Online Exam System

System Design Document

V1.0

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1.Introduction

The following sections are an overview of the system design documentation of the online exam system which is design easy and understandable by us.Purpose of the system, design goals, definitions, acronyms and abbreviations are specified below.System design be defined to meet the requirements in the using system and provide the best services to users.In summary, we identify the needs of present system, and we design the system that we will do in line with these requirements in the OES.

1.1.Purpose of the system

The main purpose of Online Exam System is to provide a quality service to users.OES is a auxiliary system for students for students and instructor.It offers a variety of functions especially for instructor to prepare and evaluate exams.

1.2.Design Goals

OES is a web-based application and there are 3 sides in the system.First one is instructor side,second one is student side and the other one is admin side.In the side of instructor,system provides convenience of instructor to preparing exam and publish it into system,loading the correct answers to the questions,and loading the grades that the students take into the system.On the student side,student will be able to view the correct answer to the questions and their grades through functions that provide by system.In the last side,admin can make some changes on the system.System has basic interface and all sides are designed to be user-friendly.

1.3.Definitions, Acronyms, and Abbreviations

RAD:Requirement Analysis Design

SDD:System Design Document

HTTP:The HyberText Transfer Protocol

OES:A name of the system.

User:Who use the OES system

Instructor:A person who prepare,publish exam, publish student's grade and correct answer.

Student:A person who take and do exam.

Admin:A person who do some operations on database.

1.4.References

- http://www.projectmanagementdocs.com/project-documents/system-design-document.html#axzz4SO6CHUPQ
- http://www.doit.maryland.gov/sdlc/documents/sys_design_doc.doc

2.Current Software Architecture

Nowadays, there are a lot of Online Exam System on the market.Many university do some exam with these online system.Our system has two login part on the same page.First one is instructor login and the other one is student login.Instructor add question and delete question when he/she prepares exam.After that, he/she sets a limit-time for this exam and publish exam on the system. Also, instructor cancel exam if he/she wants.After that, instructor can load the students' grades when he/she evaluates exam. Finally, students must do exam until exam's time is over.This system is being made by using PHP. Also, we use PHPMYADMIN to create database.

3.Proposed Software Architecture

In OES, we propose a model-view-controller architectural model. Because this architectural system supply all the goals and requirements.Our other goal in choosing this architecture is to make the codes more regular, understandable and systematic.Without any problem users can enter the exam or prepare the exam.Users can login to the system if added by the Admin.Except this, there is no possibility to users register on the system.Schools that request the system can use it for free.

The interface of the system are designed to be easy to understand, simple and useful.

3.1.Overview

The system ensures that exams are conducted online when it is desired to be practiced in any school. This system is user friendly. Both teachers and students can use the system easily. On the student side ;the student enters the exam with very few clicks.On the teacher side; the teacher can do operations about exam easly. On the admin size, the admin can always access the system and can do the required operations such as delete, add, edit. Finally the OES has a lot of subsystems.

3.2. System Decomposition

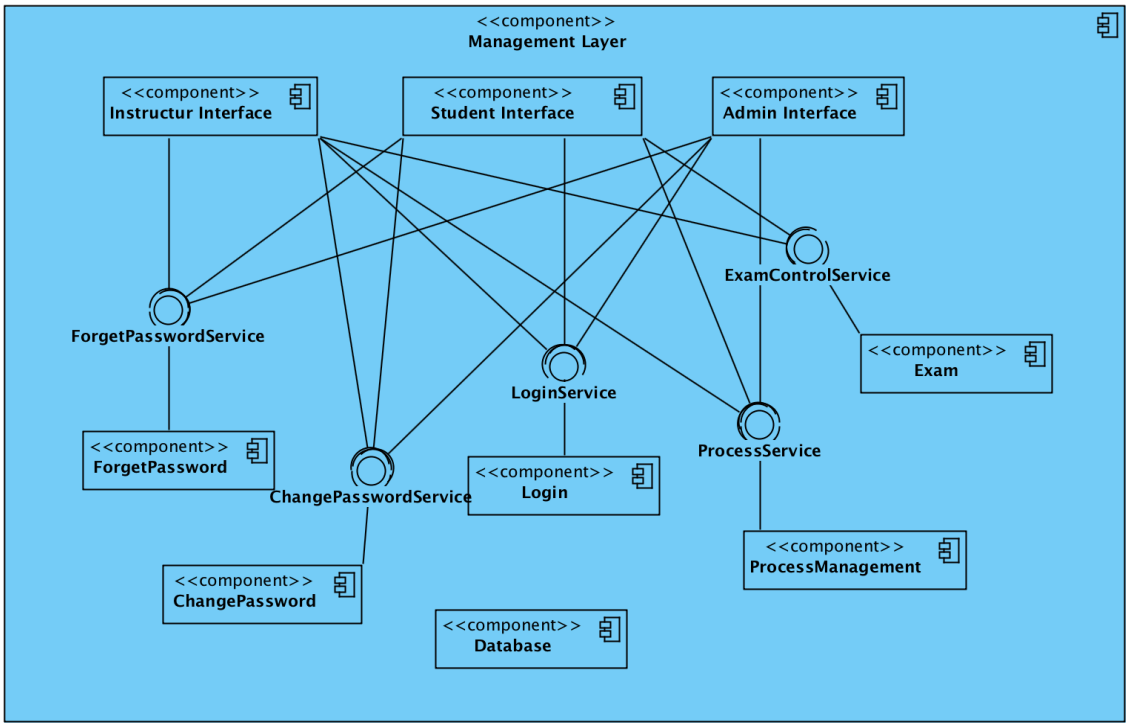


Figure1: Coupling view of Subsystem Decomposition

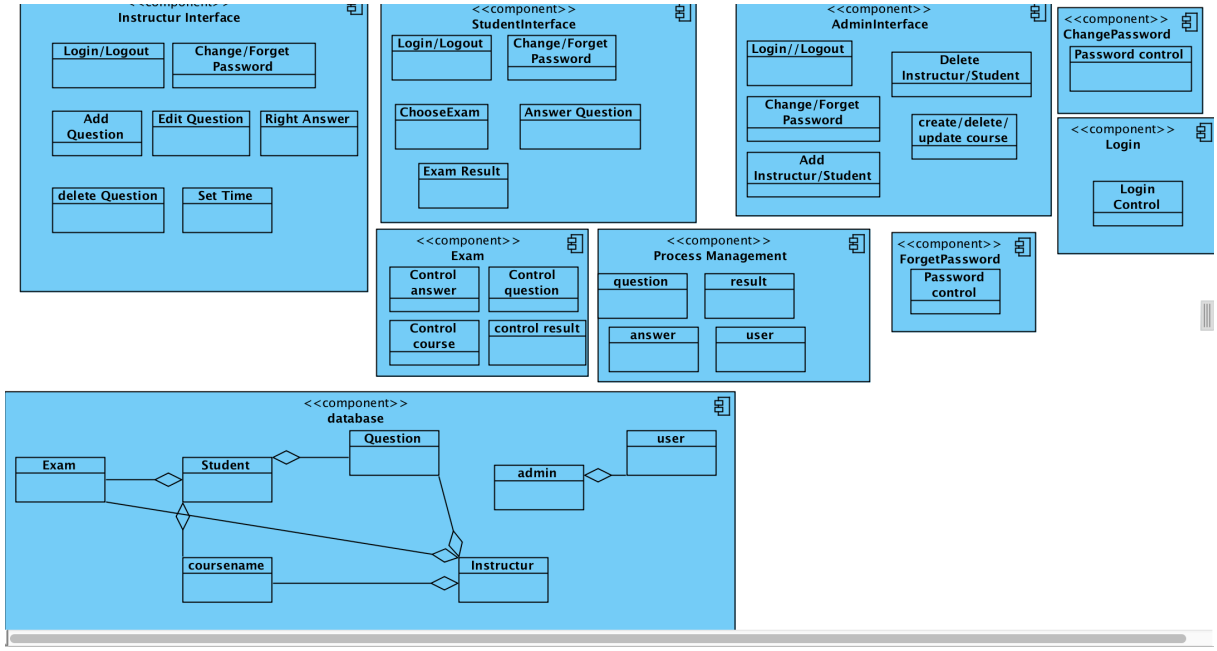
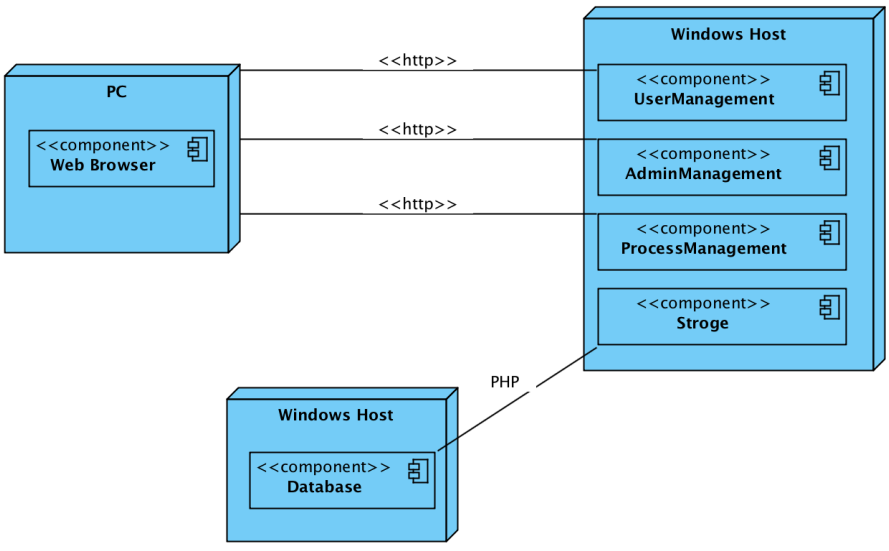
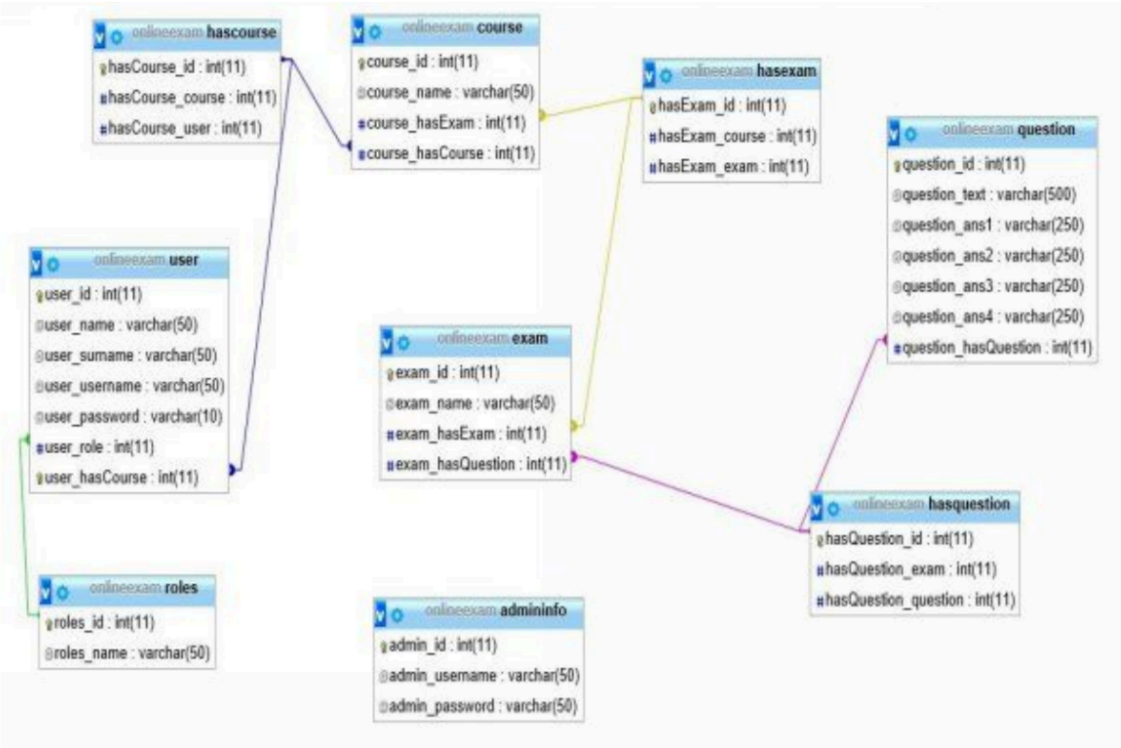


Figure 2: Cohesion view of Subsystem Decomposition

3.3. Hardware Software Mapping



3.4. Persistent Data Management



3.5 Access Control and Security

The Access control Matrix for the Online Exam System is as follows:

ACTOR/ CLASS	LoginPage.php	AdminPage.php	StudentPage.php	InstructorPage.php	ForgetPassword.php
Student	Yes	-	SelectCourse() startExam() submitExam() seeResult()	-	yes
Instructor	yes	-		SelectCourse() addExam() editExam() addResults() addAnswers() publishExam()	yes
Admin	-	AddCouser() addStudent() addInstructor() deleteStudent() deleteCourse() deleteInstructor() editCouser() editStudent() editInstructor()	-	-	-

Authentication and Security:

Online exam system is designed for the students and instructors to do exams. Students can do and instructors can add their courses' exams. For these reasons, system needs some information about users such as user's id, password and courses. These informations must not seen by another person. According to this, we were design and program our system carefully. We used MVC software architecture. When user enters new data on the system, there is no data loss and changings are applying succesfully on the system.

Authorization:

The system has database connection for first login. Users choose their roles login side and system decides role types which are right decisions and authorize the user to login the system. System has tree sub database classes for actors which are admin, student and instructor. Each actors has specific methods.

3.6 Global Software Control

Online exam system is based on **object-oriented** approach. This approach makes it easy to maintain and modify existing code as new objects can be created. System have a dynamic structure. User requests are response by the system every time. On server side operations are made on sessions. While users are logging the system, system create and get his session id.

3.7. Boundary Conditions

- *Start-up :*

  Enter the website.

- *Shut Down :*

  Logout or close the website

- *Error Conditions :*

  User does not exist.

  Username and password do not match.

  Username or password is wrong.

  E-mail address does not valid.

4. Subsystem Services

During the subsystem decomposition of online exam, we divide the system into smaller subsystems with strong coherence. The different subsystems should have a loose coupling.

The subsystem separation shows the entities of the following subsystems:

- User management subsystems.
- Account management subsystems.
- Process management subsystems.
- Database subsystems.

User Management Subsystem

This subsystem responsible for managing different users of the system by taking care of login information of different users. It manages the username and password of all users of the system.

Operations provided by this subsystem are:

- Create Login()
- Update Login()
- Login()
- Logout()

Admin Management Subsystem

This subsystem responsible for managing user accounts. It provides function for opening an account, updating an account and closing an account. Admin is the only actor who communicates with this subsystem. This subsystem uses user management subsystems for authenticating the admin, instructor and student account and their account information.

The operations provided by admin management subsystems are:

- Login()
- Add Instructor()
- Delete Instructor()
- Add Student()
- Delete Student()
- Create/delete/update courses ()
- Logout()

Process Management Subsystems

This subsystem is responsible for managing the process. This provides all functions for managing exam details, questions, answers, result generation and other things.

Instructor performed by this subsystem are:

- Login()
- Create Questions()
- Edit Questions()
- Delete Questions()
- Set Time()
- Update of questions and right Answers()
- Change/Forget Password()
- Logout()

The students in this subsystems are:

- Login()
- Choose Exam()
- Answer Questions()
- See their Exam Score()
- Change/Forget Password()
- Logout()

Database Subsystems

The database subsystem will be implemented by relational database management system used to store admin's data, instructor's data and student's data.

The User Interface Subsystem

This subsystem different type of users of the system by handled of login information of different users.

Admin Interface Subsystems

This subsystem responsible for managing user accounts. It provides function for opening an account, updating an account and closing an account. Admin is the only actor who communicates with this subsystem. This subsystem uses user management subsystems for authenticating the admin, instructor and student account and their account information.

Teacher Interface Subsystems

This subsystem in charge of managing the process. This ensure for enter exam details, questions, answers, result and set exam time.

Student Interface Subsystems

This subsystem in charge of managing the process. This ensure for enter an online exam and see exam score details.

Database Subsystems

The database subsystem will be implemented by relational database management system used to store admin's data, instructor's data and student's data.

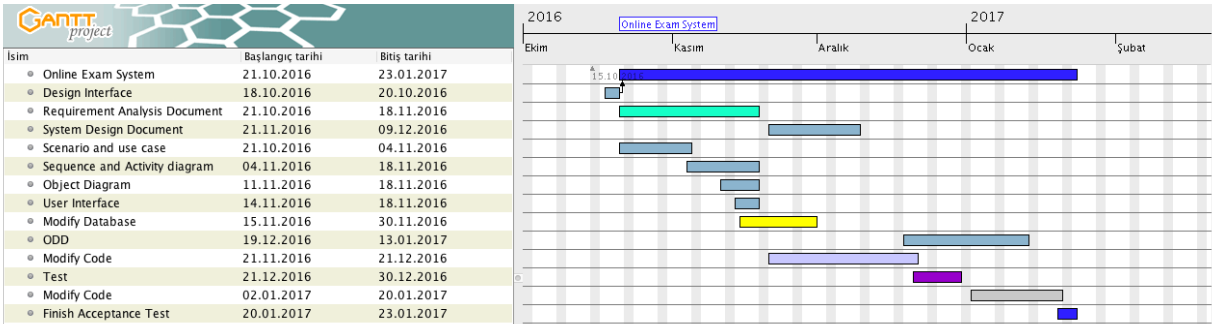
5. References

1. Bruegge B. & Dutoit A.H.. (2010). *Object-Oriented Software Engineering Using UML, Patterns, and Java*, Prentice Hall, 3rd ed.

2. http://www.projectmanagementdocs.com/project-documents/system-design-document.html#axzz4SO6CHUPQ

3. http://www.doit.maryland.gov/sdlc/documents/sys_design_doc.doc

6. GANTT CHART



İsim	Başlangıç tarihi	Bitiş tarihi
Online Exam System	21.10.2016	23.01.2017
Design Interface	18.10.2016	20.10.2016
Requirement Analysis Document	21.10.2016	18.11.2016
System Design Document	21.11.2016	09.12.2016
Scenario and use case	21.10.2016	04.11.2016
Sequence and Activity diagram	04.11.2016	18.11.2016
Object Diagram	11.11.2016	18.11.2016
User Interface	14.11.2016	18.11.2016
Modify Database	15.11.2016	30.11.2016
ODD	19.12.2016	13.01.2017
Modify Code	21.11.2016	21.12.2016
Test	21.12.2016	30.12.2016
Modify Code	02.01.2017	20.01.2017
Finish Acceptance Test	20.01.2017	23.01.2017