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**Online-Exam System Documentation**

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# 1. CHAPTER ONE

# 1.1 INTRODUCTION TO ONLINE EXAMINATION SYSTEM

**Definition of online examination system**

Online examination system is software application which allows a particular company or institute to arrange, conduct and manage any objective examination via online.

* Online examination system is conducted through internet or intranet (if within organization) to test a remote candidate or student
* Online examination is an examination that many educational institutions use to eliminate manual examinations
* Online examinations system has three purpose

1. To allow online examination takes at different places take the examination at same time through the online examination website.

2 .through careful planning and proper coding enable entrance, result, and checking and admission status on websites.

3. To integrate data base with program allowing administrator easily addition of question and creation of entrance examination.

* This document will propose all features and procedures to develop the system.
* This document specially contain about objectives, scope limitation ,process model, primary requirements, possible project backwards, methodology, advantages ,and finally references.

# 1.2 BACKGROUND OF ORGANAZATION

## 1.2.1 Existing system

The whole process of assigning test and evaluating their scores after test, was done manually till date. Processing the test paper i.e checking and distributing respective scores used to take time when the software was not installed.

## 1.2.2 SCOP OF PROBLEM

As much as most local institutions of learning have embraced E-learning to raise the bar and so as to cope with

With the ever growing numbers of learners (students)

Very few institutions have adapted have an online examination system.

A lot of resource (time and money) are wasted since students have to move from place to place to exams.

Time and men power is also wasted as setting and marking of the exam is done manual.

# 1.3 STETMENT OF PROBLEM

Since the traditional have many drawbacks such as:-

* Time consuming:-
* Since information is not collected timely and accurately, the output is not precise and on time.
* The searching and retrieving mechanism of the system takes a lot of time.
* Difficulty of analyzing the test manually.
* Processing the input in order to get an output takes much time because of the manual system
* More observers are required to take exam of many students.
* Results are not accurate since calculations are done manually.
* It is difficult to check whether the output data is valid or invalid.
* The chance of losing exam's result is higher in current systems.
* Checking of result is time consuming since it done manually.
* Limitation of no of student can give examination at a time.
* With the development of information technology and use it in an orderly and properly helps to overcome the existing error in the manual system.

# 1.4. OBJECTIVE OF THE PROJECT

## 1.4.1 General objective

The  general objectives of this project(online examination system) are developed for Adigrat University.

## 1.4.2 Specific objective

* Students can get service in short time.
* Minimizes the work load of examiner.
* Minimizes the cost of resources.
* Makes the working process attractive and easy to use.
* Utilizes human and material resource efficiently.
* Demonstrate the potential of the system for further application and scalability.
* The academies can access student’s information easily.
* Keeping student result consistently.
* Students can take exam everywhere if internet access exist that makes comfortable environment for them.

# 1.5 FUNCTIONAL REQUIREMENTS AND NON-FUNCTIONAL REQUERIMENTS

# **5.1.1 Functional requirements**

This section gives a functional requirement that applicable to the online examination system.

Accordingly, the tasks that the project will do are listed as follows:

The features that are available to the Administrator are:

Req-1 The system shall allow the administrator to log in.

* Req-2 The system shall enable the administrator to view courses
* Req-3: The system shall allow the administrator to create/delete an account.
* Req-4: The system shall enable the administrator to view the accounts.
* Req-5: The system should allow the administrator to change the password
* Req-6: The system should enable the administrator to access all the accounts of the faculty members/students.

The features available to the Students (candidate) are:

Req-1 The system shall allow the students to log in.

Req-2 The system shall enable the students to register.

Req-3 The system shall all to view courses information.

* Req-4: The system should allow the students to view the different categories of Test available in their account.
* Req-5: The system shall allow the students to change password.
* Req-6: The system shall allow the students to view their marks.
* Req-7: The system shall enable the students to view the various reading material.
* Req-8: The system shall allow the students to view and modify its profile but can modify it to some limited range. The features available to the Examiner are:
* Req-1 The system shall allow the Examiner to log in.
* Req-2 The system shall enable the Examiner to view courses.
* Req-3: The system shall allow the examiner to view the different categories of Test conducted by users.
* Req-4: The system shall allow the examiner to change password.
* Req-5: The system shall allow the examiner to view and modify Results.

# 5.2.2 NON FUNCTIONAL REQUERIMENTS:

**Non-f**unctional requirements are they are implicit expectations since they are not specially documented and needed in the system they are known as quality attributes of software

**the** non-functional requirements of the system are described below:-

**Performance**

The software shall support use of multiple users at a time.

There are no other specific performance requirements that will affect development.

**Safety**

The database may get crashed at any certain time due to virus or operating system failure. Therefore, it is required to take the database backup.

**Security**

Some of the factors that are identified to protect the software from accidental or malicious access, use, modification, destruction, or disclosure are described below. Keep specific log or history data sets

Assign certain functions to different modules

Restrict communications between some areas of the program

Check data integrity for critical variables

Later version of the software will incorporate encryption techniques in the user/license authentication process.

Communication needs to be restricted when the application is validating the user or license.

**Software Quality Control**

The Quality of the System is maintained in such a way so that it can be very user friendly to all the users.

The software quality attributes are assumed as under:

Accurate and hence reliable.

 Secured.

 Fast speed.

 Compatibility.

**Usability:**

This section describes how the software interfaces with other software products or users for input or output

# 1.6 METHODOLOGY

## 1.6.1 Data Collection methods

From the various fact-finding methods, we used the following tools:

* Personal observation: assessing and analyzing the overall examination system has been carried out by personally observing the current working system.
* Interview**:** we got some sort information about the current examination system from the universities that help us to analyze the system.

## 1.6.2 Design Methodology

In the system analysis and design phase of a project we should use the object-oriented approach that examines requirements from the perspective of the class and objects found in the problem domain. The reasons that we use the object-oriented approach are:

* We can inherit properties of the class that are defined in the super class.
* We can reuse methods for avoiding redundancy.
* The data and functions are encapsulated in the objects that help us for easily debugging purpose.
* It enables us to comprehensively model a system before we develop it.
* Modification of the object implementation is easy because objects are loosely coupled.
* Understanding of the structure is easy because object-oriented modeling represents real world entities.
* Direct manipulation of architectural components is possible because several object-oriented programming languages exist.

To solve an actual problem in an industry, software developer or a team of developers must integrate with a development strategy that include the process, methods and tools layer and generic phases. This strategy is often referred to a process model or a software developing paradigm.

Our project follows the **waterfall model.**

**The steps of waterfall model are:**

* Requirement Definition
* System and Software Design
* Implementation
* Integration and System Testing
* Operation and Maintenance

# 1.7 Beneficiaries of project

**University’s Registrar Office**

Our system has a great deal on the issues concerned with examination by providing necessary information, easing the work and the working environment, and others. The registrar office gets different functionality from the system these are:

* Manages student’s data easily and efficiently.
* Gives examination activity on time.
* Controls the re-exam(remedial) of students easily.
* Saving their time
  + - * Reduce complexity

**University Students and Other staff**

* It minimizes the work load for examiner.
* This project used as reference or guideline for students when they conduct software requirement analysis.
* It can be used as guideline for system designers on software developers.

**Group beneficiaries**

* + - * The project has initiated our team to get knowledge of how to develop the online-examination system
      * While struggling with some difficulties, the team got a lot of experiences of solving problems

# 1.8 SCOPE AND LIMITATION OF PROJECT:

The scope and limitation of this system is: dealing with automation of service it provides doesn’t go with the short time that we have. So we limit ourselves to the following areas.

* On-line Exam system is designed for only Educational Institutes (like schools, universities, training centers).
* The system will not be able to handles all the operations, and generates reports as soon as the test is finish, that includes name, mark, time spent to solve the exam.
* The type of questions is only multiple choice or true and false.
* It only Hold for all operation and generate reports to student, examiner and administrator.
* Support only multiple choices questions.
* We miss some scheduling program while gathering information.

# 1.9 WORK BREAKDOWN AND SCHEDULE

Table 1: schedule

|  |  |  |  |
| --- | --- | --- | --- |
| Task | Starting date | Ending date | Duration |
| Introduction | 01/4/2012 | 02/04/2012 | 2 days |
| Background of project | 04/04/2012 | 05/04/2012 | 2 days |
| Scope of problem | 07/04/2012 | 09/04/2012 | 3 days |
| Objective of project | 10/04/2012 | 10/04/2012 | 1 days |
| Functional requirement | 11/04/2012 | 13/04/2012 | 3 days |
| Non-functional requirement | 15/04/2012 | 16/04/2012 | 2 days |
| Methodology | 17/04/2012 | 17/04/2012 | 1 days |
| Beneficiaries of  project | 18/04/2012 | 19/04/2012 | 2 days |
| Scope and limitation of project | 21/04/2012 | 22/04/2012 | 2 days |
| Work-breakdown and schedule | 28/04/2012 | 30/04/2012 | 3 days |
| References | 01/05/2012 | 01/05/2012 | 1 day |
| Use case diagram and activity diagram | 08/05/2012 | 10/05/2012 | 3 days |

Table 2: project organization team members

|  |  |
| --- | --- |
| Name | Job in project |
| Bilen Aregaie | Sw analyzer |
| Gudina Fikadu | Project manager |
| Natnahel Aberdo | Programmer |
| Eyeru Mezegebe | Sw designer |
| Arega Tilahun | Writer |

Table 3: work break down description

|  |  |
| --- | --- |
| Job title | Description |
| Project manager | To manage all process in the project |
| Sw designer | To design the models and diagrams that helps programmer in the implementation phase |
| Programmer | To programming the process of project |
| Sw analyst | To analyze the requirement of of online-examination system |
| Writer | Collect drafts from each members  Re-write and reformate the documents come from each members  Have a good print skill  Have a good skill to correct grammars of statement |

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# 2. CHAPTER TWO

***UNIFID MODELING LANGUDEGE***

# 2.1 Use case diagram



Figure 1: use diagram

## 2.1.1 Description of view courses information

Table 4: Descreption of view courses information

**Description 1**

|  |  |
| --- | --- |
| use case name | View courses information |
| use case number | UC-1 |
| use case description | To view courses to the user. |
| Participating Actor | Students, examiner and administrator. |
| Pre-condition | * The user login into the system. |
| Flow of events | 1. The user clicks on the “view course information” link from the OES home page. 2. The System displays search options (course code, course name) and Advanced. 3. The user searches the course using course code, course name. 4. The system displays the searched course. 5. The user selects that course. 6. The system displays the full course information. |
| Post condition | * The user views the course information. |
| Alternative flow of events | * 3a, If there is a mistake in the searching course case, the system displays error message and it allows to the user to make correction. |

Table 5: Descreption of the Administrator to create account

**Description 2**

|  |  |
| --- | --- |
| use case name | create account |
| use case number | UC-2 |
| use case description | To create new account to the user |
| Participating Actor | Administrator |
| Pre-condition | * Administrator login in to the system. * Administrator has full information about authorized user(full name, id, e-mail). |
| Flow of events | 1. Administrator click on the create account button.  2. The system displays the create account form.  3. Administrator fills the form and click on signup button.  4. The system generates new user account with username and password.  5. Administrator sends this new username and password to the user by using their e-mail address. |
| Post condition | * The system displays successful message. |
| Alternative flow of events | * 4a, If the message or username and password don’t reach to the user or get problem by any means, the system allows to him to checks and solves the problem of that username and password. * 5a, after he checks and solves the problem of that username and password, he resends this reviewed username and password to the user by using their e-mail address**.** |

Table 6: Description of Modify result by Examiner

**Description 3**

|  |  |
| --- | --- |
| Use case name | Modify result |
| Use case number | UC-3 |
| Use case description | To modify student’s result in to student database table of the system. |
| Participating Actor | Examiner |
| Pre-condition | * The examiner login into the system by using valid username and password. * The examiner knows the grade submission date. * The examiner work students result in Excel. * The examiner identifies students that take a test or not. |
| Flow of events | 1. The examiner clicks on my-course link. 2. The system displays all courses that the examiner teaches in the academic year. 3. The examiner clicks on the submit result button on the course that the examiner wants to submit result. 4. The System displays the results. 5. The examiner fills all the necessary information and upload the result. 6. System checks the inputs validation. 7. The examiner views the confirm message. |
| Post condition | * System saves the inserted grade. |
| Alternative flow of events | * 3a, If the examiner submits incorrect student result, the system displays permission message or activation date (i.e. expired or yet activate). |

Table 7: Description of Register student

**Description 4**

|  |  |
| --- | --- |
| use case name | Register |
| use case number | UC-4 |
| use case description | To register students. |
| Participating Actor | Student |
| Pre-condition | * Student logs in to the system. |
| Flow of events | 1. Student clicks on the Register button. 2. The system displays student registration form. 3. Student fills registration data and click on Register button. |
| Post condition | * The system displays successfully registered message. |
| Alternative flow of events | * 2a, If the input data has errored the system display error message & allow to try again |

## 2.1.2 Activity diagram for displaying and taking exam



Figure 2: uml activity diagram for displaying and taking exam

