



**CS 319 / Object-Oriented Software Engineering  
Term Project:**

**“Mastering Bilkent”  
Final Report**

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## **TABLE OF CONTENTS**

<b>TABLE OF CONTENTS</b>	<b>1</b>
<b>1.Introduction</b>	<b>2</b>
<b>2. Application Setup</b>	<b>2</b>
<b>3. The User's Manual</b>	<b>2</b>
<b>4. What's Changed During The Implementation Stage</b>	<b>3</b>
<b>5. What's Left</b>	<b>3</b>

## **1.Introduction**

*Mastering Bilkent* is an educational desktop application for students to get extra materials about their lectures, and also for instructors who want to give extra lectures and materials to their students. So the reason why we've chosen this application as our project is to help both students and instructors in Bilkent University to get along with their courses more efficiently.

In the development process, we mostly focused on graphical user interfaces and visual design. We've paid attention to using visually up to date, aesthetic and non eye-straining buttons, pages, and other visual images. Another thing we've focused on was good documentation. The listing of courses and their contents are also important parts for the end users, so we've focused on them too. Also, we're using a database so that the profiles of the users and courses along with their contents can be saved safely. So in case of service shut down or any other abnormality, the information about users and courses will not be lost.

In conclusion, *Mastering Bilkent's* target market is Bilkent Students and instructors who want to engage in course materials in a visually attractive, user friendly, and reliable environment.

## **2. Application Setup**

The requirements for this program are not much: The user's computer should have Java 8 SDK installed and configured properly and configure it to be the default program that opens .jar files. The system should be able to satisfy the requirements of Java 8 (like the graphics, memory, etc) and have a decent internet connection over DSL.

### 3. The User's Manual

## MASTERING BILKENT

E-mail:

Password :

Don't have an account? [Register Now!](#)

Figure 3.1

When user enters *Mastering Bilkent* s/he will see our application's login page. If a user isn't signed up to our sistem, s/he can register via the "Register Now!" link.

## MASTERING BILKENT

I am

Enter Your Name:

Enter Your Surname:

Enter Your E-mail:

Enter Your Password:

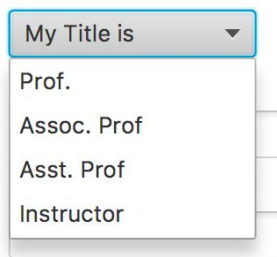
Re-Enter Your Password:

Department:

School Year For Students(1 to 4):

[Return to Login Page](#)

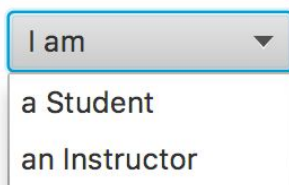
Figure 3.2



A dropdown menu with a light blue header containing the text "My Title is" and a downward arrow. The menu is open, showing a white background with four options: "Prof.", "Assoc. Prof", "Asst. Prof", and "Instructor".

In this screen user have to select whether s/he is an instructor or a student and one of the corresponding titles.

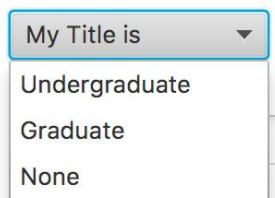
Figure 3.3



A dropdown menu with a light blue header containing the text "I am" and a downward arrow. The menu is open, showing a white background with two options: "a Student" and "an Instructor".

For Students

Figure 3.4



A dropdown menu with a light blue header containing the text "My Title is" and a downward arrow. The menu is open, showing a white background with three options: "Undergraduate", "Graduate", and "None".

For Instructors

Figure 3.5

## MASTERING BILKENT

The screenshot shows the 'MASTERING BILKENT' registration page. At the top, there are two dropdown menus: 'a Student' and 'Undergraduate'. Below these are several input fields: 'Enter Your Name:' with the value 'RümeYZa', 'Enter Your Surname:' with 'Dinçer', 'Enter Your E-mail:' with 'rumeYZadincer@gmail.c', 'Enter Your Password:' with '\*\*\*\*\*', 'Re-Enter Your Password:' with '\*\*\*\*\*', 'Department:' with 'CS', and 'School Year For Students(1 to 4):' with '3'. At the bottom, there is a 'Complete Registration' button and a link 'Return to Login Page'.

Figure 3.6

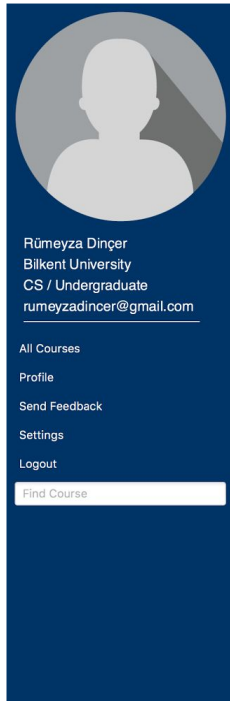
This is a sample Registration Page that is filled up by a student.

## MASTERING BILKENT

The screenshot shows the 'MASTERING BILKENT' registration page with an error message. The 'a Student' and 'Undergraduate' dropdowns are at the top. The input fields for Name, Surname, E-mail, Password, and Department are filled with the same data as in Figure 3.6. However, the 'Re-Enter Your Password:' field now shows the error message 'Wrong Password is Ente' in red text. The 'School Year For Students(1 to 4):' field is filled with '3'. The 'Complete Registration' button and the 'Return to Login Page' link are still present at the bottom.

Figure 3.7

User will encounter with error messages (Figure 3.7) when inappropriate information is entered or nothing is entered into the mandatory areas.



## Mastering Bilkent Student Home Page

[Register Another Course](#)

Figure 3.8

A student will see this page when s/he logs in the system properly at the first time. A student can reach the current available courses by "All Courses" link at the left navigation bar.



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CS / Undergraduate  
rumezadincer@gmail.com

[My Courses](#)

[Profile](#)


[Send Feedback](#)

[Settings](#)

[Logout](#)

## Mastering Bilkent Course List

CS319 - Object Oriented Software Engineering Bora Güngören / Spring 2017
CS315 - Programming Languages Buğra Gedik / Spring 2017
CS342 - Operating Systems Özcan Öztürk / Spring 2017
CS353 - Database Systems Özgür Ulusoy / Spring 2017
CS101 - Algorithms and Programming 1 David Davenport / Spring 2017
CS223 - Digital Design William Sawyer / Spring 2017
CS224 - Computer Organization Fazlı Can / Spring 2017



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Özcan Öztürk / Spring 2017
CS353 - Database Systems Özgür Ulusoy / Spring 2017
CS101 - Algorithms and Programming 1 David Davenport / Spring 2017
CS223 - Digital Design William Sawyer / Spring 2017
CS224 - Computer Organization Fazlı Can / Spring 2017
CS102 - Algorithms and Programming 2 Öznur Taştan Okan / Spring 2017
MATH101 - Calculus 1 Okan Tekman / Spring 2017
MATH102 - Calculus 2 Okan Tekman / Spring 2017

Figure 3.9 & Figure 3.10

These two pages above are course offering pages that a student sees when s/he clicks "All Courses" link.



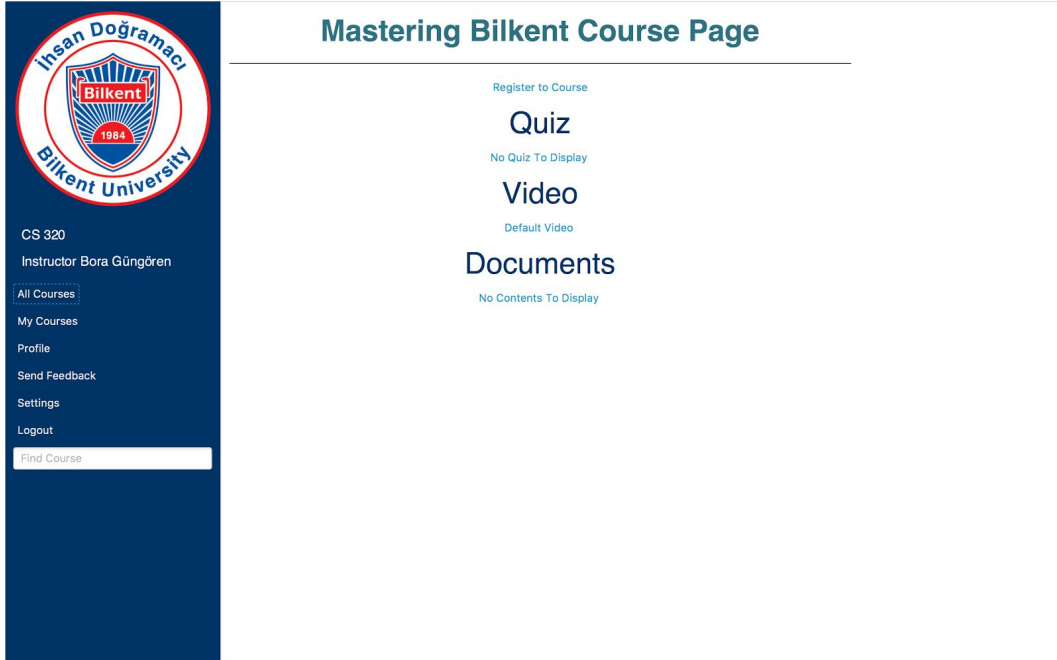


Figure 3.11

When user clicks the specific course link, cours page appears. For students, "Register to Button" link provides registration for selected course.

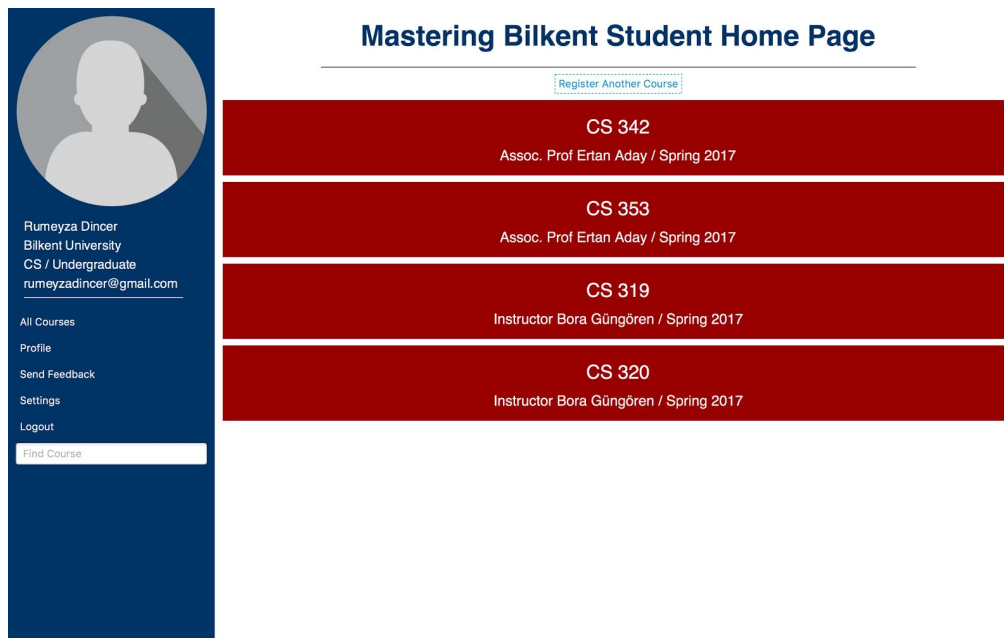


Figure 3.12

When student registers courses, his/her home page shows like Figure 3.12.

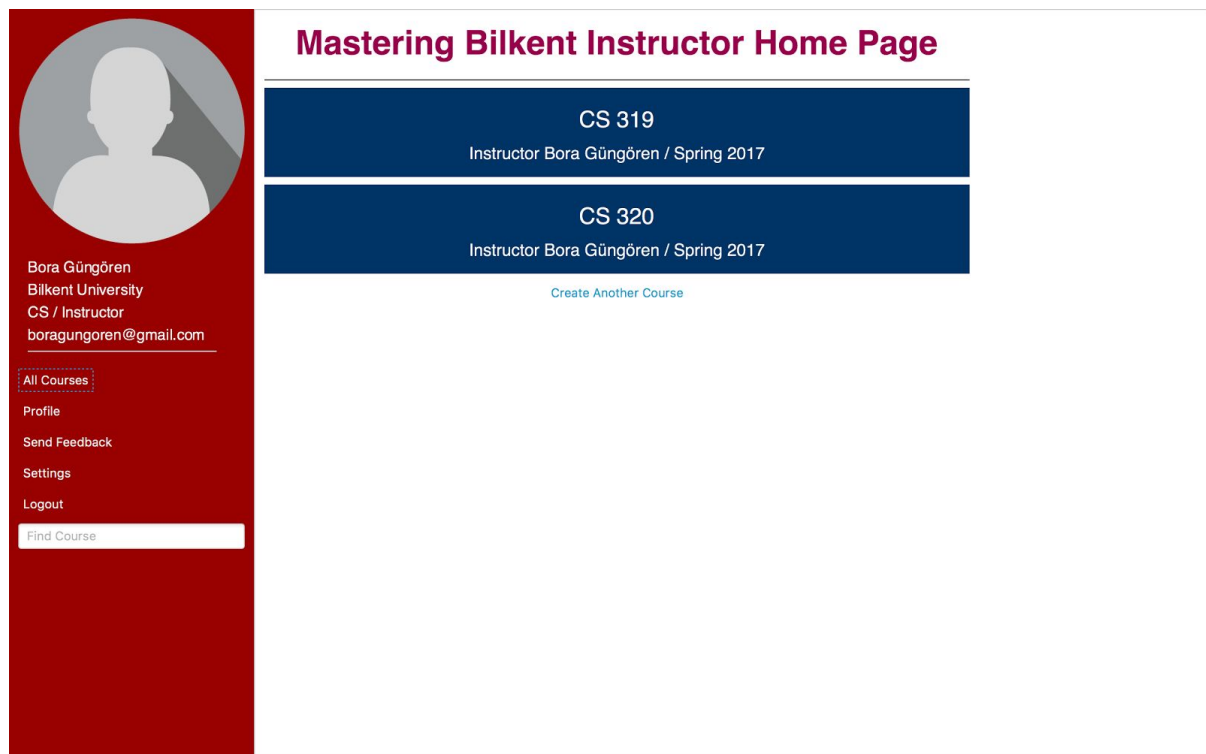


Figure 3.13

If a user registered as instructor and logs in his/her home page will seem like Figure 3.13. S/he can create new courses by "Create Another Course" link.

This is a screenshot of a web form titled 'New Course'. The form is contained within a window-like frame with a title bar. It includes two text input fields: one for 'Enter Course Name:' and another for 'Enter Course Key:'. Below the second input field is a checkbox with the label 'Activate course key.'. At the bottom center of the form is a button labeled 'Add Course'.

"Create Another Course" link will pop up  
"New Course" screen.

Figure 3.14

After creating course instructor can go to the course page and add contents by "Add Content" link which will appear in Figure 3.11 if instructor enters the his/her own created course page.

This link will pops up "Choose Content Box":

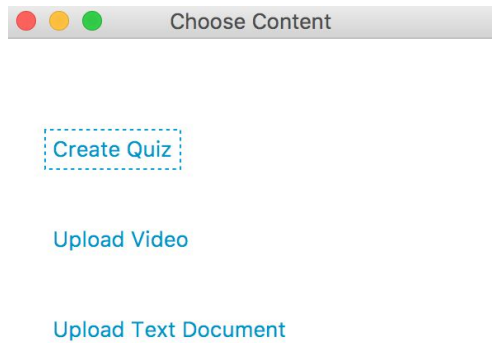


Figure 3.15

Create Quiz Link :

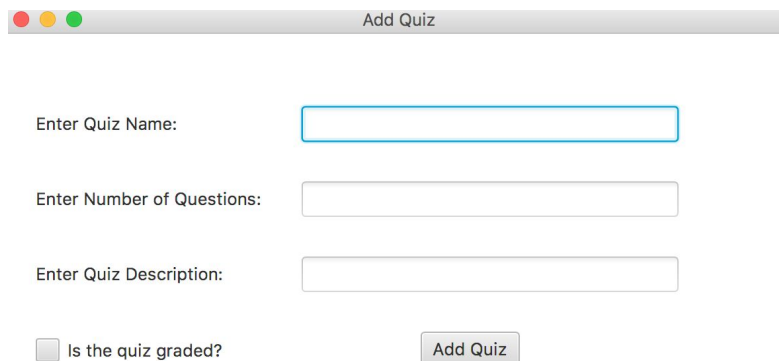
A screenshot of a web application window titled "Add Quiz". The window has a standard macOS-style title bar with red, yellow, and green window control buttons. The form contains the following elements: a label "Enter Quiz Name:" followed by a text input field; a label "Enter Number of Questions:" followed by a text input field; a label "Enter Quiz Description:" followed by a text input field; a checkbox labeled "Is the quiz graded?" with an unchecked box; and a button labeled "Add Quiz".

Figure 3.16

Instructor can create a quiz by entering required information above. Then s/he have to add questions by Figure 3.17 :

## MASTERING BILKENT

This screenshot shows a web form for adding a new question. It consists of several input fields and a button. The labels and their corresponding input fields are as follows:

- Enter Question Text:
- Enter First Choice:
- Enter Second Choice:
- Enter Third Choice:
- Enter Fourth Choice:
- Enter Fifth Choice:
- Enter Answer:

Below the input fields, there is a button labeled "Add New Question" and a link labeled "Return to Course Page".

Figure 3.17

Lastly, instructor can give a specific video url and upload it to the system Figure 3.18. We embed this video to our application. Later, other users can reach this video by a pop up screen created by Mastering Bilkent.

This screenshot shows a web form for adding a new video. It has a title bar with three colored buttons (red, yellow, green) and the text "Add Video". The form contains two input fields and a button:

- Enter Video Name:
- Enter Video URL:

Below the input fields, there is a button labeled "Add Video".

Figure 3.18

#### **4. What's Changed During The Implementation Stage**

During our implementation we did not have to change any of our major components, however, most of the changes we did are due to incomplete end product. The biggest change was we planned to use off-the-shelf components for course components' UI. However we could not find anything we like and ended up implementing video UI ourselves. And for the rest of the components we could not make them in time. Therefore, we only have quiz and video UI implemented in the end product.

#### **5. What's Left**

As it is proposed in the Analysis and Design Report, significant parts of the project are handled successfully. There are three parts left which couldn't be finished during the implementation stage.

The first part we could not put our contents which are pdf, audio, text to the database. Therefore, we are not able to show these components inside that course view and also allow Instructors to add these components to the database thus their courses.

The second part is in our Design Report we promised to make a grade class for quizzes to collect quiz data and report them to Instructor of the course but we could not implement it. So, the final application does not manage graded quizzes.

The last part is we could not implement a take quiz page for students to attempt the quizzes that are added to the courses by the Instructors. Therefore, it is not possible to see what is inside a quiz at the moment.