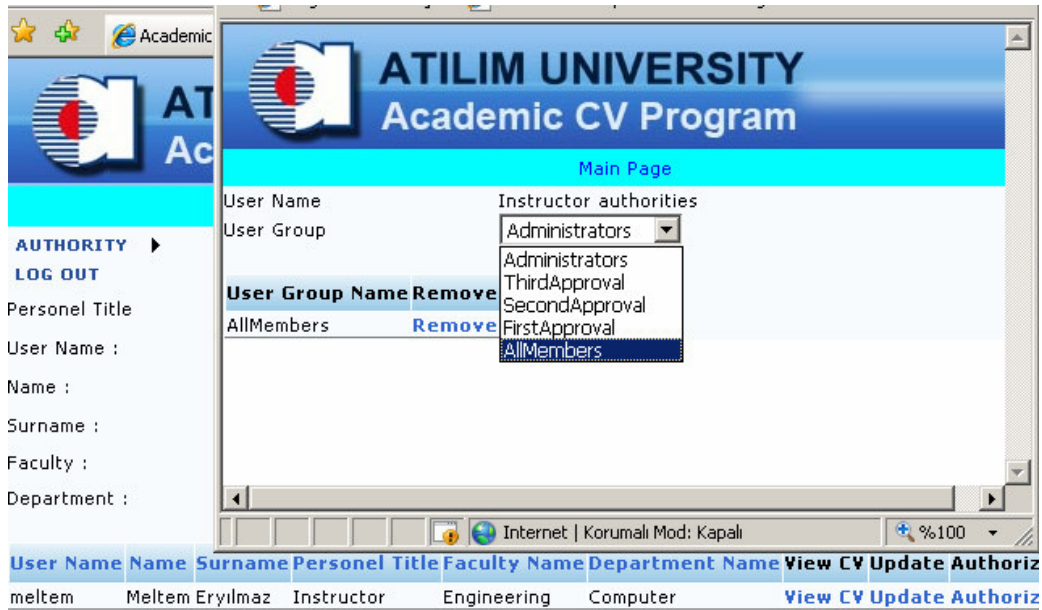


Figure 4.7 Screen view of Authorize

4.1.1.2 Active Year Definition

In the system, there is an active year control function. Administrator can adjust the system so that the users can view, edit and delete the information according to given year.

4.1.1.3 Activity End Dates

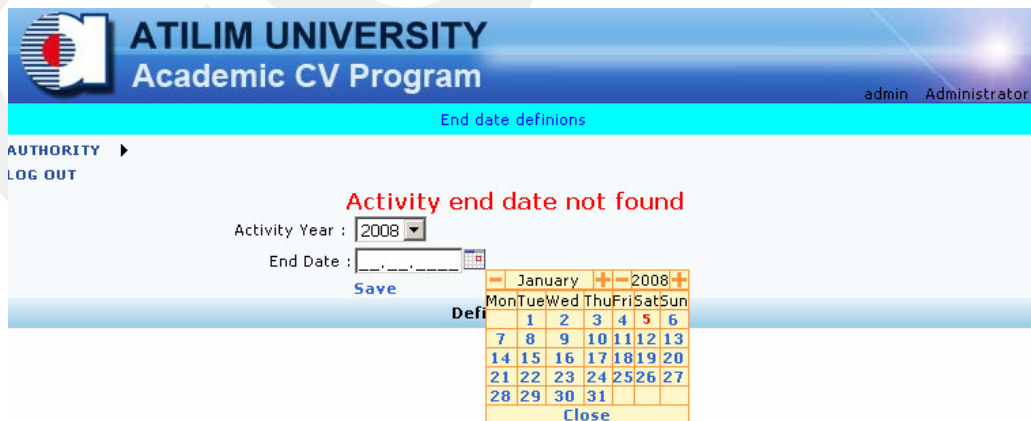


Figure 4.8 Screen view of End Date Definition

“Activity end date” function controls the data entry of activities in the selected calendar. User can not enter any activity after end date.

4.1.1.4 Faculty Points Definition

There is a calculation mechanism for the activities realised by the academicians in terms of points on faculty basis and they are able to receive a total point for the entire activities of the academicians at the end of the year.

As shown in Figure 4.9, for each of the faculties, it is possible to enter the activity points based on years in a different if any alteration or modification is required on the names of the activities. That activity may easily be edited and modified.

ATILIM UNIVERSITY
Academic CV Program

admin Administrate

Define faculty

AUTHORITY ►
LOG OUT

Faculty Name:

Year :

Activity Code	Activity Title	Activity Name	Point
1.1.1.0.1	PUBLICATIONS, EDITORIAL WORK & TRANSLATION /INTERNATIONAL/JOURNAL PAPER	Full paper published in a peer reviewed journal covered by SCI, SSCI or AHCI core list	<input type="text"/>
1.1.1.0.2	PUBLICATIONS, EDITORIAL WORK & TRANSLATION /INTERNATIONAL/JOURNAL PAPER	Full paper published in a peer reviewed journal covered by SCI, SSCI or AHCI core lists	<input type="text"/>
1.1.1.0.3	PUBLICATIONS, EDITORIAL WORK & TRANSLATION /INTERNATIONAL/JOURNAL PAPER	Full paper published in a peer reviewed journal covered by an international index or in a non-refereed journal of type 1.1.1.0.1 or technical note, case study published in a journal of type 1.1.1.0.1	<input type="text"/>
1.1.1.0.4	PUBLICATIONS, EDITORIAL WORK & TRANSLATION /INTERNATIONAL/JOURNAL PAPER	Full paper published in a peer reviewed journal selectively covered by SSCI, AHCI or of type B or letter to the editor, technical note, discussion, case study published in a journal of type 1.1.1.0.2	<input type="text"/>
1.1.1.0.5	PUBLICATIONS, EDITORIAL WORK & TRANSLATION /INTERNATIONAL/JOURNAL PAPER	Full paper published in an international journal of type C or letter to the editor, technical note, discussion, case study published in a journal of type 1.1.1.0.4	<input type="text"/>
1.1.1.0.6	PUBLICATIONS, EDITORIAL WORK & TRANSLATION /INTERNATIONAL/JOURNAL PAPER	Letter to the editor, technical note, case study, discussion type paper published in a journal of type 1.1.1.0.3 or 1.1.1.0.5 or full paper published in a non-refereed journal of type 1.1.1.0.3	<input type="text"/>

Figure 4.9 Screen view of Define Faculty Points

4.1.1.5 Edit Activities

As shown in Figure 4.10, administrator can edit the activities list and can change the name of the activities.

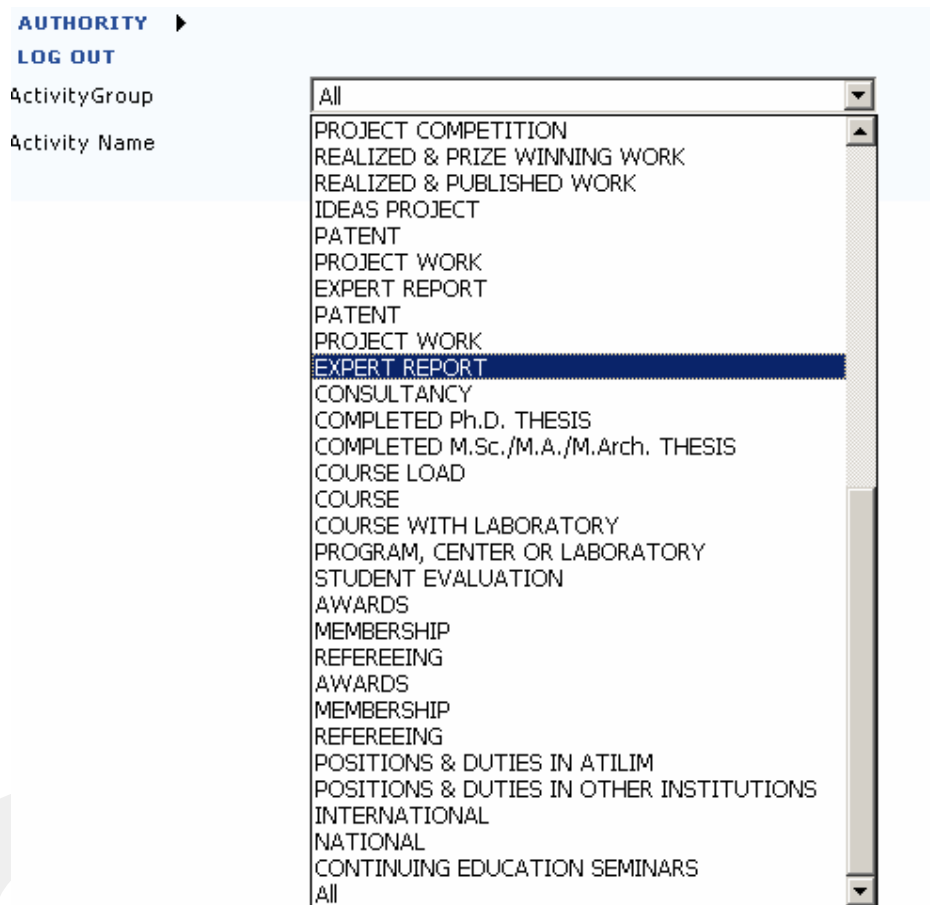


Figure 4.10 Screen view of Edit Activities

4.1.2 Activity Entrance

Figure 4.11 shows an example of activity entrance page. When a user logs into the system, a list related to the activities appears.

ATILIM UNIVERSITY
Academic CV Program

Instructor meltem

User Completed Thesis Save

PUBLICATIONS, EDITORIAL WORK & TRANSLATION ▶
 PROFESSIONAL AND OTHER RESEARCH ACTIVITIES ▶
 EDUCATIONAL ACTIVITIES ▶ **THESES SUPERVISION** ▶ COMPLETED Ph.D. THESIS
 MEMBERSHIPS & AWARDS ▶ COURSE LOAD ▶ COMPLETED M.Sc./M.A./M.Arch. THESIS
 OTHER ACTIVITIES ▶ DEVELOPMENT
 EDUCATION
 EMPLOYMENTS
 COMMENTS
 MY CV
 LOG OUT

Activity Year: 2008 ▼
 2007
 2008

Activity : 1.1 THESIS SUPERVISION COMPLETED Ph.D. THESIS/Sole supervisor
 4.0.1.1.2 THESIS SUPERVISION COMPLETED Ph.D. THESIS/Principal supervisor
 4.0.1.1.3 THESIS SUPERVISION COMPLETED Ph.D. THESIS/Co-supervisor

Thesis Title :

Student Name :

Month : 1 ▼
 Year : 2008 ▼
 University :

Figure 4.11 Screen view of activity entrance page

To create her/his own CV, user fills the related areas that are shown. The system shows the activity information under “MY CV” option. As shown in Figure 4.12, when “MY CV” option is selected by the user, the name of the user appears on the page with the previously entered activities.

Users can change their information whenever they want ~~wanted~~, but surely before completion. If users do not complete by pressing “Complete” button located at the left side of page in a given period of time, then the system automatically completes the cv without any confirmation.

[PUBLICATIONS, EDITORIAL WORK & TRANSLATION](#) ▶
[PROFESSIONAL AND OTHER RESEARCH ACTIVITIES](#) ▶
[EDUCATIONAL ACTIVITIES](#) ▶
[MEMBERSHIPS & AWARDS](#) ▶
[OTHER ACTIVITIES](#) ▶
[EDUCATION](#)
[EMPLOYMENTS](#)
[COMMENTS](#)
[MY CV](#)
[PERSONAL INFORMATION](#)

Show activities for :

Instructor Meltem Eryılmaz's CV:

[View Points](#)

Administrative Duties

Awards

Books

Citations

Comments

Completed Thesis

Activity Year	ActivityCode	Title	Student Name	Month	Year	University	Country	Delete
2008	4.0.1.1.2	MIS	elif	1	2007	METU	Türkiye	Delete

Conference & Organizations

Figure 4.12 Screen view of MY CV option

4.2 User Management

All staff shall have usernames and passwords.

4.2.1 Authorization:

1.All Members:

A person who is authorised as “AllMember”, will be responsible for his/her information only. By using this program,“AllMember” will define his/her annual academic performance in the MY CV option till the announced dead line. Activity definition can be done for previous and active year, but in order to define the activities for the previous year, acceptance should be received from an upper authorization level.

When the process is finished, user presses the“Complete” button. If the user do not complete to define his/her activities till the end of the given time period and do not press the “Complete” buton, then the system completes the CV authomatically without any confirmation at the activity end date. After finishing the process it is not possible to enter or change the data by the user. Any change can be done if and only

if the chairman of the department permits and uses the “Remove Completed” function for any user.

The list of the activities can be seen from the “MY CV” option during the activity year.

2.First Approval (Department chair):

After entering password and username, the same page as “All Members”, except for “AUTHORITY” option appears on the second page. First Approval person defines his/her activities same as “All Members”. But as shown in Figure 4.13, first approval person can see his/her department staff list only, can control staffs’ information, can make changes if necessary and then gives the first acceptance.

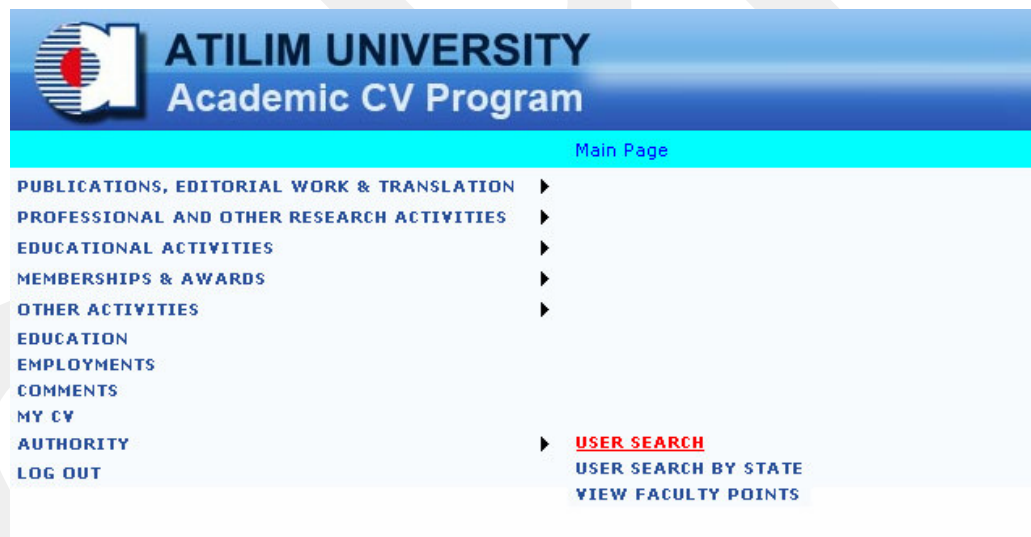


Figure 4.13 Screen view of First Approval Person

First approval person can not see any information and data about the other departments and faculties. By pressing “Remove Completed” button, ending process of the user is removed in case of unacceptable situations. After first acceptance, the process completed automatically even if it is not completed by the user and user can not do any changes on his/her CV.

Under “User Search By State” option, First Approval Person can see the users by their stages, can complete the users’ CV, if they have not been completed yet or can remove complete process as shown in Figure 4.14.

	Faculty Name	Department Name	Personel Title	User Name	Name	Surname	Year	State	Total Point
<input type="checkbox"/>	Engineering	Computer	Instructor	meltem	Meltem	Eryilmaz	2007		5
<input type="checkbox"/>	Engineering	Computer	bb	ali	ali	erkan	2007		0

Figure 4.14 Screen View of User Search By State

By choosing “View Faculty Points” option , First Approval person can see the points of his/her departments only.

3.Second Approval (Dean):

After entering password and username, a page which is the same as the First Approval page appears. The difference from the former one is that Second Approval person can see the other departments of his/her faculty. Second Approval person defines his/her activities same as all members and First Approval person. By

choosing “View Faculty Points” option , Second Approval person can see the points of all departments in his/her faculty.

The Second Approval person chooses the staff from the staff list, controls his/her information, makes the changes if necessary and then gives the Second acceptance.

4.Third Approval (Rectorate):

Differing from the other user levels, Third Approval person can see all faculties and departments. The other difference is point calculation. After third approval, point calculation can be done under “Point Calculate” option as shown in the example of Figure 4.15.

Show activities for :

Instructor Meltem Eryilmaz's CV:

Year	State	Point	Complete	Third Approve	Point Calculate	Approve History
2007	Point Calculated	5	Completed	Third Approved	Calculate	View Approve History
2008	Second Approved	0	Completed	Third Approved	Calculate	View Approve History

Figure 4.15 Screen view of Third Approval Person

The state, the date and the name of the person who approved the user can be seen under “View Approve History” option . Figure 4.16 shows an example of “Activity Approve History “ page.



ATILIM UNIVERSITY
Academic CV Program

Activity Approve History

Title	Name	SurName	Date	ApproveState	State
bb	ali	erkan	06.01.2008	2	FirstApproved
a	a	a	06.01.2008	3	SecondApproved

Figure 4.16 Activity Approval History

By choosing “View Faculty Points” option , Third Approval person can see the points of all departments and all faculties.

5.Administrator

As stated before, Administrator has the whole authority to control the system.

Figure 4.17 shows an example of Administrator Page after selecting a user’s cv.

ATILIM UNIVERSITY Academic CV Program

admin Administrator

Main Page

AUTHORITY ▾
LOG OUT

Show activities for : All

Instructor Meltem Eryilmaz's CV:

Year	State	Point	Complete	Rem.Complete	First Approve	Second Approve	Third Approve	Point Calculate	Approve History
2007	Point Calculated	5	Completed	Completed	First Approved	Second Approved	Third Approved	Calculate	View Approve History
2008	Second Approved	0	Completed	Completed	First Approved	Second Approved	Third Approved	Calculate	View Approve History

View Points

Administrative Duties

Awards

Books

Citations

Comments

Completed Thesis

Activity Year	ActivityCode	Title	Student Name	Month	Year	University	Country	Delete
2008	4.0.1.1.2	M15	elif	1	2007	METU	Türkiye	Delete

Conference & Organizations

Figure 4.17 Screen view of Administrator’s Page

4.2.2 Point Calculation

As indicated in the Chapter 3, there is point calculation mechanism for the activities conducted by the academicians on faculty basis, as a result of which the

academicians receive points for their activities during the year in question. All the points are calculated according to actual year. Any change on the points do not affect the calculations of the past years.

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CHAPTER 5

CONCLUSION & FUTURE WORK

In the last two decades the improvements in the information and communication technologies, have brought along the revaluation of the qualities of the higher education systems of the countries. Evaluations of Academic staffs' annual activities have taken an important place in the interior and exterior evaluation procedures of the higher education institutions, in order to enhance their academic education qualities.

Similarly, like most of the universities abroad, in the universities of our country, Turkey, quality improvement studies have increased and taken an important place on the agenda of the managements of the universities. A study has been already done for the methods of the academic staff evaluation in the Turkish Universities. Several universities in different regions were have been selected and contacts with related units have been achieved. Although there has been no possibility to have any face to face discussions with the universities located in the cities other than Ankara, by the help of internet and telephone calls, discussions and estimations have been done about their methods. In some of those contacts, related departments of certain universities have hesitated to give their detailed methods of the academic staff evaluations. It has been determined that in the universities which accepted to disclose details of their staff evaluation methods, annual activities of the staff have been taken down on the manually filled forms or on "Word" documents prepared by the staff which have been subsequently submitted to the university secretariat. It has also been noted that those evaluations forms have generally been filled improperly as they have not been standardized in most of the universities.

Until this semester in Atilim University, academic staff evaluation reports were prepared under “Word” documents by the staff and delivered to the university secretariat. An online database including all the data about the university staff has become important more and more. As a result of the discussions with the top management of the university, it has been concluded to develop an online database system for the academic staff evaluation is decided to be very useful for performance enhancement.

This thesis is a study for the development of the online basis Academic Staff Evaluation System for Atilim University. A web based software has been developed according to software engineering methods in consequence of this study. This system uses web technologies like an ASP.NET web application in C# server-side code, HTML, and JavaScript for Internet purposes.

Every software development project may use combination of several models. Acceptable features of more than one software model are applied to this study because application of only one model is unable to serve its absolute needs.

Since the requirements of the university may change during development the selected process model should be an appropriate model to accommodate a system evolving over time, like Evolutionary Process Models. The features of a spiral model which is also an evolutionary software process model has mostly been used in the study. An important feature of the spiral model, as with most of the other models, is completion of each cycle only by a review of the related academic staff. This review covers all components developed during the previous cycle, including the plans for the next cycle and the resources required to carry them out.

The benefit of this system being an online system is that it is accessible to academicians willing to enter data at anytime and anywhere. Since the forms are already in a digital format, time and money typically spent on overhead tasks will be saved. Digitally stored data could be readily used for analysis and establishing historical trends and comparisons. By the help of this system, University can perform evaluations at any time during the year. Faculty Administration can view results immediatelly. Academicians can get feedback easily for self improvement.

Limitations:

Some limitations have been encountered during the study:

1. Because of the geographical difficulties to access the universities outside Ankara, phone calls have been preferred to get information.
2. Some of the universities have hesitated to give sufficient information about their evaluation systems for confidentiality reasons.
3. Although the evaluation system has been completed and transferred to the internet, all the academic staff has not been enabled to use it and therefore the system could not be tested for an acceptance at this stage.
4. Testing stage has not been completed fully due to time constraint.

Future Work:

The system-based enhancements include issues with system setup and security. Database deletion and renaming could be made more reliable.

Developer-based enhancements are those that would ease the maintenance of academic evaluation system:

For example, the academic evaluation error system could be much improved through the use of an “Errors” database table. Academic evaluation system currently stores error information in server session variables which are passed to the system error page when program exceptions are thrown (when an unexpected error occurs). Sometimes these events occur at a point in the application where the session object is not available yet. In such a case storing information in a database may be very helpful for debugging. Database values may then be used to display error information on the academic evaluation system’s error page. The other one is Backup Facility. Backup Facility could be developed.

The last category, user-based enhancements, consists of enhancements that would improve an academic evaluation system user’s experience. For example, users may ask for more controls on forms in addition to the “select” and “textbox” control types currently provided by the system.

Although the academic evaluation system is a working product, it is obvious that there is much to be done in order to make it better.

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APPENDICES

Appendix A- Questions about “Academic Staff Evaluation” in different Universities outside Ankara

1. Department name:
2. How long have you been an academic staff member in your current department/unit/center?
 - a) less than 1 year
 - b) 1-5 years
 - c) 6-10 years
 - d) 11-15 years
 - e) 16-20 years
 - f) more than 20 years
3. Are your evaluations:
 - a) annual
 - b) every other year
 - c) never
 - d) don't know
 - e) other
4. If you are evaluated, what method is used?
 - a) written
 - b) verbal
 - c) both
 - d) online
5. By whom?
 - a) Supervisor
 - b) Department Chair
 - c) Executive Committee
 - d) Other
6. What are the advantages of the method used to evaluate you?

- a) written
- b) verbal
- c) both
- d) online

7. What are the disadvantages?

- a) written
- b) verbal
- c) both
- d) online

8. Are you satisfied with the method of evaluation used for you?

- a) yes
- b) no
- c) unsure

9. What evaluation method would you prefer?

- a) written
- b) verbal
- c) both
- d) online

10. How often would you like to be evaluated?

- a) annual
- b) every other year
- c) never
- d) don't know
- e) other

11. Are you satisfied with the person who evaluates you?

- a) yes
- b) no
- c) unsure

12 Who would you like to evaluate you?

- a) Supervisor
- b) Department Chair
- c) Executive Committee
- d) Other

13. Do you have any other concerns about the evaluation methods in your department?

Appendix B-Annual Performance Assessment Scheme in Atilim University

CODE	ACTIVITY NAME	POINTS	
		BS&E	SS&AS
1	PUBLICATIONS, EDITORIAL WORK & TRANSLATION		
1,1	INTERNATIONAL		
1.1.1	JOURNAL PAPER		
1.1.1.0.1	Full paper published in a peer reviewed journal covered by SCI, SSCI or AHCI core list		
1.1.1.0.2	Full paper published in a peer reviewed journal covered by SCI, SSCI or AHCI core lists		
1.1.1.0.3	Full paper published in a peer reviewed journal covered by an international index or in a non-refereed journal of type 1.1.1.0.1 or technical note, case study published in a journal of type 1.1.1.0.1		
1.1.1.0.4	Full paper published in a peer reviewed journal selectively covered by SSCI, AHCI or of type B or letter to the editor, technical note, discussion, case study published in a journal of type 1.1.1.0.2		
1.1.1.0.5	Full paper published in an international journal of type C or letter to the editor, technical note, discussion, case study published in a journal of type 1.1.1.0.4		
1.1.1.0.6	Letter to the editor, technical note, case study, discussion type paper published in a journal of type 1.1.1.0.3 or 1.1.1.0.5 or full paper published in a non-refereed journal of type 1.1.1.0.3		
1.1.2	CHAPTER IN A BOOK		
1.1.2.0.1	Chapter in a book of type 1.1.3.0.1		
1.1.2.0.2	Chapter in a book of type 1.1.3.0.2		
1.1.3	BOOK		
1.1.3.0.1	Scientific, professional books, textbooks published by internationally known publishers		
1.1.3.0.2	Scientific, professional books, textbooks published by other international publishers		
1.1.4	EDITOR OF A BOOK		
1.1.4.0.1	Editor of a book of type 1.1.3.0.1		
1.1.4.0.2	Editor of a book of type 1.1.3.0.2		

1.1.5	CONFERENCE PAPER		
1.1.5.0.1	Full paper presented at and published in the proceedings of a refereed conference regularly held by an international organization		
1.1.5.0.2	Abstract of a paper presented at and published in the proceedings of a refereed conference regularly held by an international organization		
1.1.6	CONFERENCE PRESENTATION		
1.1.6.0.1	Unpublished presentation in a refereed conference regularly held by an international organization		
1.1.7	EDITOR OF A PROCEEDINGS OR A SPECIAL ISSUE		
1.1.7.0.1	Editor of the proceedings of a conference of type 1.1.5.0.1 or of the special issue of a journal		
1.1.8	TRANSLATION OF A BOOK		
1.1.8.0.1	Published translated book of type 1.2.3		
1.1.9	TRANSLATION OF A PAPER/CHAPTER		
1.1.9.0.1	Published translated paper of type 1.2.1 or book chapter of type 1.2.2		
1.1.10	CITATIONS		
1.1.10.0.1	Each citation by other authors		
1.2	NATIONAL		
1.2.1	JOURNAL PAPER		
1.2.1.0.1	Full paper published in an A-type national journal		
1.2.1.0.2	Full paper published in a B-type national journal		
1.2.1.0.3	Full paper published in an A-type national journal		
1.2.1.0.4	Full paper published in a B-type national journal		
1.2.1.0.5	Full paper published in a C-type national journal		
1.2.2	CHAPTER IN A BOOK		
1.2.2.0.1	Chapter in a book of type 1.2.3.0.1		
1.2.2.0.2	Chapter in a book of type 1.2.3.0.2		
1.2.3	BOOK		
1.2.3.0.1	Scientific, professional books, textbooks published by nationally known publishers		
1.2.3.0.2	Scientific, professional books, textbooks published by other national publishers		
1.2.4	EDITOR OF A BOOK		
1.2.4.0.1	Editor of a book of type 1.2.3.0.1		
1.2.4.0.2	Editor of a book of type 1.2.3.0.2		
1.2.5	CONFERENCE PAPER		
1.2.5.0.1	Full paper presented at and published in the proceedings of a refereed, regularly held conference		
1.2.5.0.2	Abstract of a paper presented at and published in the proceedings of a refereed, regularly held conference		

1.2.6	CONFERENCE PRESENTATION		
1.2.6.0.1	Unpublished presentation in a refereed, regularly held conference		
1.2.7	EDITOR OF A PROCEEDINGS OR A SPECIAL ISSUE		
1.2.7.0.1	Editor of the proceedings of a conference of type 1.2.5.0.1 or of the special issue of a journal		
1.2.8	TRANSLATION OF A BOOK		
1.2.8.0.1	Published translated book of type 1.1.3		
1.2.9	TRANSLATION OF A PAPER/CHAPTER		
1.2.9.0.1	Published translated paper of type 1.1.1.0.1 or book chapter of types 1.1.2.0.1 or 1.1.2.0.2		
1.2.10	CITATIONS		
1.2.10.0.1	Each citation by other authors		
2	PROFESSIONAL AND OTHER RESEARCH ACTIVITIES		
2,1	INTERNATIONAL		
2.1.1	PATENT		
2.1.1.0.1	Patent		
2.1.2	PROJECT WORK		
2.1.2.0.1	Project work		
2.1.3	EXPERT REPORT		
2.1.3.0.1	Published expert report prepared for an international organization		
2,2	NATIONAL		
2.2.1	PATENT		
2.2.1.0.1	Patent		
2.2.2	PROJECT WORK		
2.2.2.0.1	Project work		
2.2.2.0.2	Research fund project		
2.2.3	EXPERT REPORT		
2.2.3.0.1	Published expert report prepared for a national organization (other than courts)		
2.2.4	CONSULTANCY		
2.2.4.0.1	Consultancy		
3	EDUCATIONAL ACTIVITIES		
3.0.1	THESIS SUPERVISION		
3.0.1.1	COMPLETED Ph.D. THESIS		
3.0.1.1.1	Sole supervisor		
3.0.1.1.2	Principal supervisor		

3.0.1.1.3	Co-supervisor		
3.0.1.2	STUDENT ADVISING		
3.0.2	COURSE LOAD		
3.0.2.1	COURSE LOAD		
3.0.2.1.1	Each credit course given in a year in addition to a 4-course normal work		
3.0.3	DEVELOPMENT		
3.0.3.1	COURSE		
3.0.3.1.1	Development of a totally new course		
3.0.3.2	COURSE WITH LABORATORY		
3.0.3.2.1	Development of a totally new course and its lab experiments		
3.0.3.3	PROGRAM, CENTER OR LABORATORY		
3.0.3.3.1	Development of a graduate, undergraduate, special minor program, center or laboratory in ATILIM		
3.0.4	STUDENT EVALUATION		
3.0.4.1	STUDENT EVALUATION		
3.0.4.1.1	Being among the top 10% (20 points) or next 15% (10 points) in the cumulative ranking within the Faculty		
4	MEMBERSHIPS & AWARDS		
4.1	INTERNATIONAL		
4.1.1	AWARDS		
4.1.1.0.1	Prize won in the related field in a regular award competition		
4.1.2	MEMBERSHIP		
4.1.2.0.1	Member of an editorial or evaluation board or an award jury		
4.1.3	REFEREEING		
4.1.3.0.1	Paper, project refereeing		
4.1.3.0.2	Book refereeing (book of type 1.1.3.0.1)		
4.1.3.0.3	Book refereeing (book of type 1.1.3.0.2)		
4.2	NATIONAL		
4.2.1	AWARDS		
4.2.1.0.1	Prize won in the related field in a regular award competition		
4.2.2	MEMBERSHIP		
4.2.2.0.1	Member of an editorial or evaluation board or an award jury		
4.2.3	REFEREEING		
4.2.3.0.1	Paper, project refereeing		
4.2.3.0.2	Book refereeing (book of type 1.2.3.0.1)		
4.2.3.0.3	Book refereeing (book of type 1.2.3.0.2)		

5	OTHER ACTIVITIES		
5.0.1	ADMINISTRATIVE DUTIES		
5.0.1.1	POSITIONS & DUTIES IN ATILIM UNIVERSITY		
5.0.1.1.1	Official positions or membership in administrative boards or university commissions		
5.0.1.2	POSITIONS & DUTIES IN OTHER INSTITUTIONS		
5.0.1.2.1	Positions or duties in national or international organizations		
5.0.2	CONFERENCE ORGANIZATION		
5.1.2	INTERNATIONAL		
5.1.2.0.1	Conference organizer		
5.2.2	NATIONAL		
5.2.2.0.1	Conference organizer		
5.0.3	SEMINARS		
5.0.3.1	CONTINUING EDUCATION SEMINARS		
5.0.3.1.1	Continuing education seminars		

BS & E: Basic Sciences & Engineering

S&AS: Social & Administrative Sciences