DOKUZ EYLÜL UNIVERSITY
ENGINEERING FACULTY
DEPARTMENT OF COMPUTER ENGINEERING

VE4ALL (VIRTUAL EDUCATION FOR ALL)

by
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May, 2007
İZMİR

VE4ALL (VIRTUAL EDUCATION FOR ALL)

A Thesis Submitted to the
Dokuz Eylül University, Department of Computer Engineering
In Partial Fulfillment of the Requirements for the Degree of B.Sc.

by
Abdulhalim KARA

May, 2007
İZMİR

SENIOR PROJECT EXAMINATION RESULT FORM

We have read the thesis entitled **"VE4ALL (VIRTUAL EDUCATION FOR ALL) "** completed by **Abdulhalim KARA** under supervision of **Prof. Dr. Tatyana YAKHNO** and we certify that in our opinion it is fully adequate, in scope and in quality, as a thesis for the degree of B.Sc.

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I would like to thank Prof. Dr. Tatyana YAKHNO for her assists even she is very busy. The most important thing that I learned from her is that, I must always try to do my best in order to be perfect in all stuff.

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Abdulhalim KARA

VE4ALL (VIRTUAL EDUCATION FOR ALL)

ABSTRACT

Education is a process that changes human life. Everyone direct his/her life with education that he/she receives from his/her social and academic environment. People continue to receive education in their whole life.

Like all other areas, technology enabled new fields in education. Distance education is a field of education that let people receive their education without needing a physical place. Teachers and students can share their resources without having a communication simultaneously. They communicate each other through a virtual environment.

Ve4all is an e-learning platform that aims to supply a virtual environment to users for information sharing. It has a classroom simulation module that let students and teachers communicate each other at the same time. Students can receive education everyplace at anytime. Ve4all has a virtual library that includes educational materials. Users can benefit from these materials. All materials in the virtual library are uploaded by users.

VE4ALL (HERKES İÇİN SANAL EĞİTİM)

ÖZET

Eğitim insan hayatını değiştiren bir süreçtir. İnsanlar sosyal ve akademik çevrelerinden aldıkları eğitim ile hayatlarına yön verirler. İnsanlar hayatları boyunca eğitimlerini alamaya devam ederler.

Diğer alanlarda olduğu gibi teknoloji eğitimde de yeni alanların ortaya çıkmasını sağlar. Uzaktan eğitim insanların fiziksel bir yere ihtiyaç duymadan eiğitimlerini almalarını sağlayan bir eğitim alanıdır. Öğretmenler ve öğrenciler kaynak paylaşımını, eş zamanlı bir iletişime ihtiyaç duymadan yapabilirler. İletişim sanal ortamda gerçekleştirilir.

Ve4all kullanıcıların bilgi paylaşımını gerçekleştirebilecekleri bir sanal ortam sağlayan bir e-öğrenme platformudur. Ve4all öğrenci ve öğretmenlerin birbirleri ile eş zamanlı ileitişim kurabilmelerini sağlayan bir sınıf simulasyonu modülüne sahiptir. Öğrenciler eğitimlerinin herhangi bir yerde herhangi bir zamanda alabilirler. Ve4all eğitim içerikli materyalleri içeren bir sanal kütüphanye sahip. Kullanıcılar bu materyallerden yararlanabilirler. Sanal kütüphanedeki bütün materyaller kullanıcılar tarafından yüklenir.

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CHAPTER ONE

INTRODUCTION

1.1 Motivation

Education is a process that starts from birth of human to the death and it has political, social, cultural, and individual sides. So it is hard to make a definition of education. However person receives education from his/her social and academic environment.

In terms of classical education, it is a process which needs to have a common physical place. Also to get an education, it must be met at the same time. However, this approach is changing nowadays. There is a new term, distance education is becoming more popular because it compensates a lot of lacks that classical education have. Distance education also helped to have more comfortable environment for students and teachers. With distance education, there is no need to build schools, or there is no need to pay high fee for education. The only need is that, students and teachers must have an integrated environment.

Today, person can continue his/her education even he/she stays at his/her home with distance education. Because of some social problems (e.g. SARS in Hong Kong) people must stay at home. In such condition, people can continue their education with distance education without leaving their home. So, distance education helps people to get and continue their education in this case. Or if teacher and students are separated by time or space or both, they also can continue education. Because place and time are important issues on classical education, one may not be able to get education if s/he does not have these. With distance education, there is no need to have a common place or also there is no need to meet at the same time.

Distance education is a special field of education delivering education to the students who are not phisically “on site”. Students and teachers can communicate

each other through a virtual environment (internet) in real time. Also they can share materials without having a communication simultaneously. That means there can be a shared public library which includes electronic media. So students and teachers can exchange these materails by using this public library.

1.2 Virtual Education

Virtual education is known as e-learning. Virtual education is education that is given through internet. Teacher and students can be from different cultures and also they can be separated by time, or space, or both.

1.2.1 Environment

A virtual education is similar to traditional education but the only difference is that virtual education is given in a virtual environment instead of a real environment.

There exists virtual high-schools, virtual universities, and virtual courses (series of lessons) on the internet (e.g. http://www.virtualhighschool.com/, http://www.vu.edu.pk/). In these schools education is not given face to face, however students receive education via internet, using a class simulation or a materials sharing portal.

1.2.2 Materials

In virtual education, all materials are given over internet by teacher. And students can reach materials in same way. Teachers and students can share materials without having a communication simultaneously.

Many virtual study programs use text based materials (e.g. HTML, PDF, Power Point). Some study programs use multimedia contents like hypertext courses, video-based courses, audio-based courses, animated courses, web-supported textbook.

1.3 Existing Virtual Education Platforms

Most virtual study programs use an e-learning platform. E-learning platforms are used for education environment and learning materials. Students can receive education via this platforms and also they can reach materials that are given by a lecturer.

Today, there are a lot of e-learning platforms. Some platforms are free (Moodle, ATutor, Bodington, Dokeos etc.) and some platforms are commercial (Edumate, FirstClass, Desire2Learn, Angel etc.). Some of these platforms are described in this chapter. (Graf & List, n.d)

1.3.1 Moodle

Moodle is a free software e-learning platform founded by Martin Dougiamas in 1999. It is open source license and modular design. It has a significant user base with 25,275 registered sites with 10,405,000 users in 1,024,000 courses (as of May 15, 2007).

Moodle has many features:

- Content management
- Quizzes
- Wikis
- Forums
- Blogs
- Chat
- Multi-language support

Moodle is platform independent, and data can be stored in different databases (e.g. MySQL, MsSQL, Oracle etc.).

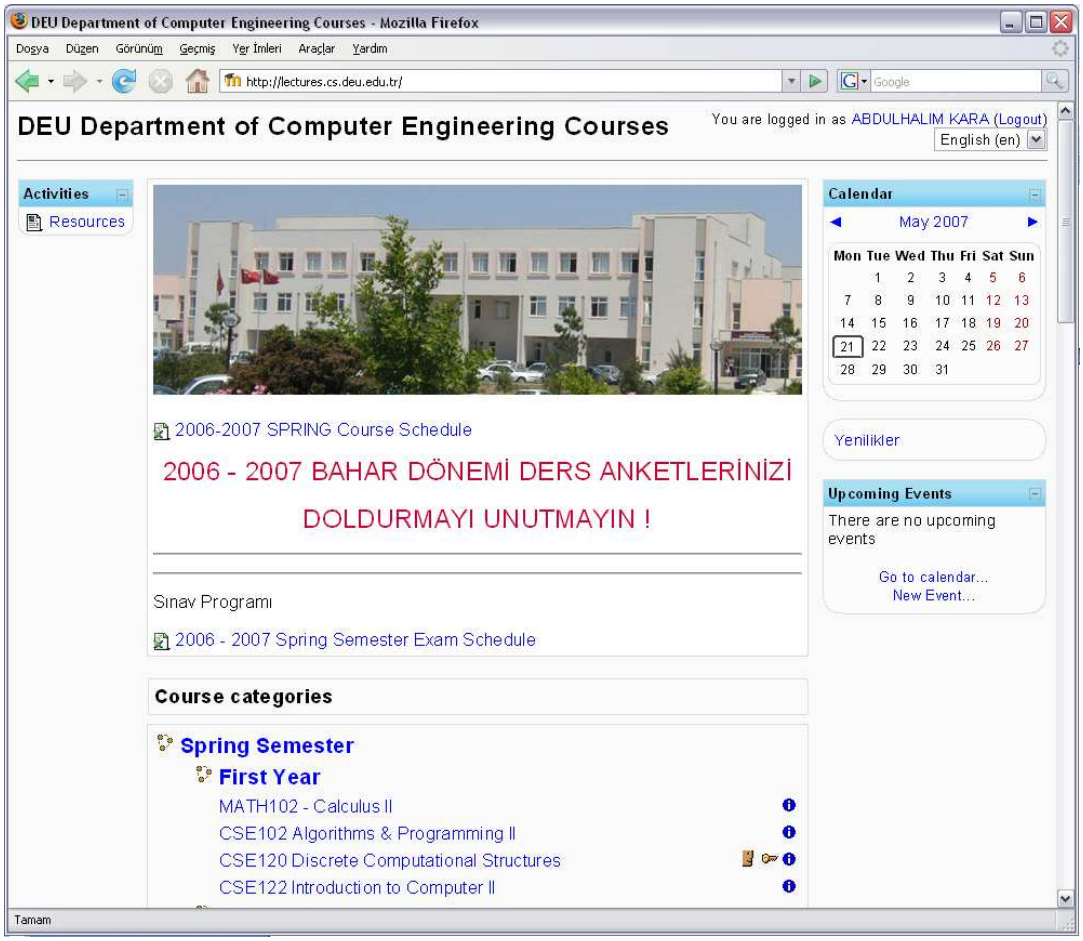

Figure 1.1 DEU Department of Computer Engineering uses Moodle as Course Management System

1.3.2 ATutor

ATutor is a open source e-learning platform. It is a Course Management System similar to other e-learning platforms. However it is designed for people with disabilities. Keyboard can access all features, so a blind person can access the system without needing a mouse.

ATutor is used around the world. It is available in 30+ languages, and has more than 50 modules available.

Figure 1.2 ATutor course main page

1.3.3 Edumate

Edumate is web based Course Management System that is written in PHP using Firebird database. Edumate keeps all information about a student from kindergarten to the age of 12. So this database can be used for student statistics and teacher can give a better education to each student according to his/her database.

Figure 1.3 Edumate screen

1.3.4 FirstClass

FirstClass is a commercial e-learning software platform. It is a client/server email, online conferencing, and bulletin-board system based on a modular client/server architecture. First release of FirstClass used on Mac in mid-1990s. FirstClass popularity increased with the introduction of a Microsoft Windows client.

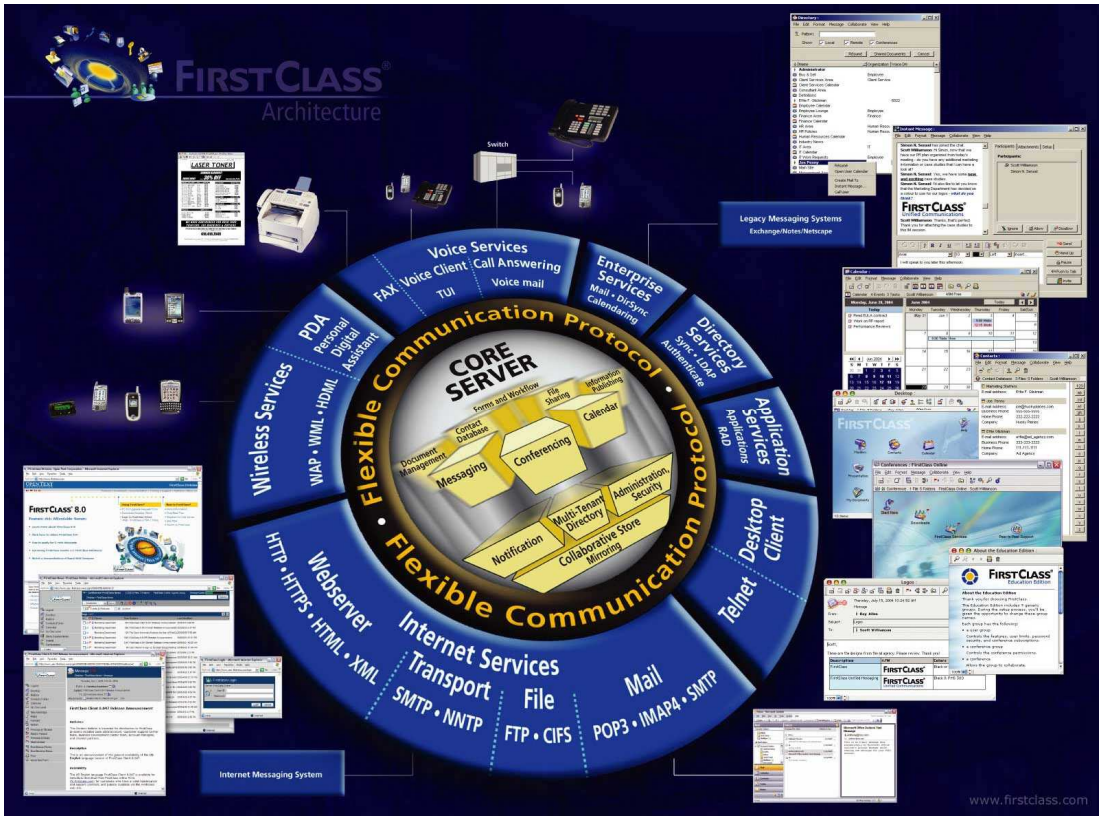

Figure 1.4 FirstClass architecture

1.4 Problem Specification

Ve4all is a kind of e-learning platform. Although it has some similar functionalities like existing e-learning platforms, Ve4all is an innovative approach. All functionalities are directly related with education. That means Ve4all does not include unnecessary functionalities which are not directly a part of distance education.

Ve4all enables users to have an information sharing environment. There are two main modules for users to provide this environment. First module is a classroom simulation. Users can watch, join, or submit lessons in this module. Second module an electronic library. There exists educational materials in this library which are available for users to download or view online. All materials in the library are added by users.

1.5 Thesis Organization

Thesis is organized as six chapters. Chapter two gives some information about audio-video streaming and Flash-PHP-MySQL integration. Chapter three gives detailed information about project design and development issues. Tools used in the project are described in the chapter four. In chapter five, there is a user manual provide to assist users. In the last chapter, a conclusion is made and also there are some discussions about future work.

CHAPTER TWO

AUDIO-VIDEO STREAMING AND FLASH-PHP-MYSQL INTEGRATION

2.1 Audio-Video Streaming

A few decades ago only text based content can be used over the internet, because of computer hardware limitation. With developing a new technology, nowadays computer hardware has sufficient bus bandwidth to support the required data rate.

Today, audio-video streaming used widely over the world. There are some audio-video streaming projects which are very popular (e.g. www.youtube.com). With streaming technology, a lot of changes have been made in human being life. You can make a video conference with someone from your family who is far away from you, or you can watch a football match over and over again even you miss it.

With media streaming, people have a great chance to get a better education. Even if teachers and students are from different cultures, they can continue their education.

Some popular streaming media technologies are Adobe Flash Media Server, Microsoft Windows Media, QuickTime, RealPlayer. (Klass, 2003)

2.2 Flash-PHP-MySQL Integration

Nowadays, the most popular video player is Adobe Flash Player. Approximately 98% of PCs over the internet have Adobe Flash Player installed as shown in the Figure 1.4. Because Adobe Flash has more interactivity and also it uses a small bandwidth for video streaming. (Flash Player Penetration, n.d)

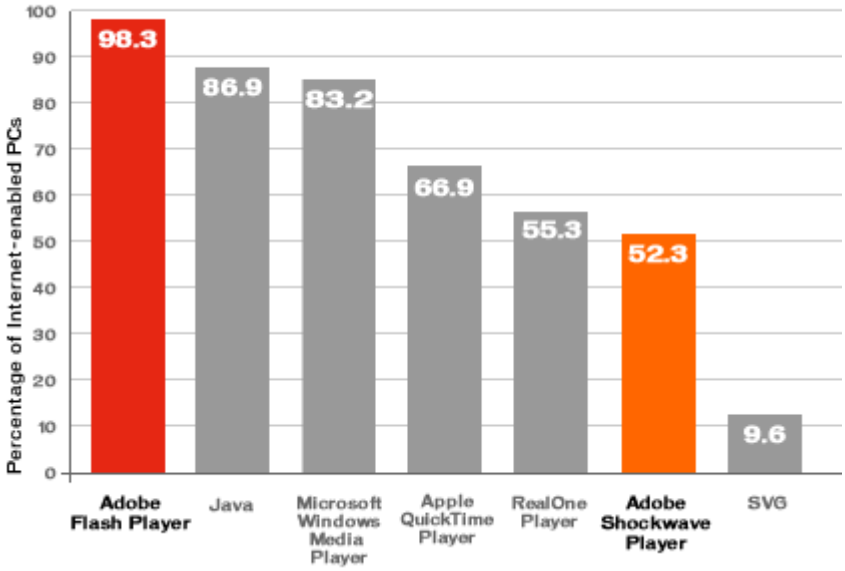

Figure 2.1 Adobe Flash Player statistics

Adobe Flash cannot access the database directly, so it needs a server side script language to make database operations. The widely used script language is PHP. Because PHP is free, and it can work on all operating systems, and it is very fast. PHP is generally using with MySQL database. Because MySQL is free, and it is the most popular open source database. And also it is cross-platform.

CHAPTER THREE

VE4ALL (VIRTUAL EDUCATION FOR ALL)

3.1 VE4ALL

Ve4all stands for virtual education for all. Ve4all is a web project that aims to supply an educational environment for everyone to share their knowledge with others. It does not need any program installation and any plug-in installation. And it is also cross-platform. Ve4ll only needs Adobe Flash Player installed, if Flash Player does not installed then system automatically installs it.

Adobe Flash Professional 8 has an object-oriented script language whose name is Action Script 2.0. According to that all sections and menus are designed as objects. By means of this property, all operations of system can be done easily.

In this chapter some design issues and development process are discussed.

3.2 Interface

Ve4all has a functional, clear, and elegant interface. The main objective in interface design is usability of the system. System must be usable for everyone because while project was developing, the main purpose was “an e-learning platform for everyone”. So interface must be easy and usable for a novice internet user and a professional user.

Interface of the Ve4all is designed to fit the browser window. When browser window is resized then layout is realigned according to a new size. This special feature is very useful for users who use double monitors.

All objects in the interface are drawn as vector graphic. Because vector graphic is better for animation, and size of vector graphic is very small. So it reduces loading

time and we do not make users wait for a long time. Total size of the home page is about 100 kb, this is a very small size for a web page.

Flatten style is used for interface design. All buttons, icons, labels, and graphics are designed according to this style. And all existing components that are used in the project are modified according to the concept.

Generally 4 different colors, black, white, white blue, and red, are used for Ve4all interface. Red color is used for warnings, white blue is used for input and dynamic texts and also used for some buttons press actions.

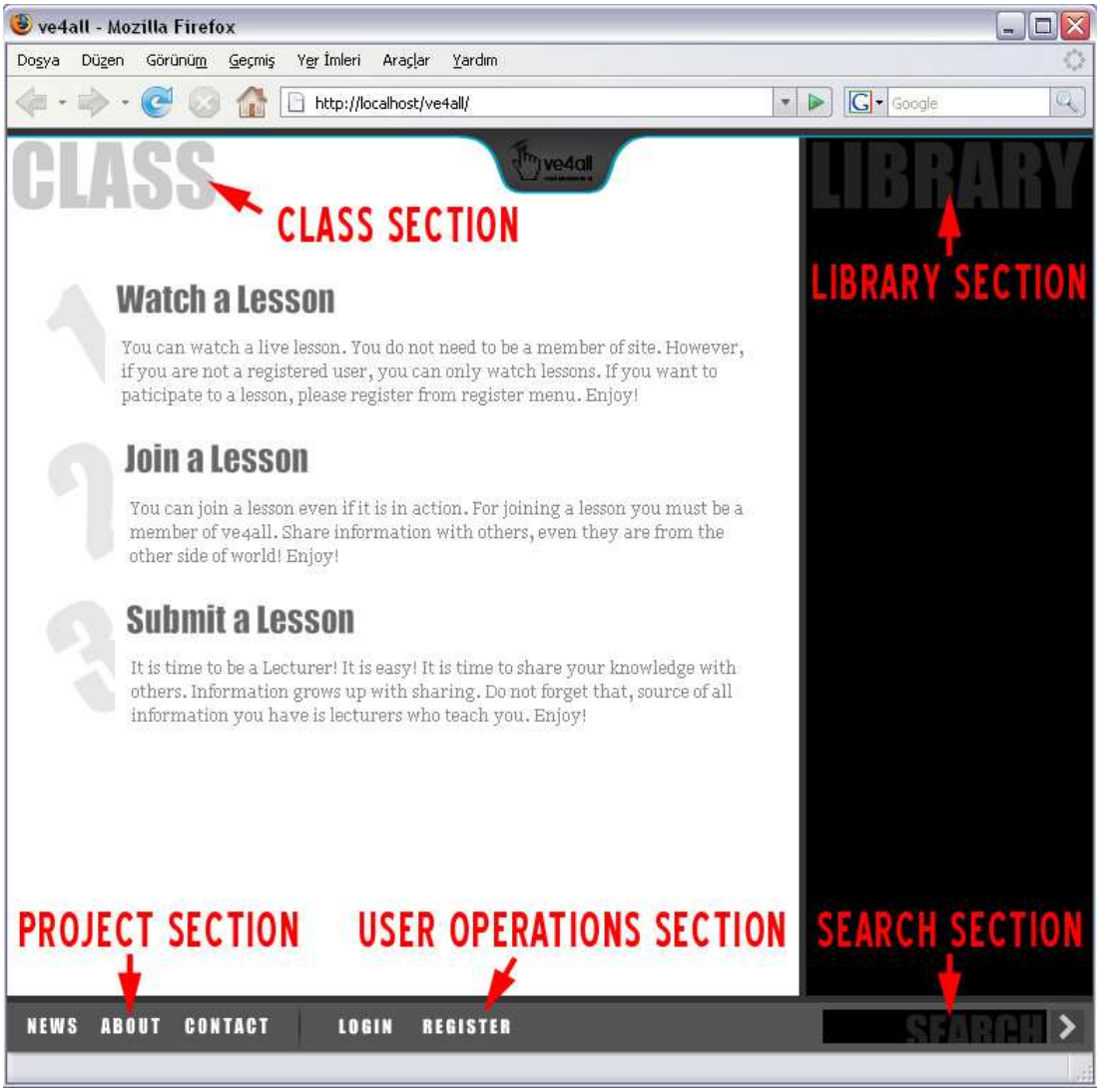

Figure 3.1 Ve4all home page

3.3 Animation

A simple animation type is used to make the project interesting and attractive. All animations' duration is the same and is about 0.6 seconds. Animation duration can be changed through a global variable. Duration is kept small not to keep user uncomfortable.

Each menu has a class and each class has two methods that named as animateIn() and animateOut(). When menu will be drawing then animateIn() method is calling. For closing the menu animateOut() method is calling.

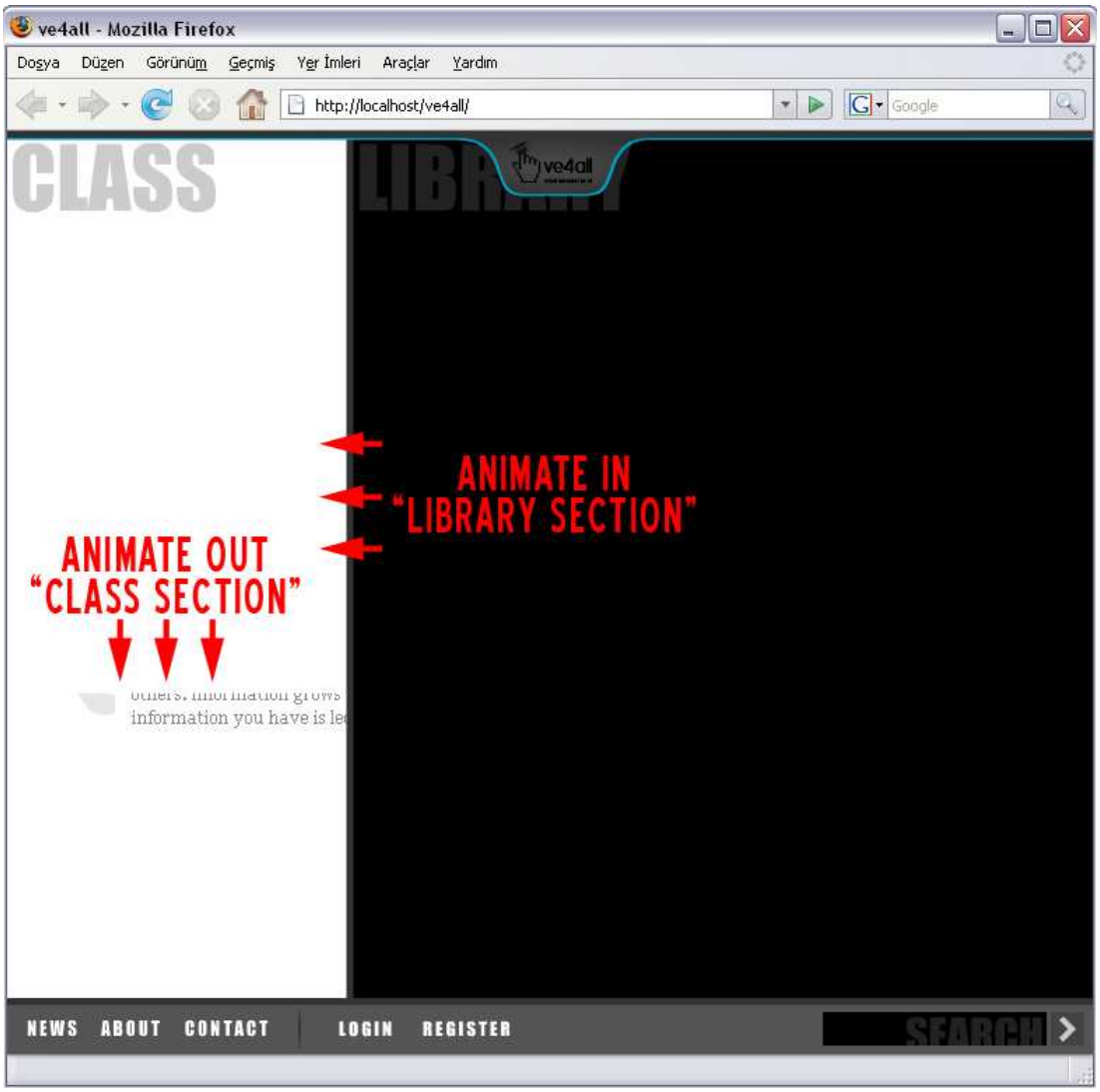

Figure 3.2 When library section is drawing and class section is closing

3.4 Navigation

Navigation is more important for a web project. Because a user uses system through a navigation system. If navigation is not good enough or if it is too complex then that will be hard for user to take advantage of the system.

Ve4all has a simple and effective navigation. Project has three main parts. The first part is class section, and the second one is library section and, third one is for user operations and it contains some information about project. Class and library section has big icons because of they are main part of the project. So when a user opens the project at first time then he/she can have a general idea about project. That is to say, it is clear for user to know that the project is about education.

With this navigation system user can use class section and at the same time he/she can read news about project or he/she can register to the system.

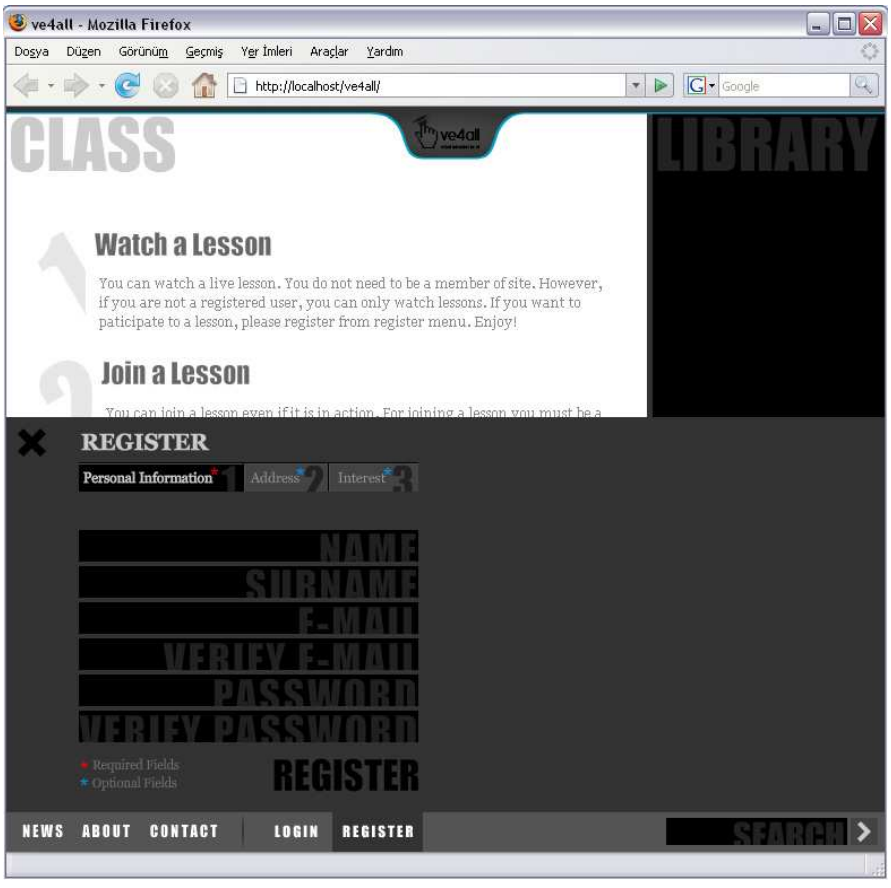

Figure 3.3 User can use class and register menu at the same time

3.5 Functionality and Usability

Functionality and usability are characteristic properties of a software product. Functionality means what a product can do for a user. It is an important issue for quality of a product. Usability is generally used for clarity and elegance of a software product.

Ve4all has only main virtual education functionalities and it has not any unnecessary functionality that are not about education. So, it improves user integration to the system. Functionalities in Ve4all can be considered in three different sets. One is about class operations and they are also most important functions, one is about library operations, and other functions are about user operations and web site information.

3.5.1 Class Section Functionalities and Usability

Content in the class section is very clear and simple to understand like all other parts of projects. So it is very easy to use the class section for the user. All user forms in the class section contain only necessary information. Because user will not be comfortable to fill all fields if a form contains a lot of information.

In class section user can make main three operations which are about courses. User can watch a lesson as a guest even if he/she is not a registered user to the system. And he/she can join a lesson as a student if there is an available lesson. The most important operation in the class section is “submit a lesson” menu. All user can be a lecturer easily with this functionality. Only registered user can use “join a lesson” and “submit a lesson” properties.

As shown in the Figure 1.8, required fields are just five. It means it is very clear and useful form to submit a lesson. This form can be filled without a mouse. Because keyboard can access all fields with tab key. Date and duration fields restricted to only true numbers. For example, user cannot enter “9” number for first digit of hour field. This will help user to know what data he/she must enter.

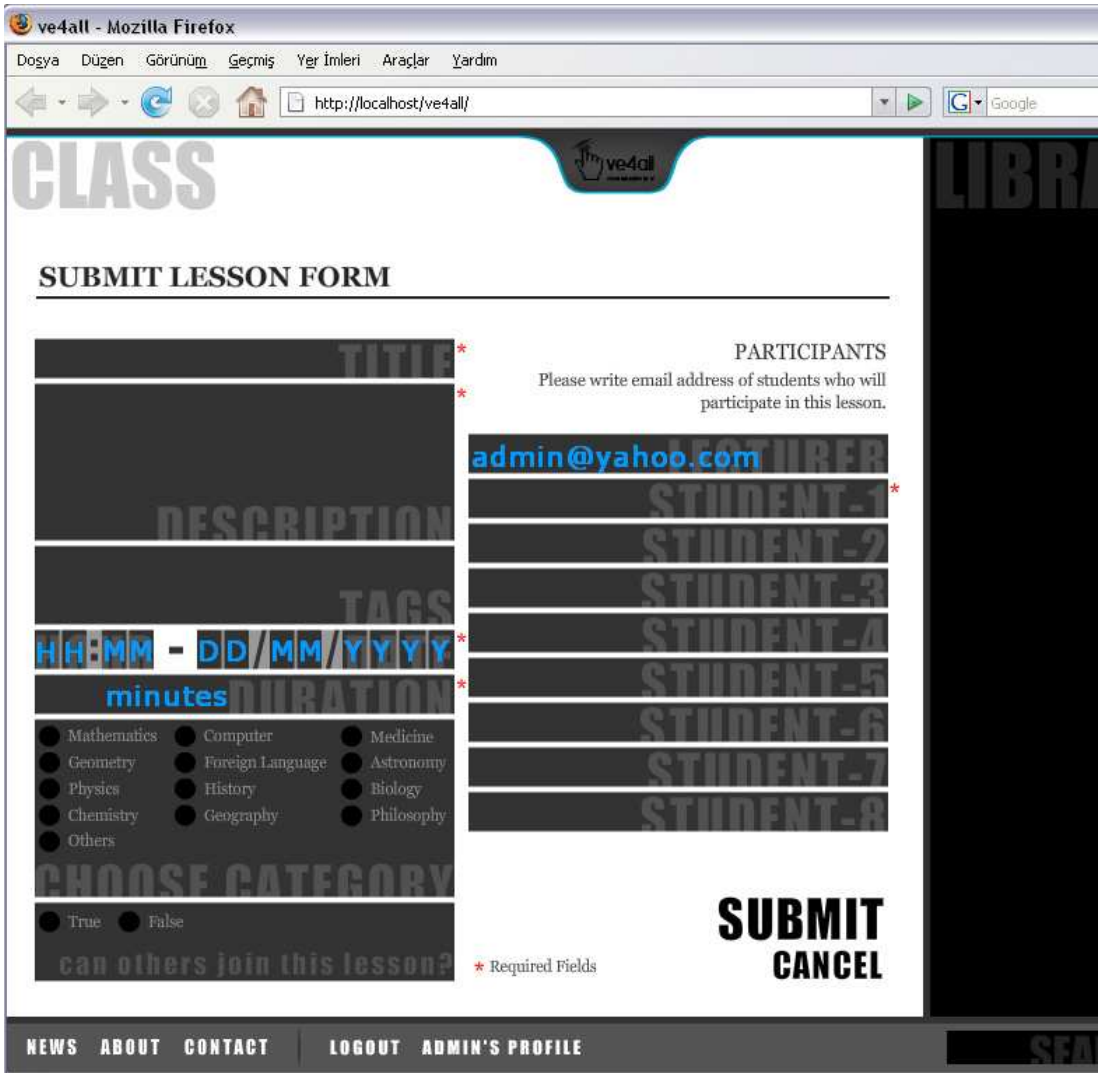

Figure 3.4 Submit lesson form in the class section

3.5.2 Library Section Functionalities and Usability

Library section is designed to be very simple. It consist of only three operations. User can download educational materials uploaded to the system by other users. And users can upload their materials to the system to share with others. All uploaded materials are checked by administrators, if they are educational materials then they will be available on the download submenu. In the last operation, user can search through lecturer webcam records which were recorded in the past lessons. Lecturer webcam records are archived in the all lessons.

3.5.3 Other Sections Functionalities and Usablity

There exists some menus that are placed at the bottom of the web site. In these menus, user can register to the system, and change his/her profile, and he/she can get information about project.

In the news menu, content area changes dynamically. Content is realigning and fitting to the window size when browser window is resized. It is useful for both users who have high or low resolution monitor.

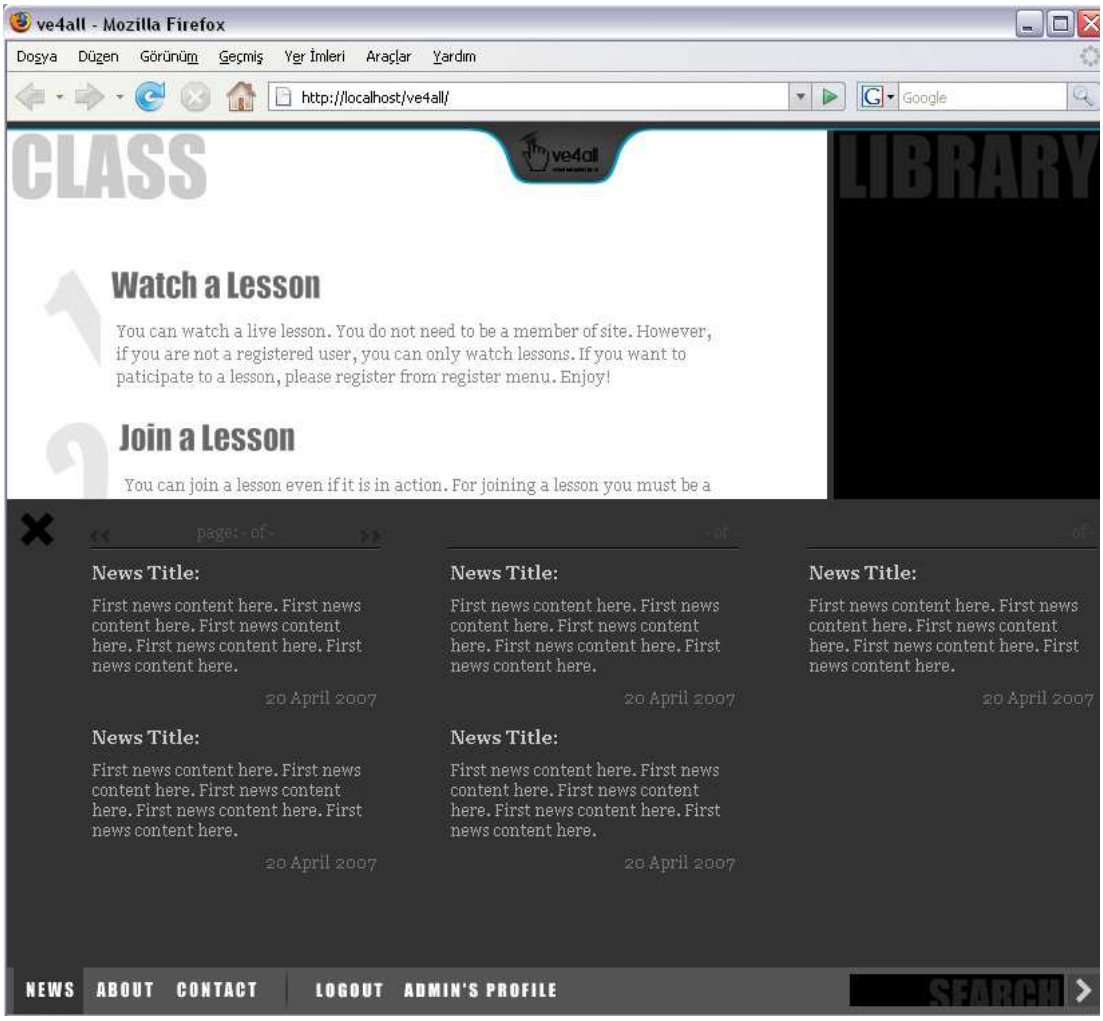

Figure 3.5 News column count is changing dynamically in the news menu

User can register from register menu easily. Register menu has a simple and effective design. It has three area, one consists of personal information about user,

one consists of address information of a user and the last one is about user interests. Only fields in the personal information area are required to fill, other fields are optional. User can register to the system in three simple steps. In the address area, there is a custom combo box that is designed in a flatten style. Adobe Flash Combo box Component was not used because of it is not fitting to the design concept. So a custom combo box with all functionality and a better view is designed.

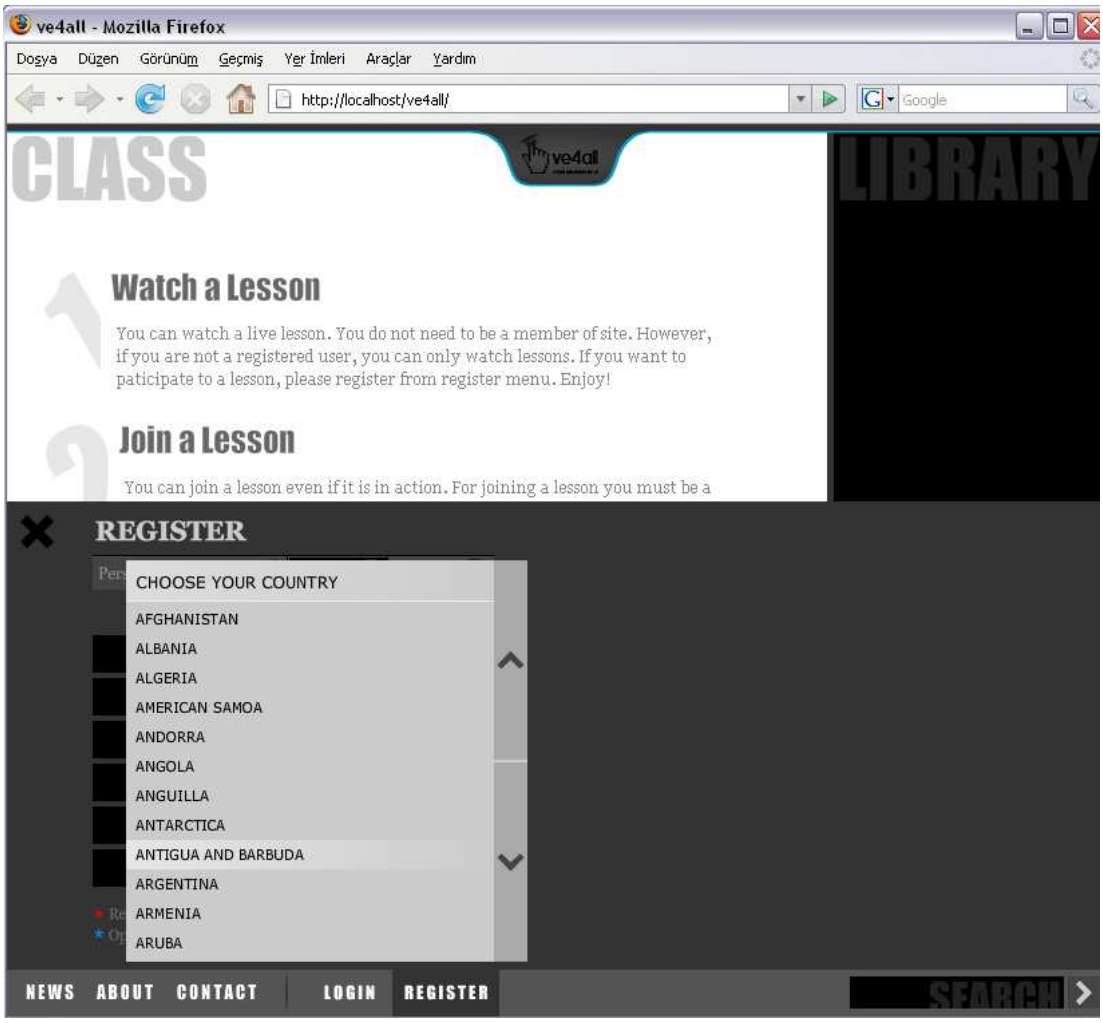

Figure 3.6 Custom combo box in the register menu

3.6 Security

Security is more important in information technologies. All software must protect themselves from dangers that originate from outside.

All passwords and database information are sent and received with “POST” method within Adobe Flash. So user cannot catch any information from browser address bar. All database operations are done with PHP files, these files’ names are hidden from user.

3.7 Message system

Ve4all has a message system to improve usability of the project. With this message system user is informing or warning about all operations. So user can use system better, and this feature make user feels everything is under control.

Message system can be divided in two subsystem. One is showing messages within a small message box, and the other message system helps user to fill system forms.

3.7.1 Message Box

This system is similar to JavaScript alert function. This message box is used to inform user about status, or make advices to the user, or show the progress of the files transfer, or it can be used to warn user.

There are three types of message box:

- *Alert message box*: this message box type is used to inform user.
- *Warning message box*: if a system error occurs then this message type will be used.
- *Progress message box*: this message box shows the progress of the file transfers (e.g. uploading or downloading materials).

Message text is kept in an html text field. This feature let us to use hyperlink in the message text. Usability of the system is increased by using hyperlink.

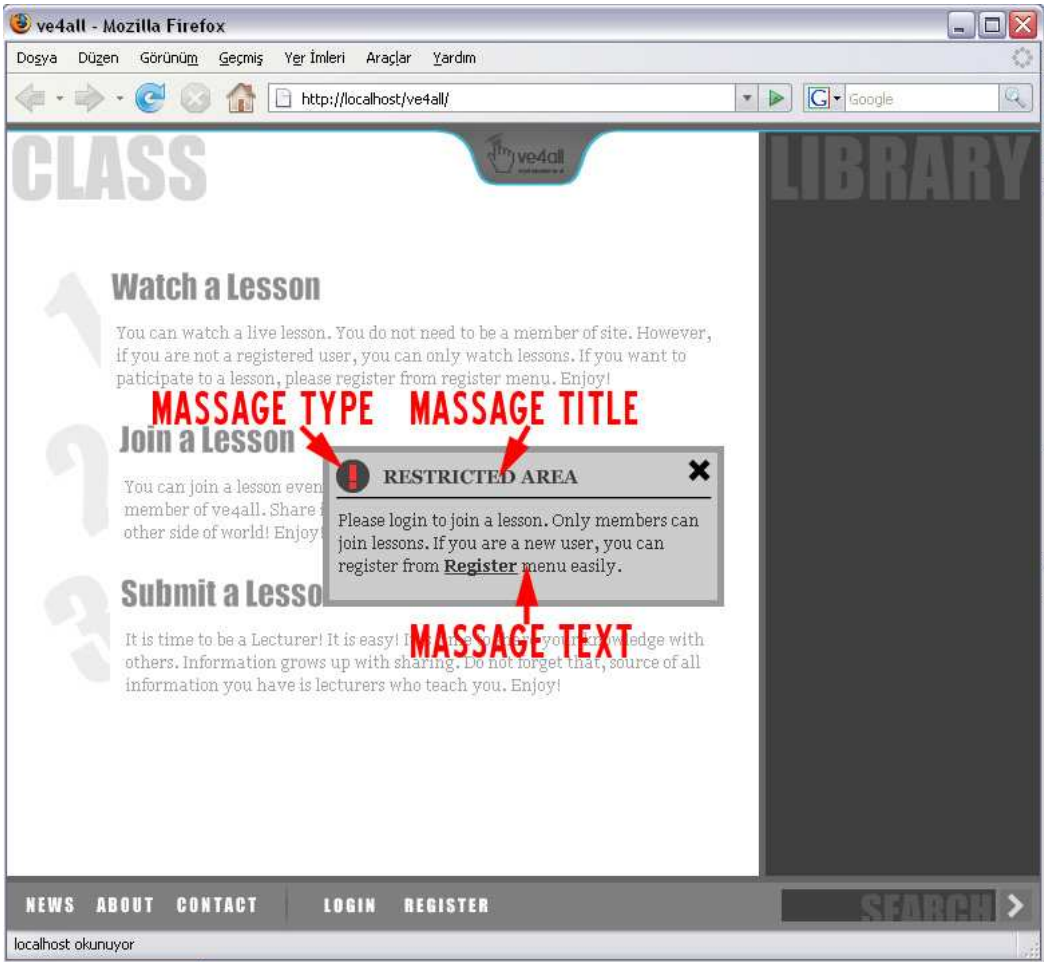

Figure 3.7 Message box

3.7.2 Inform System in the Forms

When users fill the forms, it is possible to write something wrong. Or they do not know what they must enter to the field. Especially novice users have these kind of problems. So a guide will be helpful in such situations.

Ve4all helps user with inform system when they fill the forms. There exists dynamic text fields that show user error or inform messages in the forms. Color of text is chosen as a special value of red color. This color can be seen clearly which means it can be used for informs, and it is also a nice color value for design concept. These meaningful messages help user to be able to fill all fields correctly.

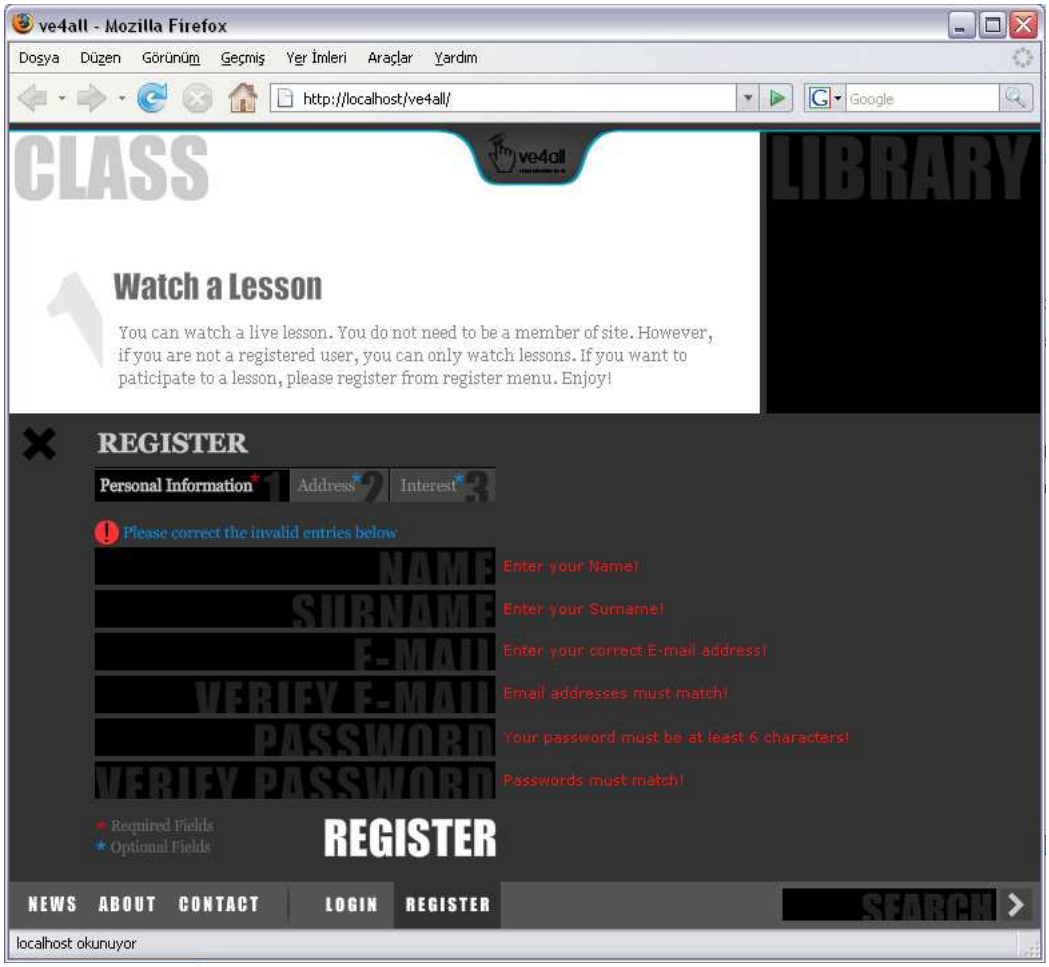

Figure 3.8 Inform system in the registration form

3.8 Maintainability

Ve4all architecture designed as 3-tier architecture to maintain and modify easily. Each menu has one Action Script class or more, all codes are written in these classes. So it gives us a chance to modify project outside of Flash. We just need an Action Script editor to modify or maintain or adapt project to the new features.

All database operations are done in PHP files which are stored in a directory called PHP. This standardized the file system and it will be easy to reach and modify all PHP files at once.

All XML files are kept in an directory named XML. XML files provide us a good data store standardization. And also it is very easy to get data from XML files to Adobe Flash.

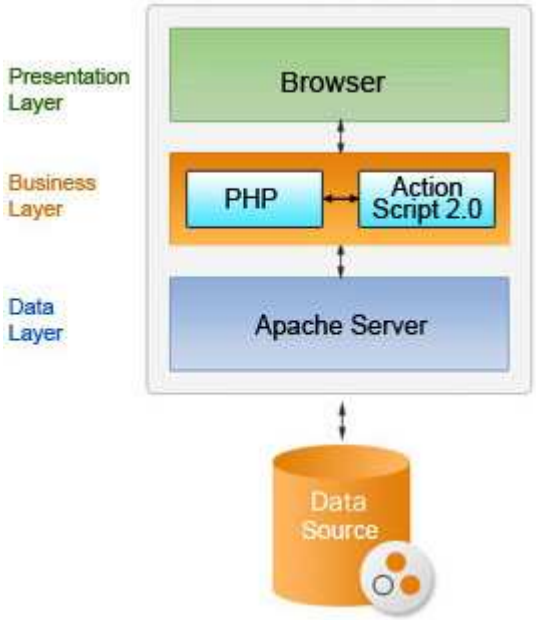

Figure 3.9 3-tier architecture of ve4all

CHAPTER FOUR

TECHNOLOGIES USED IN VE4ALL

4.1 Adobe Flash Professional

"Adobe Flash Professional software is the most advanced authoring environment for creating rich, interactive content for digital, web, and mobile platforms. Create interactive websites, rich media advertisements, instructional media, engaging presentations, games, and more. Designers and developers working on both Macintosh and Windows® systems depend on Flash and the ubiquitous Adobe Flash Player software to ensure their content reaches the widest possible audience. " (Adobe – Flash 8 Professional, Interactive multimedia, Interactive Design, n.d)

Adobe Flash Professional was chosen for development environment in Ve4all web project. Because Adobe Flash has an object-oriented script language named as Action Script 2.0. External Action Script 2.0 class gives us a possibility to build project as 3-tier architecture. Object-oriented script language utilizes several techniques, including modularity, inheritance, encapsulation, and polymorphism.

4.2 Adobe Flash Media Server

"Macromedia Flash Media Server 2 software offers the unique combination of traditional streaming media capabilities and a flexible development environment for creating and delivering innovative, interactive media applications to the broadest possible audience." (Adobe – Flash Media Server 2, n.d)

Video streaming is a more important issue in Ve4all because it aims to supply an educational environment for everyone. Some users have low internet connection and video streaming needs high bandwidth, so that we must reduce bandwidth to let everyone use this system. Adobe Flash Media Server has a good compression

mechanism for video streaming. For these reasons Adobe Flash Media Server is used for audio-video streaming.

4.3 PHP (Hypertext Preprocessor)

"PHP is a widely-used general-purpose scripting language that is especially suited for Web development and can be embedded into HTML." (PHP: Hypertext Preprocessor, n.d)

PHP is used for database operations in Ve4all. Because it is free, fast, reliable, and cross-platform. MySQL database is used so it is a good choice to use PHP.

4.4 Apache

Apache is a well known web server which is freely available on web. It is used to represent and interpret PHP files.

Apache is used in the project as web server. Because it is easy to use, freely available on web and fast, it is preferred.

4.5 MySQL

MySQL is the most popular open source database. It is free and cross-platform. MySQL is used in ve4all for database.

CHAPTER FIVE

MANUAL

5.1 Introduction

5.1.1 What is Ve4all?

Ve4all (virtual education for all) is a web project that aims to supply an educational environment for everyone to share their knowledge with others. It is an e-learning platform like other existing e-learning platforms.

5.2 Installation

Ve4all does not need any program installation. Ve4ll only needs Adobe Flash Player installed.

5.2.1 System Requirements

Ve4all can work on all web browsers that have Flash Player installed. For best performance we recommend:

- 64 MB of RAM or greater,
- Monitor supporting 1024 X 768 or greater resolution, and
- A connection speed of at least 256K.

5.2.2 Installing Adobe Flash Player

Ve4all needs a web browser that has Flash Player 8 installed to works. If you do not have Flash Player installed or you have a version less than 6 of Flash Player installed then a url which connects to the Adobe Flash Player Download Center will be shown on the Ve4all home page. You must follow installation instructions on this page to install Flash Player properly. If you have a version greater than or equal to 6

and less than 8 of Flash Player installed then system will help you to install Flash Player 8 on Ve4all home page.

Figure 5.1 Flash Player 8 installation

5.3 Class Section

Class section aims to supply a simple classroom simulation. You can watch live lessons, join future or live lessons, or you can be a lecturer by submitting lessons with using class section.

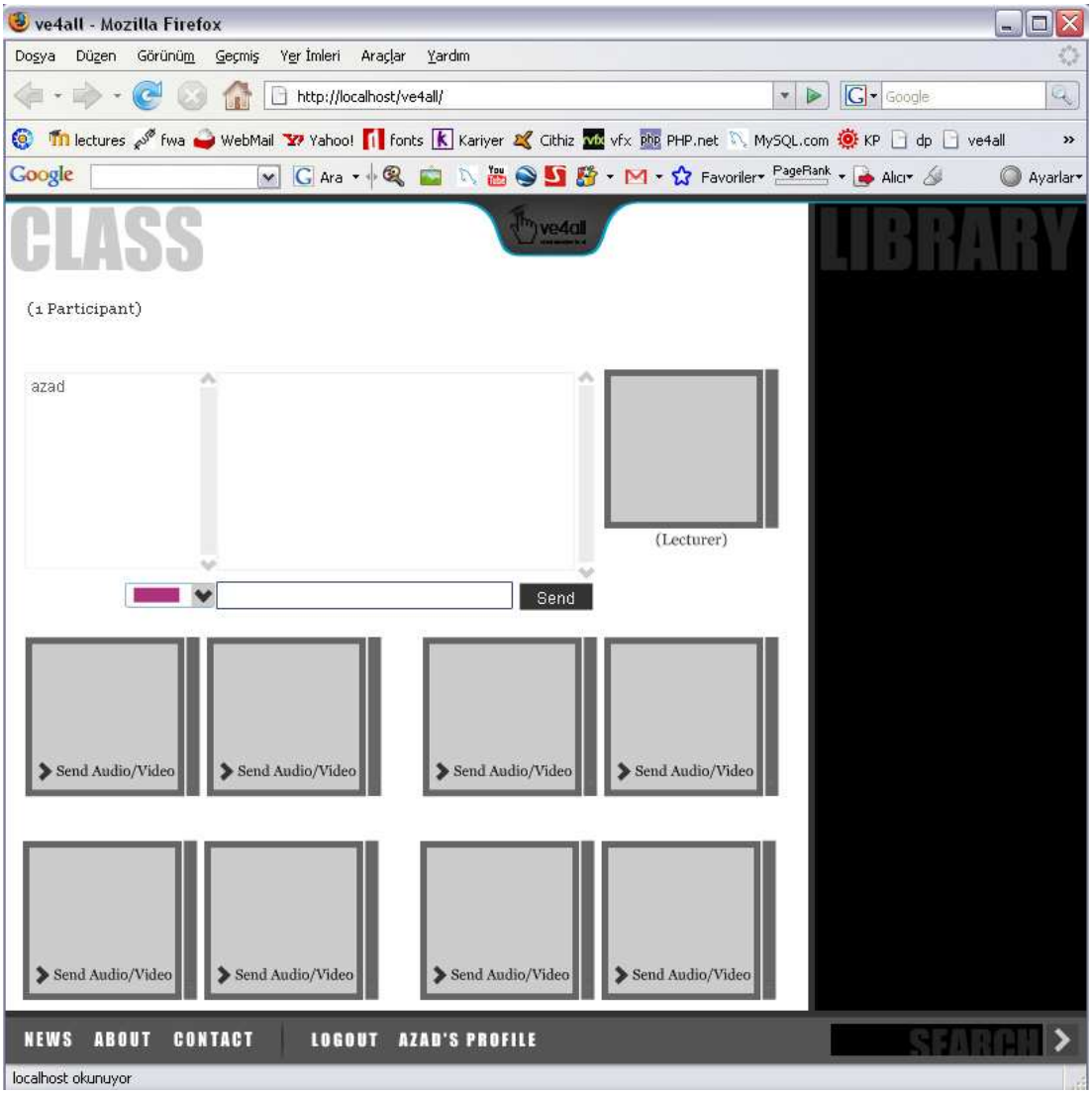

Figure 5.2 Class Section

5.3.1 Watch a Live Lesson

Live lessons will be listed by clicking “Watch a Lesson” button. You can watch a live lesson by clicking “Watch” button from list as a guest. You cannot send audio-video and chat with other participants, you can only receive audio-video from participants and read chat texts. If you want to be a participant, you must use “Join a Lesson” menu.

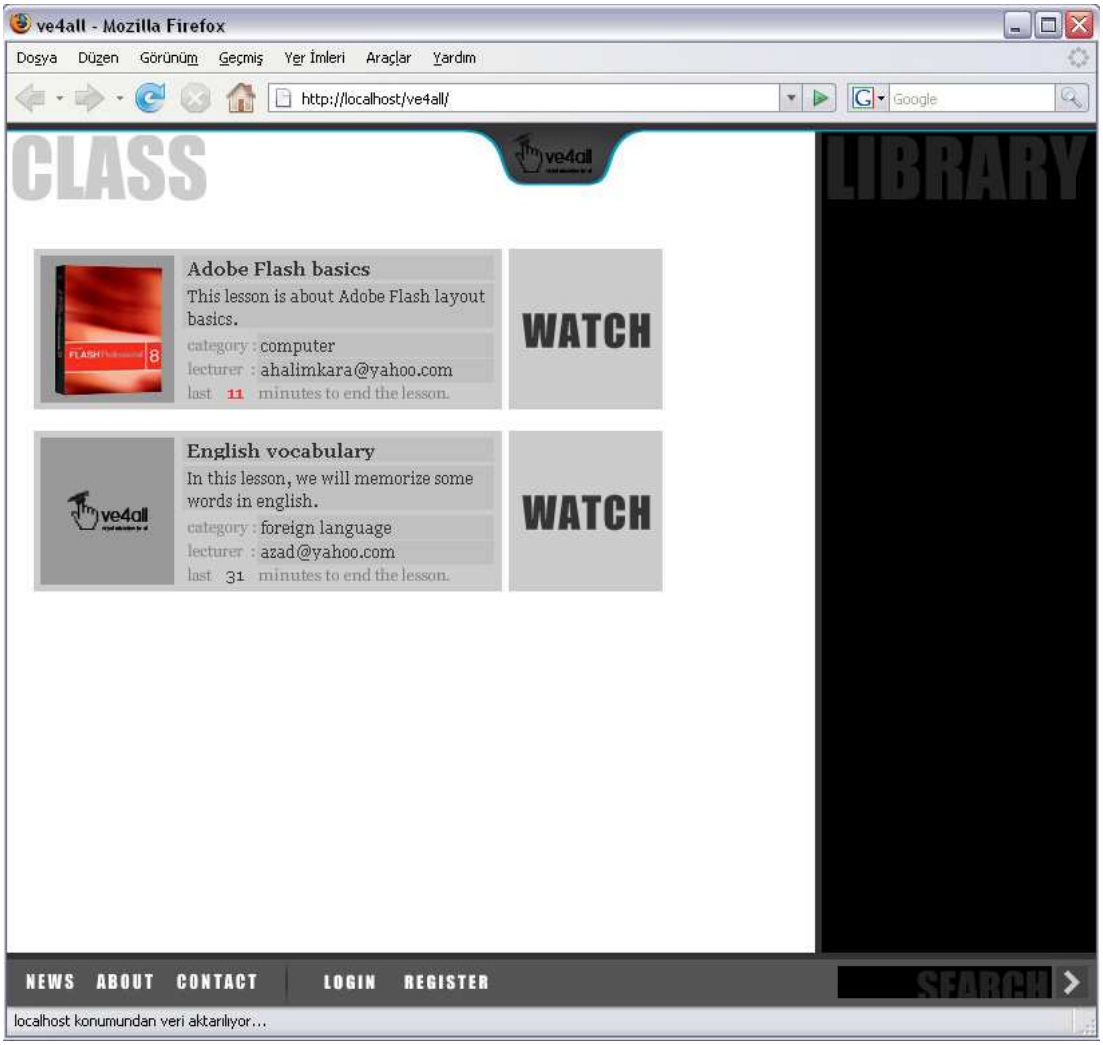

Figure 5.3 Live lessons list

5.3.2 Join a Lesson

Live and future lessons will be listed by clicking “Join a Lesson” button. Only lessons that can be joined will be listed. This property is defined by the lecturer of the lesson. Lecturer can let people to join the lesson at any time or he/she can add students by himself/herself.

If lesson is a live lesson then “Watch” button will be visible, if lesson is a future lesson then “Join” button will be visible. If you choose a live lesson from the list then you will join the lesson as a participant (student) immediately. You will be able to chat with other participants, ask questions to the lecturer, send and receive audio-

video. You can join a future lesson by clicking “Join” button. When you click “Join” button, you will subscribe to the lesson as a student.

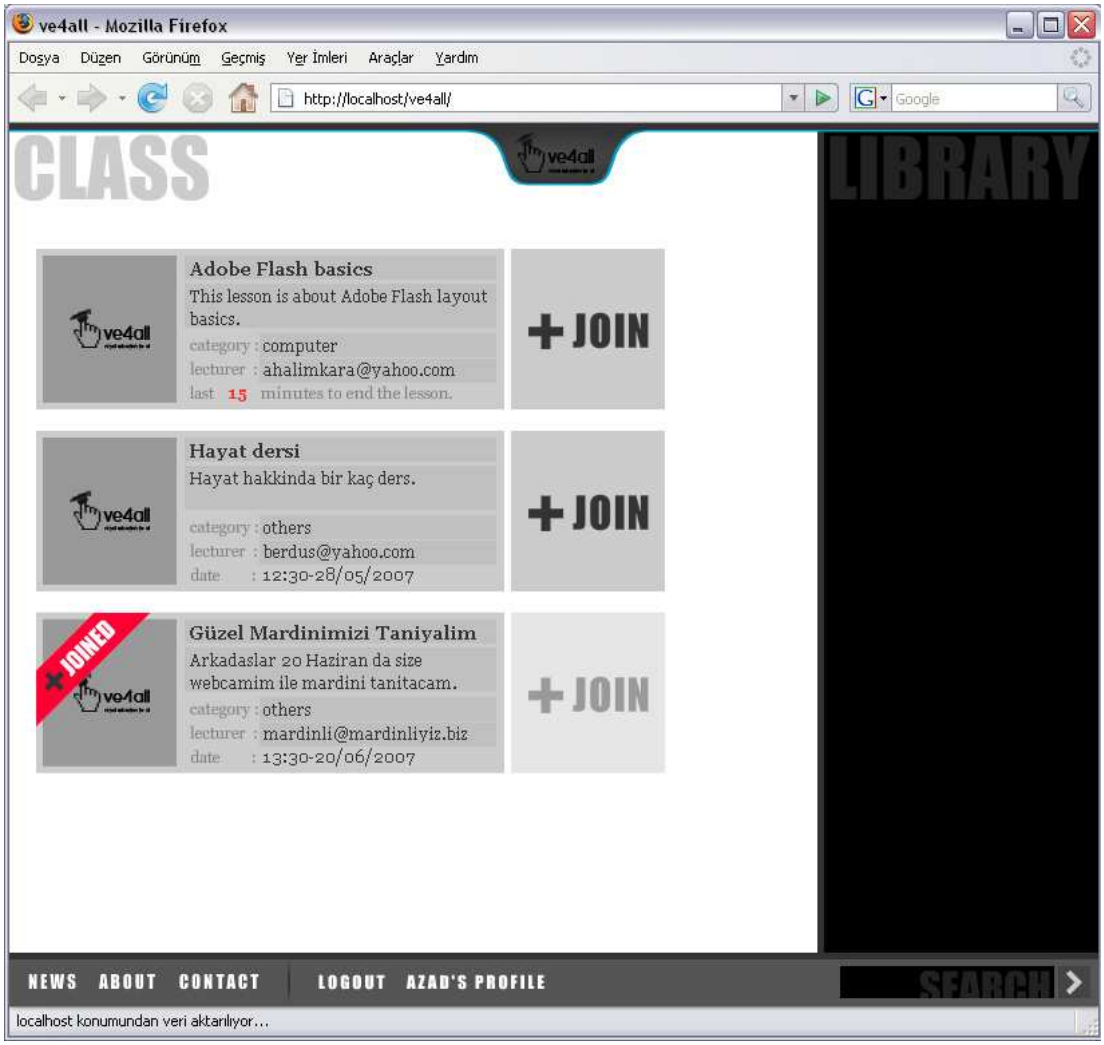

Figure 5.4 Live and future lessons list

5.3.3 Submit a Lesson

You can be a lecturer by submitting a simple “Submit Lesson Form”. After filling all required fields, your lesson will be submitted to the system. Lessons do not start without lecturer. After lecturer logins to the system then lesson will be started and students can join the lesson.

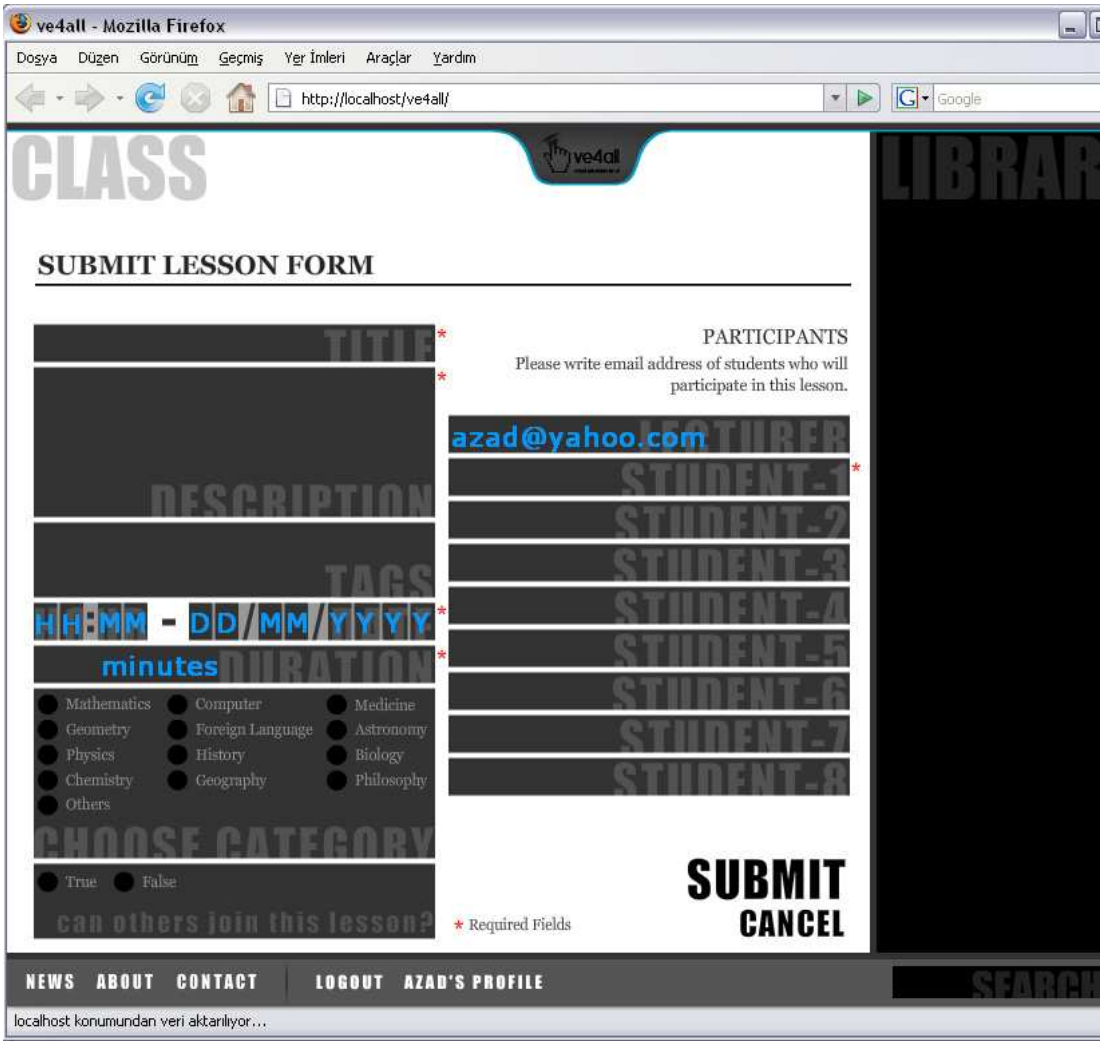

Figure 5.5 Submit Lesson Form

5.4 Library Section

Library section let people to share their resources with others. Resources must be educational materials, otherwise they will be rejected by the administrators. Library section consists of only three operations.

5.4.1 Search Materials

You can download educational materials uploaded to the system by other users. Materials related to your search term will be listed in this menu. You can download materials by clicking “Download” button.

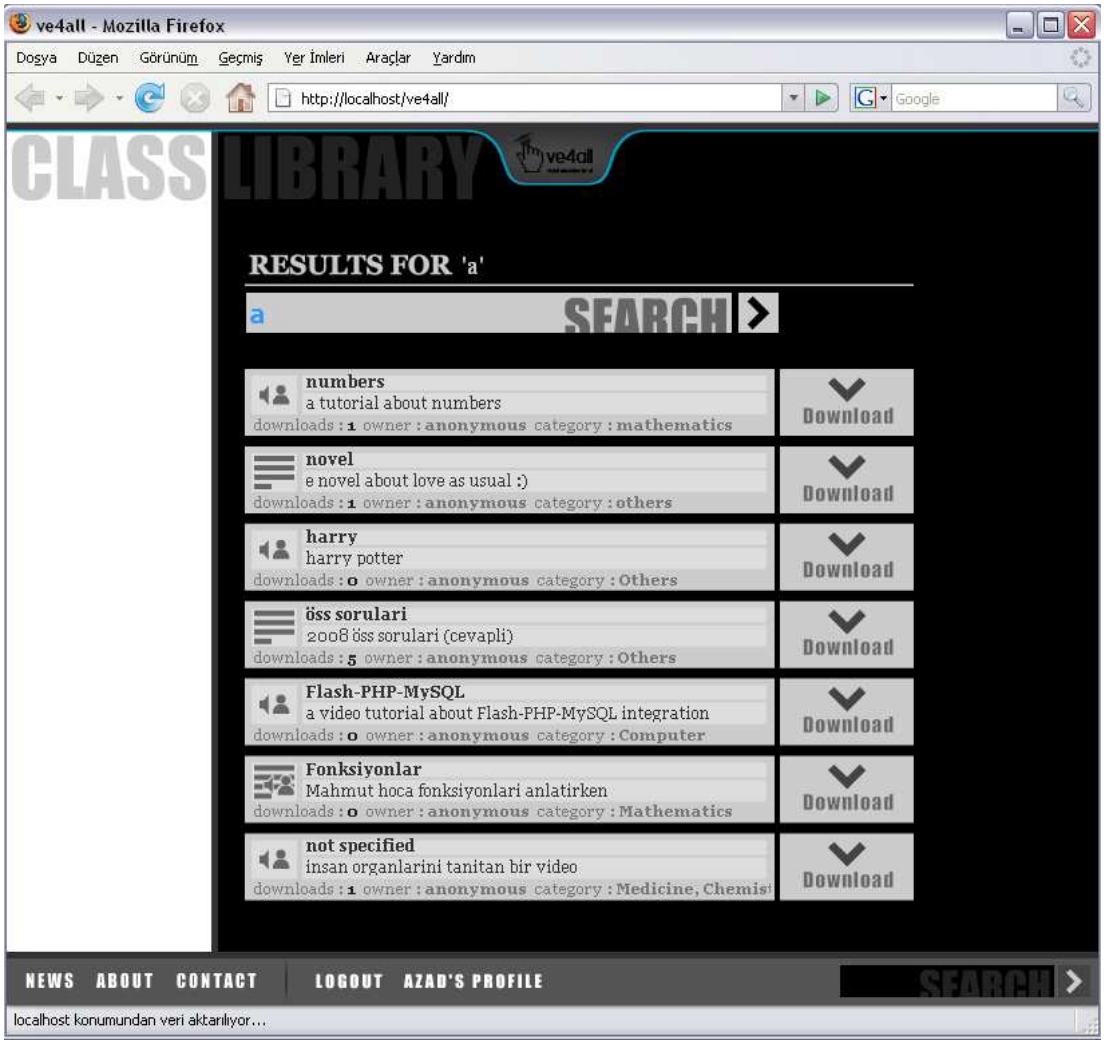

Figure 5.6 Materials list

5.4.2 Upload Materials

All materials in the download menu are uploaded by the users. You can upload your resources to the system to share with others by filling “Upload Materials Form”. All uploaded materials are checked by administrators, if they are educational materials then they will be available on the download menu. You can upload materials from your local machine or you can enter a url that is already existing on the web.

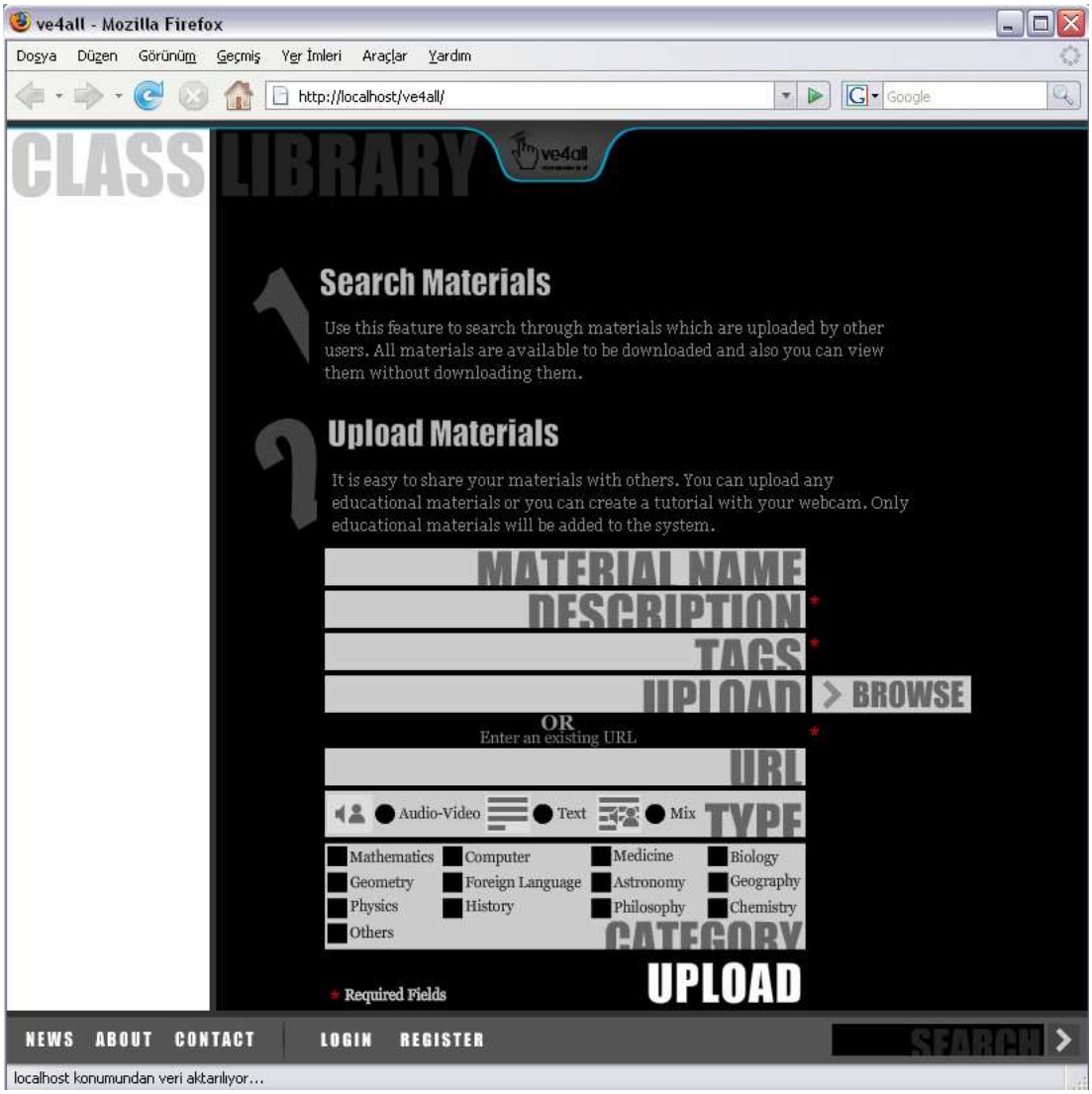

Figure 5.7 Upload Materials Form

5.4.3 Watch Lesson Record

You can search through lecturer webcam records which were recorded in the past lessons. Related records will be listed after clicking “Search” button. You can download records by clicking “Download” button and also watch them by clicking “Play Lesson” button.

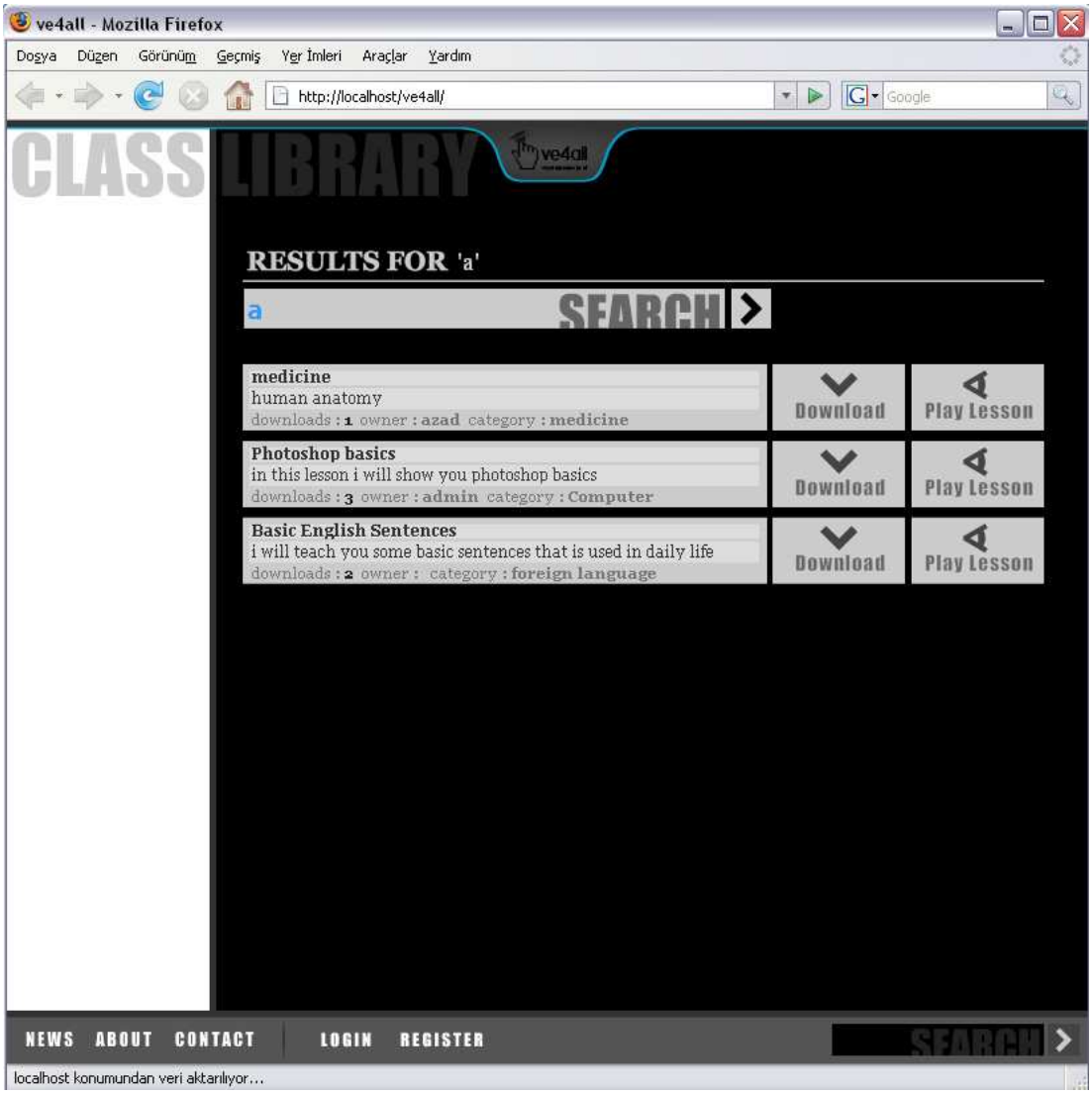

Figure 5.8 Lesson records list

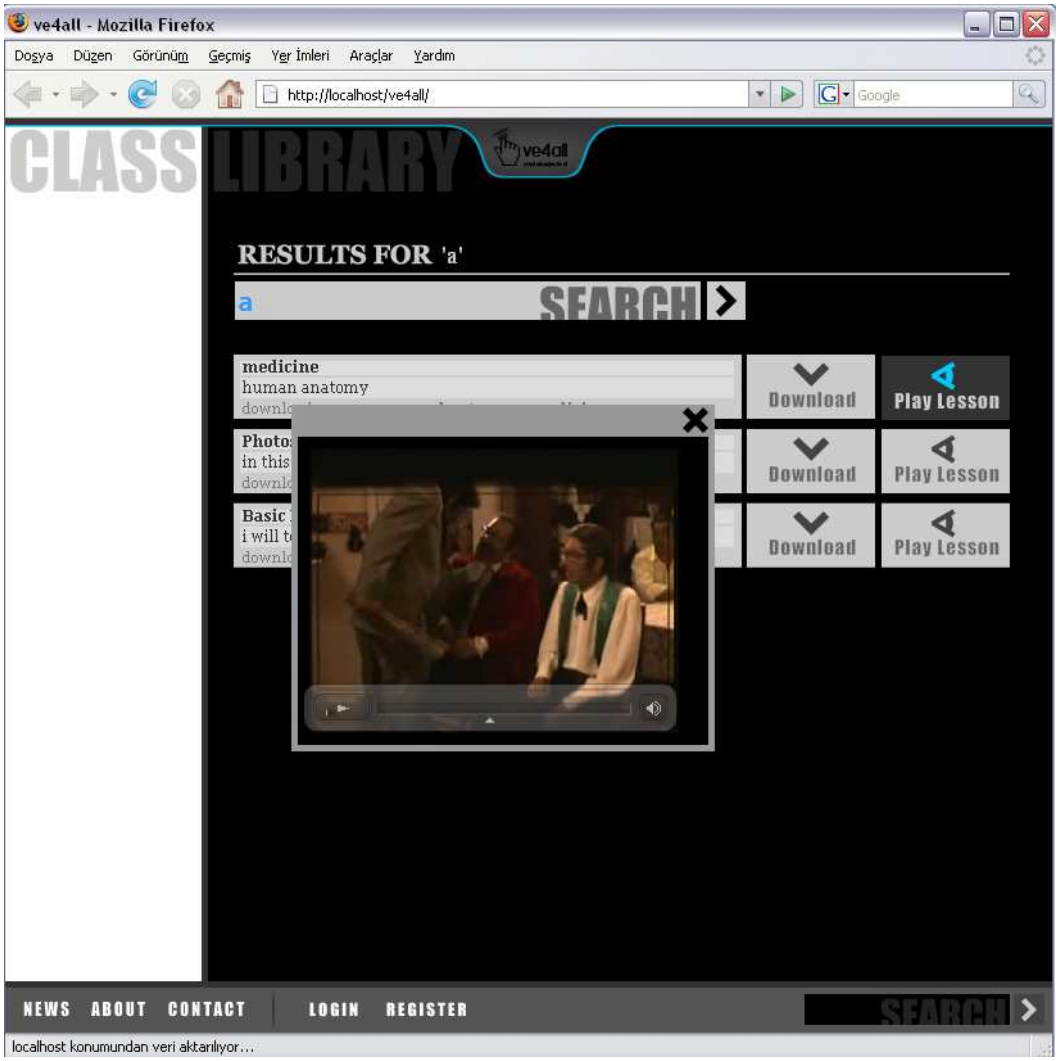

Figure 5.9 Play lesson record

5.5 User Operations

Some operations on the Ve4all need membership. Only registered user can make these operations. You can make user operations from menus which are placed at the bottom of the website.

5.5.1 Login

You can login to the system by entering your registered email address and password to the “Login Form”. By selecting “Remember me” check box, you will login to the system automatically on the next times.

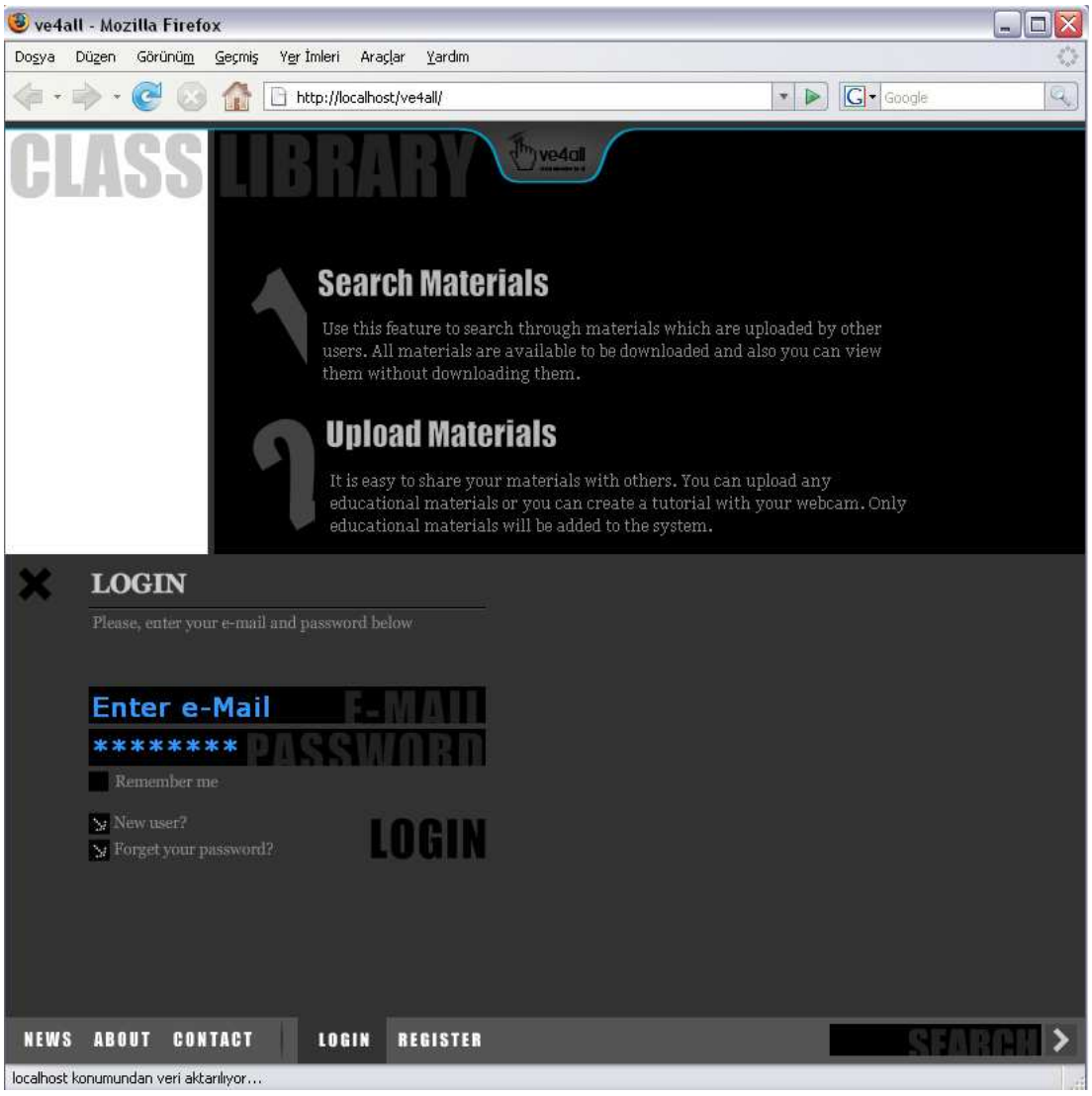

Figure 5.10 Login Form

5.5.2 Register

You can register to the system by using register menu. It contains a clear, understandable, and elegant “Registration Form”. With three step you will be a member. First step is about personal information. All fields in the first step are required to fill. Other steps are optional. Second step is about address information and third step is about user interests. New lesson and material announcements will be sent to you according to your interests information.

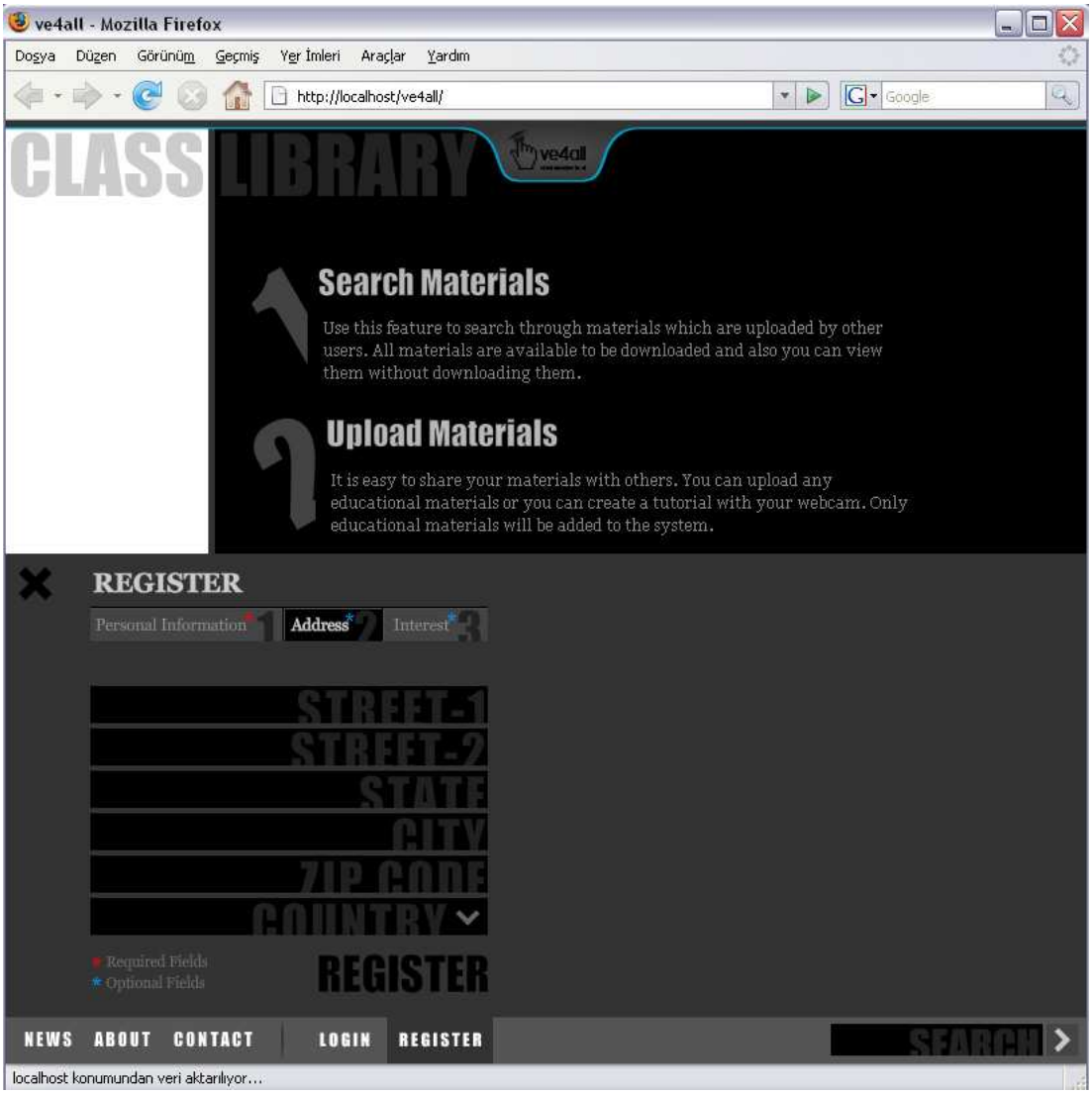

Figure 5.11 Register Form - second step (address information)

CHAPTER SIX

CONCLUSION AND FUTURE DEVELOPMENT

6.1 Conclusion

Education is an important issue in human life. Education is a lifelong process which begins at birth and continues throughout life. Human is in an interaction with his/her social and academic environment.

Technology is used in every period of educational life. Today, because technological improvements provide a great environment, it is used more commonly. With these technological improvements, educational life which is interrupted by natural disasters can be continued.

Nowadays, there is a popular field in education which is called distance education. With this new approach, people can get education everywhere (e.g. at home, at work, on holiday etc.). Virtual education can be considered as a more specific definition of distance education which uses virtual environment(internet).

Ve4all is a project that is intended to provide virtual education. Ve4all provides a common virtual environment for users who come from all around the world. So although people are in different parts of world, they can meet each other in a shared area in order to receive education.

Ve4all includes a virtual classroom. With this classroom environment, people can be a lecturer or a student. There is a library module which aims to share information between users. People can add an educational material to library or they can download existing materials. Also they can view webcam records which are captured from lecturer’s webcam.

6.2 Future Development

Because Ve4all is an e-learning platform, so many modules and functionalities about education can be added. However, this project is a starting point for an e-learning platform. Additional modules and improvements can be made by time. The structure of the project is improvable. It is designed in a flexible and compatible manner for future works to provide such improvements. So, there can be lots of improvements about e-learning and virtual education added to project.

There can be e-learning modules which can help users to improve the quality of education and communication. These modules can be integrated to the whole system without having any problem. Forums can be used to improve communication quality. Users can ask questions to other users with forums. Bulletin boards are common announcement channel for all users. Also e-mail group communications can be added to have private group interaction and so on.

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