

Online Examination System

Project report submitted in partial fulfilment of the requirement for the award of the Diploma in Computer Engineering by

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CERTIFICATE

This is to certify that the project report entitled <u>ONLINE EXAMINATION</u> <u>SYSTEM</u> being submitted by Mr/Ms. <u>DOSHI HENSI VIPULBHAI</u> with <u>206020307004</u> in partial fulfillment for the award of the Diploma in Computer Engineering to the Gujarat Technological University is a record of bona fide work carried out by him/her under my guidance and supervision.

(Guide Name and Signature)





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ACKNOWLEDGEMENT

We sincerely thank our department for the academic advancement it has provided usduring the semester and finally provided us an opportunity for the project work. Ourspecial thanks to N.R.Trivedi for his constant help, thoughtful suggestions and deep interest which has enabled us to complete this work.

I am pleased to present this report on the project named "Online Examination system" developed at A.V Parekh Technical Institute in the Computer Department based on Gujarat Technological University.

ABSTRACT

"Online Examination system." is a web-based Examination system based on MCQs.

In the world of internet, many of our tasks are getting done online/in a paperless manner. To convert current examination system in to digital one, we are going to build this Online Exam system project. It will be more accurate and less time consuming with various options available to display result to the students. Online Examination system also needs less manpower. Almostall organizations now-a-day, are conducting their objective exams by online examination system but they lack an effective platform which can conduct the examination with a great ease, it saves students time in examinations. Organizations can also easily assess the performance of the students. Also, it is a paperless system so saving environment as well as keeping all the records safe in a digital platform so it can be filtered accessed easily.

The project allows faculties to create their own tests. It would enable educational institutes to conduct tests, quizzes and create feedback forms. It asks faculty to create their set of questions. Faculty can manage group and students into the groups. Further the tests are associated with specific groups so that only associated student can appear for the tests. The result of the responsewould be available to that faculty. Further the result would also be visible in students' log in to track their progress. This project would be helpful for creating practice tests, say for educational institutes and as a feedback system.

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1.1 INTRODUCTION

Online Exam System is a full-fledged system which is beneficial for both teachers and students. With this site, Administrator can allow authorized entry of users which includes faculties and students.

Faculties are the one who register on the site and conduct timed exams in their respective courses. They can add questions in the test by selecting the available settings.

The tests added by faculties are available to students who can attempt the test and get score then and there. Thus the purpose of the site is to provide a system that saves the efforts and time of both the teachers and the students.

Online Exam System is a web application that establishes a network between the faculties and the students. Faculties enter on the site the questions they want in the exam. These questions are displayed as a test to the eligible students. The answers enter by the students are then evaluated and their score is calculated and saved. This score then can be accessed by the faculties and administrator to evaluate their performance.

Online Exam System provides the platform but does not directly participate in, nor is it involved in any tests conducted. Questions are posted not by the site, but users of the site.

The administrator keeps an eye on the overall functioning of the system which includes how many users are using the site, how many tests are added by which faculty, how many students have given those tests and view the score of any student.

The system entitled "Online Exams System" is application software, which aims at providing services to the institutes and providing them with an option of selecting the eligible students by themselves.

1.2 CHARACTERISTICS OF EXISTING SYSTEM: -

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

✓ DISADVANTAGES: -

- 1) The currently system is very time consuming.
- 2) It is very difficult to analyse the exam manually.
- 3) To tale exam of more candidates more invigilators are required but no needof invigilators in case of online exam.
- 4) Result are not precise as calculation and evaluations are done manually.
- 5) The chances of paper leakage are more in current system as compared toproposed system.

1.3 OVERVIEW OF PROPOSED SYSTEM WITH ADVANTAGE: -

"ONLINE EXAMINATION" provides a fully customized web application whose functional working is effective and time saving for performing group tasks in secured and effective manner. To appear for an exam in manual system in a university is very time- consuming process. Now the purpose of this system is to overcome the shortfall faced in the previous system already working in the area. The website will have to be secure, and properly working on WAN. It should be speedy with good interface and should support multiple platforms.

This application is used to conduct online examination. The students can sit at individualterminals and login to write the exam in the given duration. The questions have to be given to the students. This application will perform correction, display the result immediately and also store it in database. This application provides the admin with a facility to add new exams. This application provides the faculty add questions to the exam, modify questions in the exam in a particular exam. This application takes care of authentication of the admin, faculty as well as the student.

ADVANTAGES: -

- 1) Physical presence at a given location is absolutely not necessary
- 2) No time is spent on evaluation
- 3) Results are available instantly
- 4) Can be easily accessed 24/7 over the open test period
- 5) Easy Accessibility.
- 6) Available at a reduced cost.
- 7) Accuracy in checking the answer, calculating result.

- 8) User friendly.
- 9) Online exams Convenience, security and flexibility.

1.4 SCOPE

This website provides facility to institutes to conduct online exams and maintaining the records of users by providing authorized entry, Users can register as Faculty/Student and wait for the admin to send a notification email. User can then login with the valid username and password and can carry out their respective tasks.

• Maintaining records of users

Admin can add/delete a particular user who registers on site and can view the activities of users i.e. how many tests are added by a particular faculty, how many tests are given by particular student and view their respective scores.

• Add test in particular course

Faculty can add time limited tests in a particular course by adding questions in the same, can view which student has attempted the tests and view their respective scores

• Attempt test (Student)

Student can attempt test added by faculty and get their score then and there. They can also get the test review 1.e. answer explanation of each question in test.

1.5 PURPOSE

The purpose of on-line test system is to take online test in an efficient manner and no time wasting for checking the paper. It provides online facility to Institutes to conduct online exams and to Students to give online exams. Institutes (Le the faculties in institute) can enter and edit the questions in test. Students can login and give their respective exams and view their score then and there. The main objective of on-line test simulator is to efficiently evaluate the candidate thoroughly through a fully automated system that not only saves lot of time but also gives fast results

1.6 PROCESS MODEL

> Software Development and Methodology

A software development process, also known as a software development life-cycle (SDLC), is a structure imposed on the development of a software product. It is often considered a subset of systems development life cycle. There are several models for such processes, each describing approaches to a variety of tasks or activities that take place during the process. Some people consider a life-cycle model a more general term and a software development process a more am specific term. It aims to be the standard that defines all the tasks required for developing and maintaining software.

The System Development Life Cycle framework provides a sequence of activities for system designers and developers to follow. It consists of a set of steps or phases in which each phase of the SDLC uses the results of the previous one.

A Systems Development Life Cycle (SDLC) adheres to important phases that are essential for developers, such as planning, analysis, design, and implementation, and are explained in the section below. It includes evaluation of present system, information gathering, and feasibility study and request approval. A number of system development life cycle (SDLC) models have been created: waterfall, fountain, spiral build and fix, rapid prototyping, incremental, and synchronize and stabilize. The oldest of these, and the best known, is the waterfall model: a sequence of stages in which the output of each stage becomes the input for the next. These stages can be characterized and divided up in different ways, including the following:

✓ System Development Life-Cycle



> Preliminary Analysis:

The objective of phase 1 is to conduct a preliminary analysis, propose alternative solutions, describe costs and benefits and submit a preliminary plan with recommendations.

Conduct the preliminary analysis: in this step, you need to find out the organization's objectives and the nature and scope of the problem under study. Even if a problem refers only to a small segment of the organization itself then you need to find out what the objectives of the organization itself are. Then you need to see how the problem being studied fits in with them.

Propose alternative solutions: In digging into the organization's objectives and specific problems, you may have already covered some solutions. Alternate proposals may come from interviewing employees, clients, suppliers, and/or consultants. You can also study what competitors are doing. With this data, you will have three choices: leave the system as is, improve it, or develop a new system. Describe the costs and benefits.

> Systems analysis, requirements definition:

Defines project goals into defined functions and operation of the intended application and analyzes end-user information needs.

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> Systems design:

Describes desired features and operations in detail, including screen layouts, business rules,

process diagrams, pseudo-code and other documentation.

Development: The real code is written here.

> Integration and testing:

Brings all the pieces together into a special testing environment, then checks for errors, bugs and

inter-operability

1.7 Planning & Analysis

✓ Project Planning

Planning

Planning is an objective of each and every activity, where we want to discover things that belong

to the project. An important task in creating a software program is extracting the requirements or

requirements analysis. Once the general requirements are gathered from the client, an analysis of

the scope of the development should be determined and clearly stated. Customers typically have

an abstract idea of what they want as an end result, but do not know what software should do.

Skilled and experienced software engineers recognize incomplete, ambiguous, or even

contradictory requirements at this point. Frequently demonstrating live code may help reduce the

risk that the requirements are incorrect.

Certain functionality may be out of scope of the project as a function of cost or as a result of unclear

requirements at the start of development. If the development is done externally, this document can

be considered a legal document so that if there are ever disputes, any ambiguity of what was

promised to the client can be clarified.

In the planning phase of online exam system, it was decided that the system should be able to

conduct online tests which can be added by the authorized user.

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The system will have admin which allows authorized entry of users who register on site and can view the activities of added users. The admin can add / delete user at any given time. After deleting any user, all the activities related to the user get deleted from database

Faculty can add practice test which the student can give more than once and actual test where the final score is recorded and can be given only once.

Students will be able to give the test at the available time of the test and view score immediately after submitting the test

Students will be able to view the number of questions answered / unanswered and their respective answer explanation. Faculty will be able to send result certificate to the student i.e.: grade the student depending his/her test score.

2.0 SYSTEM REQUIREMENTS SPECIFICATION

2.1 User Characteristics

This system will be used in Three User Modules which are Administrator and Student. As all of these have different requirements, the modules are designed to meet their needs and avoid any type of confusion. The features of all three User Modules have been described below

2.2 FUNCTIONAL REQUIREMENTS

✓ Admin

• R1 : Login

• Input : User Name, Password

• Process : Check Whether given User Name and Password is correct or not

• Output : Vaild or Invaild

• R2 : Accept Registration

• Input : Password

Process : Cheack whether given Password is correct or not

• Output : Vaild or Invaild

• R3 : Add/Delete/Update Question

• Input : Sub_home,sub_code

• Process : Add a new/update and remove question

Output : Modified or Not Modified

R4 : Create Question

• Input : Sub_home,sub_code

Process : Create Question for Exam

Output : Modified or Not Modified

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• R5 : Post Question

• Input : Question_no,Question_name

• Process: Checks Question is post or not post

• Output : Checked or not checked

• R6 : Giving Correct Answer

• Input : Question_no,Question_name

• Process : Given Answer of question

• Output : Correct Answer give or not

• R7 : Time limit

• Input : Start_time,End_time

• Process : Counting

• Output : Time is modified or not modified

• R8 : Set Mark

• Input : En_no,Name

• Process : Checks Question

• Output : Give marks for Particular Student

• R9 : Negative marks if required

• Input : En_no,Name,Qu_no.

Process : View Negative Marks

Output : Modified or Not Modified

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• R10 : Logout

• Input : User Name

• Process : Checks given user_name is correct or not correct

• Output : Vaild or Notvaild

✓ Faculty

• R1 : Login

• Input : User_name,Email_id,Password

• Process : Check given imformation are correct or not

• Output : Successfull or invaild

• R2 : Manage Class

• Input : class_name,class_code

• Process : Given input will be enter in the field and create a new class

• Output : class created successfully or not

• R3 : Manage student

• Input : student_name,enrollment_no,department,semsester

• Process : Student is created

• Output : student created successfully or not

• R4 : Create exam

• Input : subject_name,questions,date

• Process : Insert, Modify, Delete questions in exam

• Output : Successfull or not

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• R5 : View Result

• Input : exam_name,result,date

Process : check whether given answers are correct or not

• Output : answers are correct or not

• R6 : View feedback

Input : student_name,enrollment_no

• Process : Check the feedback

• Output : reply feedback

• R7 : Logout

• Input : User_name

Process : check given username is correct or not

• Output : logout

✓ User

• R1 : Login

Input : User_name,Password

• Process: Cheaks Whether given user_name and password is Valid or not

Valid

• Output : Valid or InValid

• R2 : Selecting The question

• Input : Question number

• Process : Select question

• Output : Finallize question

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• R3 : Appearing the exmination

• Input : User_name,Password

• Process : Checks Whether given user_name and password is correct or not

correct

• Output : Student will apper in the examination

• R4 : Reviewing the given respones

• Input : Review

Process : Send massage

• Output : Review message send or not send

• R5 : Logout

• Input : User_name

• Process : Checks given user_name is correct or not correct

• Output : Valid or InValid

2.3 NON FUNCTIONAL REQUIREMENTS:

Non-functional requirements are those requirements that don't define the actual working of the system. Non-functional requirements are used to judge the quality of the system. Non-functional requirements cover all the remaining requirements which are not covered by the functional requirements. They specify criteria that judge the operation of a system, rather than specific behaviours. Non-functional requirements in our project are:

Usability

• Reliability

• Integrity

• Performance

✓ Usability

Usability is a quality attribute used to access how easy the interface is to use. Usability is ease of use. It tells how user friendly the interface is.

It includes memorability, learnability, and satisfaction. Our software interface has all the above quality. Any kind of user can easily understand the interface.

✓ Reliability

Reliability is how much the system is consistent in different platforms. The ability of an apparatus, system to consistently perform its required function, on demand and without degradation or failure.

✓ Integrity

Integrity means doing the right thing in a reliable way. Data integrity is a fundamental component of security. In its broadcast use, "Data Integrity" refers to the accuracy and consistency of data stored in a database, data mart or another construct. Data integrity is the overall completeness, accuracy and consistency of data.

✓ Performance

Performance is also a major non-functional requirement. Performance Requirements about resources required, response time, transaction rate or anything else having to do with performance.

3.0 SYSTEM ANALYSIS MODELING – USER-BASED

3.1 Feasibility Study

Once scope has been identified (with the concurrence of the customer), it is reasonable to ask: "Can we build software to meet this scope? is the project feasible?" All too often, software engineers rush past this questions (or are pushed past them by impatient managers or customers), only to become mired in a project that is doomed from the onset.

When we are developing the system (software), we must know the proposed system will be feasible i.e. practically implemented or not. It may be possible that the proposed system may not be implemented due to many reasons like it may take long time in development than the specified time limit, cost may increase than proposed one etc. Therefore we must analyze the feasibility of the system.

Feasibility is the analysis of risks, costs & benefits relating to economics, technology & user operation.

There are several types of feasibility depending on the aspect they covers. Some important feasibilities is as follows:

- Technical Feasibility
- Time-schedule Feasibility
- Operational Feasibility
- Economical Feasibility

✓ Technical Feasibility:

The technical feasibility assessment is focused on gaining an understanding of the present technical resources of the organization and their applicability to the expected needs of the proposed system. It is an evaluation of the hardware and software and how it meets the need of the proposed system

- This project on Online Exam System will be platform independent since it is being coded in PHP scripting language.
- HTML is used to create web pages.
- MySol database will be used for storing date.
- Hardware requirements used are compatible with all 0.5.
- Only authorized person would be able to use the website so it would be secure.

✓ Time-schedule Feasibility:

A project will fail if it takes too long to be completed before it is useful. Typically this means estimating how long the system will take to develop, and if it can be completed in a given time period using some methods like payback period. Schedule feasibility is a measure of how reasonable the project timetableis. Given our technical expertise, are the project deadlines reasonable? Some projects are initiated with specific deadlines. You need to determine whether the deadlines are mandatory or desirable. The scheduled time for online exam system was about 3 to 4 months and the project is completed in 4 months.

✓ Operational Feasibility:

Operational feasibility is a measure of how well a proposed system solves the problems, and takes advantage of the opportunities identified during scope definition and how it satisfies the requirements identified in the requirements analysis phase of system development

The operational feasibility assessment focuses on the degree to which the proposed development projects fits in with the existing business environment and objectives with regard to development schedule, delivery date, corporate culture, and existing business processes

✓ Economic Feasibility

The purpose of the economic feasibility assessment is to determine the positive economic benefits to the organization that the proposed system will provide. It includes quantification and

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identification of all the benefits expected. This assessment typically involves a cost/benefits analysis.

Economic analysis is the most frequently used evaluating the effectiveness of proposed system, more commonly known as Benefit analysis. The Benefit analysis is to determine benefits and savings which are expected from candidate system and compare them with cost, if the benefits are more than the cost, then decision is made to design and implement the system.

3.2 USE CASE DIAGRAMS

A use case diagram is used to represent the dynamic behaviour of a system. It encapsulates the system's functionality by incorporating use cases, actors, and their relationships. It models the tasks, services, and functions required by a system/subsystem of an application. It depicts the high-level functionality of a system and also tells how the user handles a system.

Actor:

A person or a system which uses the system being built for achieving some goal. An actor or external agent placed outside the system model, but interacts with the system.

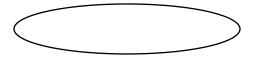


Relationship:

The line connecting the actor and the use case is called the communication relationship. It indicates that the actor makes use of the functionality provided by the use case.

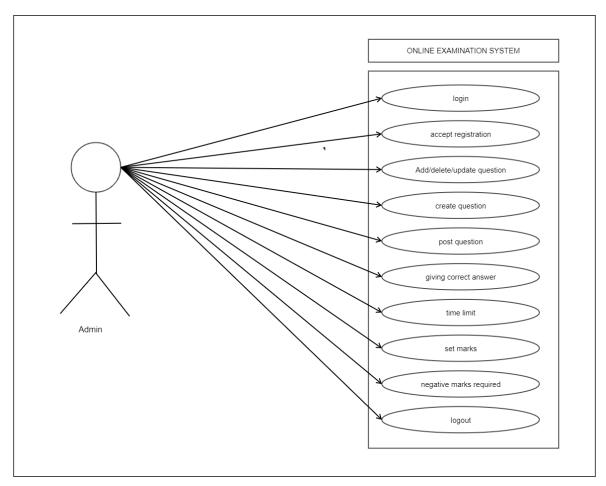
Use case:

A use case is initiated by the user with a particular goal in mind, and completes successfully when that goal is satisfied. It describes sequence of interactions between actor and the system necessary to deliver the service that satisfies goal.



3.2.1 Use Case Diagram

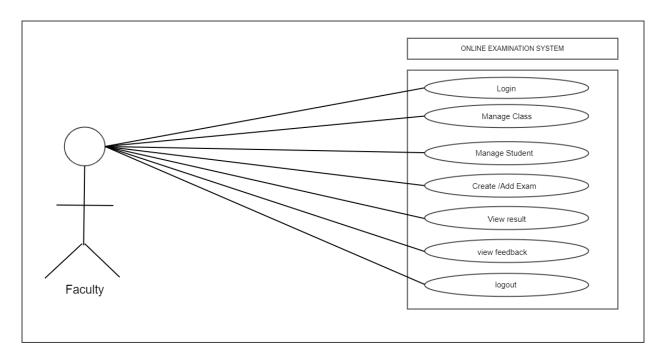
• Admin



[Fig. 3.1. Admin: Use Case Diagram]

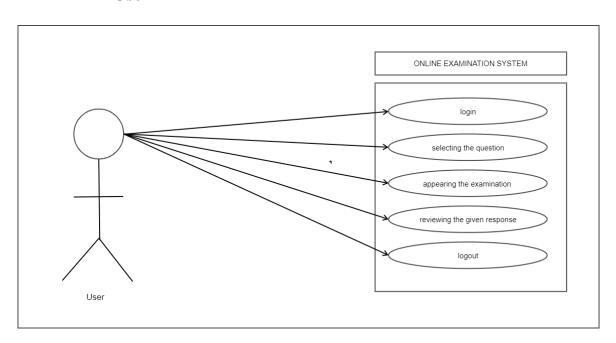
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• Faculty



[fig. 3.2 faculty: Use case Diagram]

• User



[Fig. 3.3. User: Use Case Diagram]

4.1 SYSTEM ANALYSIS AND DESIGN – DATA-BASED

4.2 DATA MODELLING

Data modelling is the process of creating a simple diagram of a complex software system, using text and symbols to represent the way data will flow. It is the process of creating a data model for the data to be stored in a database. This data model is a conceptual representation of Data objects, the associations between different data objects, and the rules.

4.2.1 Data Dicationary

A data dictionary is a collection of the entity, attributes, data type and constraints for data elements and models. The data in a data dictionary is the metadata about the database. These elements are then used as part of a database, research project, or information system.

✓ User_Master :-

uid	Int(10)	Primary key, Auto increment, not null
uname	Varchar(50)	-
password	Varchar(50)	-
email	Varchar(100)	-
First_name	Varchar(100)	-
Last_name	Varchar(100)	-
User_type	Int(1)	-
hbid	Int(10)	-

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✓ Class_Master :-

cid	Int(10)	Primary key, Auto increment, not null
cl_name	Varchar(50)	-
cl_owner	Int(10)	-

✓ Class_faculty:-

cf_id	Int(10)	Primary key, Auto increment, not null
cid	Int(10)	Foreign key(class_Master, cid)
facid	Int(10)	Foreign key(user_Master, uid)

✓ Class_student :-

cs_id	Int(10)	Primary key, Auto increment, not null
cid	Int(10)	Foregin key(class_Master, cid)
stu_id	Int(10)	Foreign key(usermaster, uid)
bid	Int(10)	Foreign key(branch_master, bid)

✓ Branch_master :-

bid	Int(10)	Primary key, Auto increment, not null
b_name	Varchar(100)	-
lid	Int(10)	Foreign key(level_Master, lid)

✓ Level_Master :-

lid	Int(10)	Primary key, Auto increment, not null
level_name	Varchar(100)	-

✓ Subject_Master :-

subid	Int(10)	Primary key, Auto increment, not null
subname	Varchar(100)	-

✓ Question_Master :-

qid	Int(10)	Primary key, Auto increment, not null
Sub_id	Int(10)	Foreign key(subject_Master, subid)
diff	Int(1)	-

✓ Test_Master :-

t_id	Int(10)	Primary key, Auto increment, not null
t_title	Varchar(200)	-
t_desc	Text	-
fac_id	Int(10)	Foreign key(User_Master, uid)
cid	Int(10)	Foreign key(class_Master, cid)
test_date	Timestamp/date time	-
test_start time	Timestamp/date time	-
test_duration	long	-

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✓ Test_question :-

tqid	Int(10)	Primary key, Auto increment, not null
t_id	Int(10)	Foreign key(test_Master, t_id)
q_id	Int(10)	Foreign key(question_Master, qid)
marks	float	-

✓ s_Master :-

r_id	Int(10)	Primary key, Auto increment, not null
t_id	Int(10)	Foreign key(test_Master, t_id)
tq_id	Int(10)	Foreign key(test_question, tq_id)
stuid	Int(10)	Foreign key(user_Master, uid)
result	float	-

4.2.2 E-R (ENTITY-RELATIONSHIP) DIAGRAM

ER Diagram stands for Entity Relationship Diagram, also known as ERD is a diagram that displays the relationship of entity sets stored in a database. In other words, ER diagrams help to explain the logical structure of databases.

At first look, an ER diagram looks very similar to the flowchart. However, ER Diagram includes many specialized symbols, and its meanings make this model unique. The purpose of ER Diagram is to represent the entity framework infrastructure.

ER diagrams are created based on three basic concepts:

4 \	T 4040	
1 N	Entities	•
.,	TAILLIES.	

Entities are represented in rectangle.



2) Attributes: -

Attributes are represented in oval

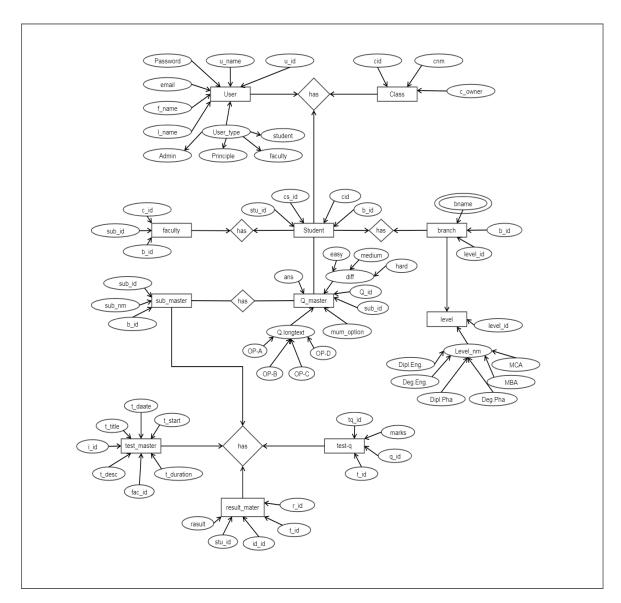


4) Relationships: -

Relationship is represented in diamond shape.



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[fig. 4.1 E.R.Diagram]

4.1 BEHAVIORAL MODELING

Behavioural modelling is an operational principle for all requirements analysis methods. Yet, only extended versions of structured analysis provide a notation for this type of modelling.

It is specially designed to make us understand behaviour and factors that influence behaviour of a System. Behaviour of a system is explained and represented with the help of a diagram. During analysis, behavioural models describe what the internal logic of the processes is without specifying how the processes are to be implemented. Later, in the design and implementation phases, the detailed design of the operations contained in the object is fully specified.

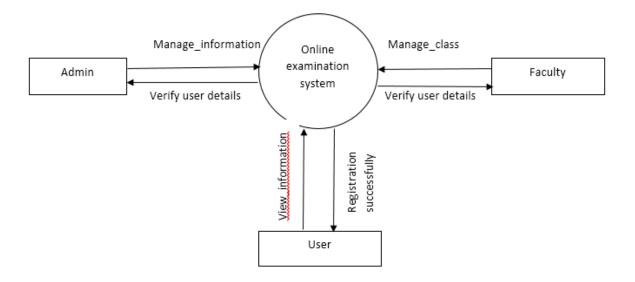
4.2.1. Data Flow Diagram

Data flow diagram is graphical representation of flow of data in an information system. It is capable of depicting incoming data flow, outgoing data flow and stored data. The DFD does not mention anything about how data flows through the system.

There is a prominent difference between DFD and Flowchart. The flowchart depicts flow of control in program modules. DFDs depict flow of data in the system at various levels. DFD does not contain any control or branch elements.

4.2.2.1 Context Level Diagram (Level 0)

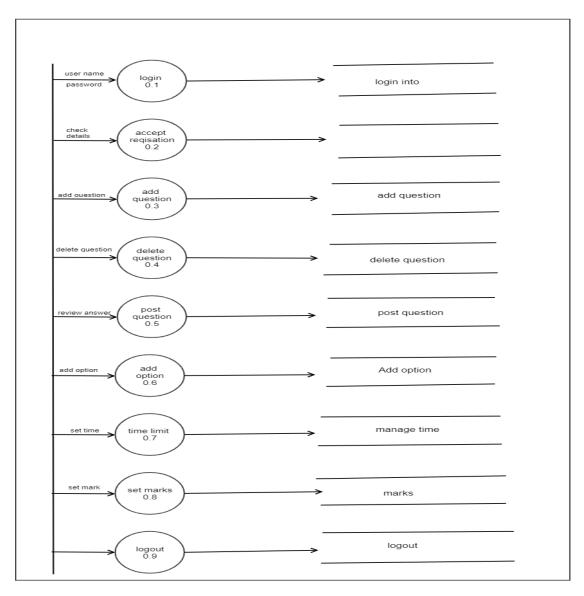
Level 0 - Highest abstraction level DFD is known as Level 0 DFD, which depicts the entire information system as one diagram concealing all the underlying details. Level 0 DFDs are also known as context level DFDs.



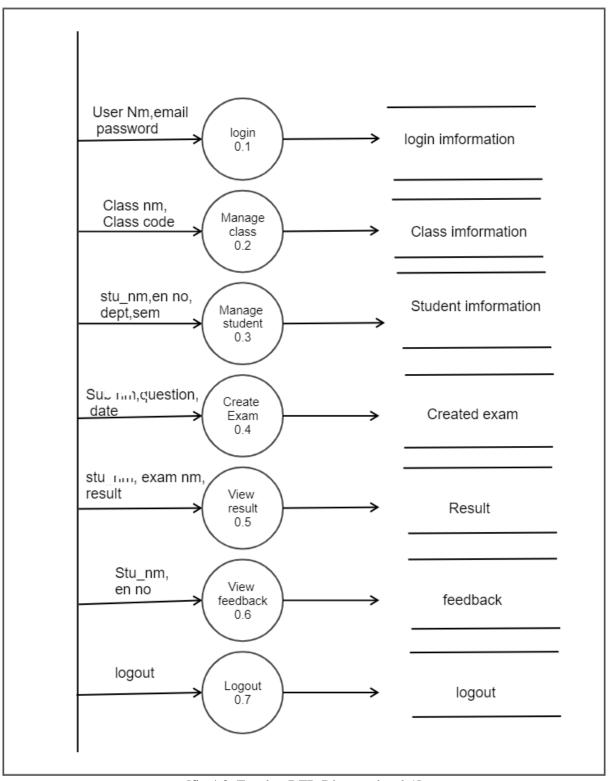
[fig 4.1 DFD Diagram level-0]

4.2.2.2 **DFD** – Level 1

The Level 0 DFD is broken down into more specific, Level 1 DFD. Level 1 DFD depicts basic modules in the system and flow of data among various modules. Level 1 DFD also mentions basic processes and sources of information.

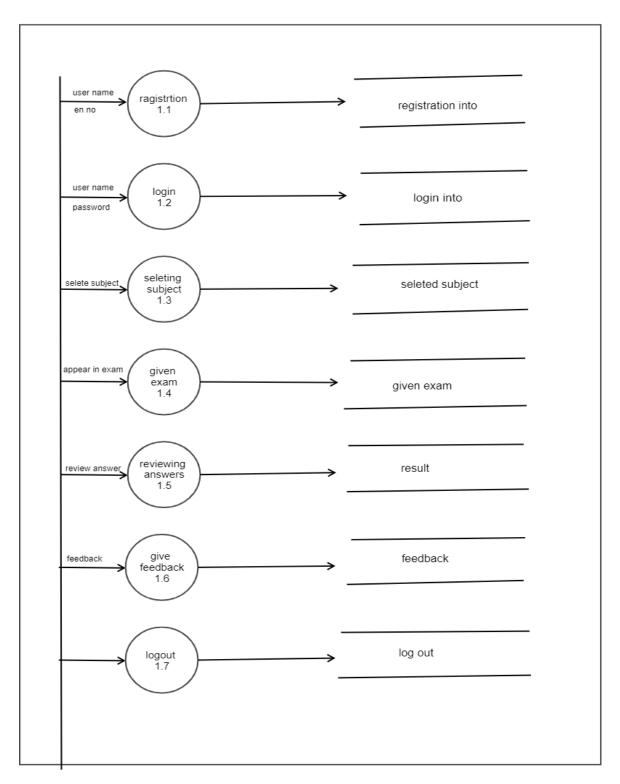


[fig 4.2 Admin:DFD Diagram]



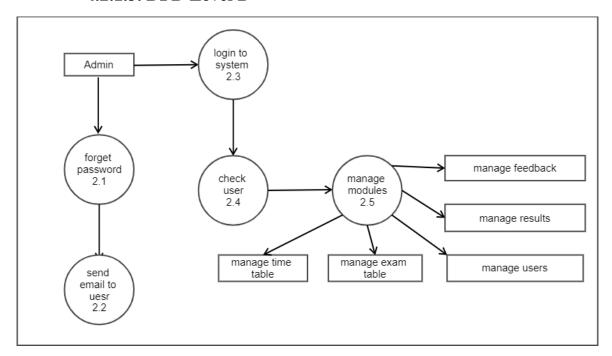
[fig 4.3: Faculty: DFD Diagram level-1]

AVPTI $(5^{TH} CE)$ pg. 37

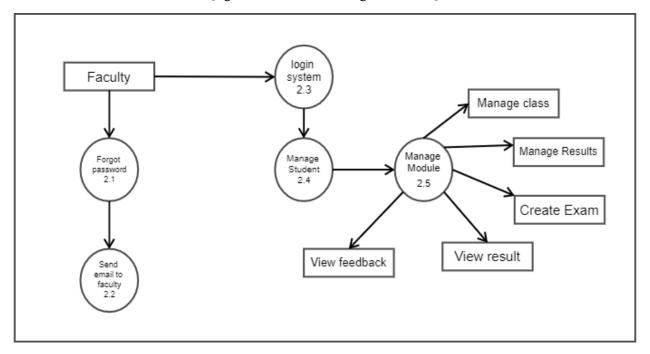


[fig 4.4 User: DFD Diagram level-1]

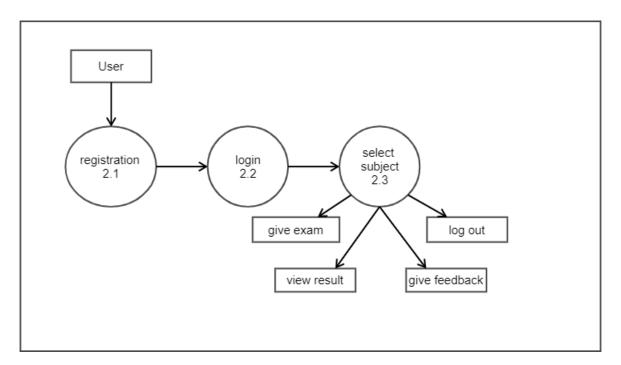
4.2.1.3. DFD Level 2



[fig 4.5 Admin: DFD Diagram level-2]



[fig 4.6 Faculty DFD Diagram level 2]

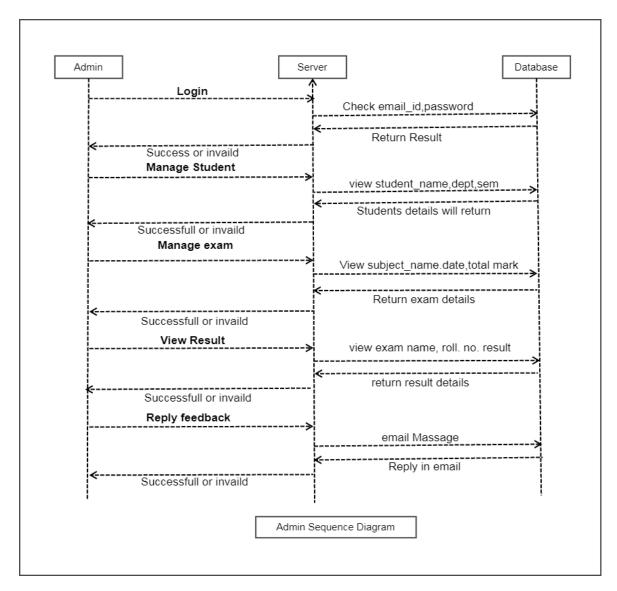


[fig 4.5 User: DFD Diagram level-2]

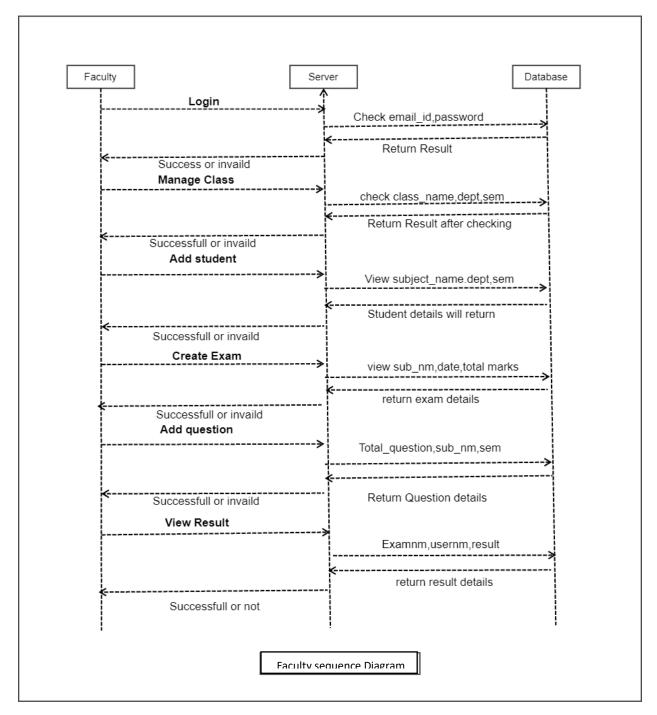
5 SYSTEM DESIGN – UML

5.2Sequence Diagrams

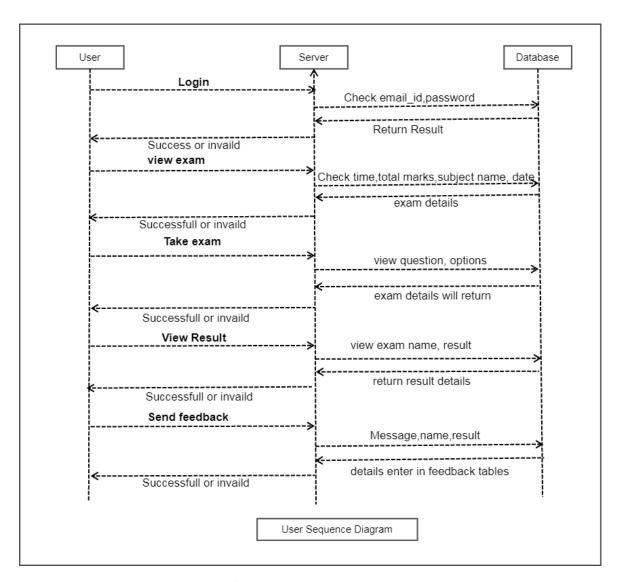
Sequence diagrams describe interactions among classes in terms of an exchange of messages over time. They're also called event diagrams. A sequence diagram is a good way to visualize and validate various runtime scenarios. These can help to predict how a system will behave and to discover responsibilities a class may need to have in the process of modelling a new system.



[fig 5.1 Admin: Sequence Diagrams]



[Fig 5.2 Faculty: Sequence Diagram]

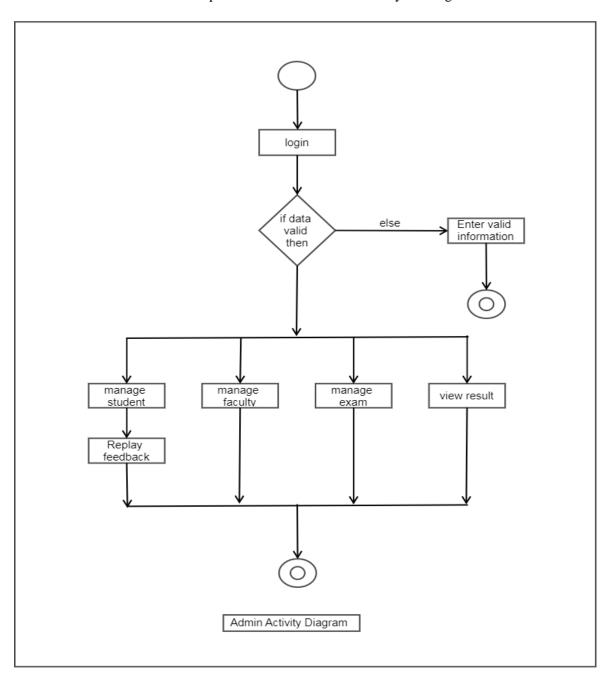


[fig 5.3: User: Sequence Diagrams]

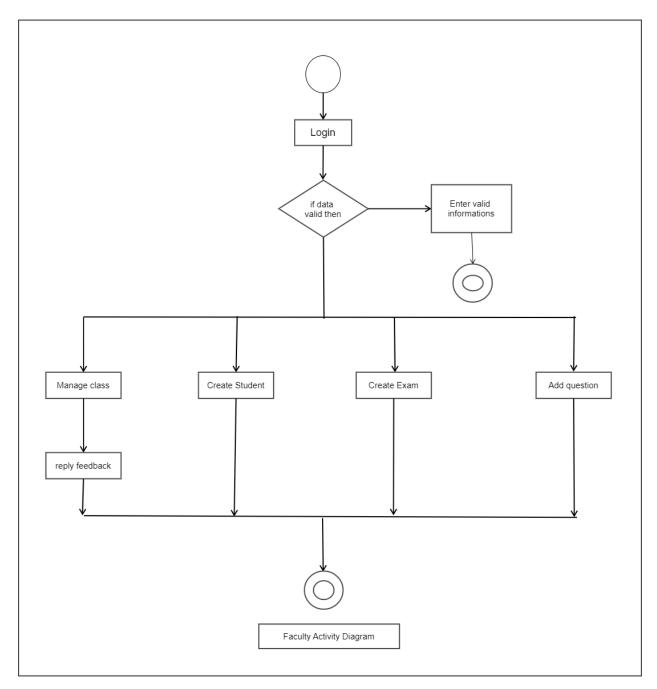
AVPTI $(5^{TH} CE)$ pg. 43

5.2 Activity Diagrams

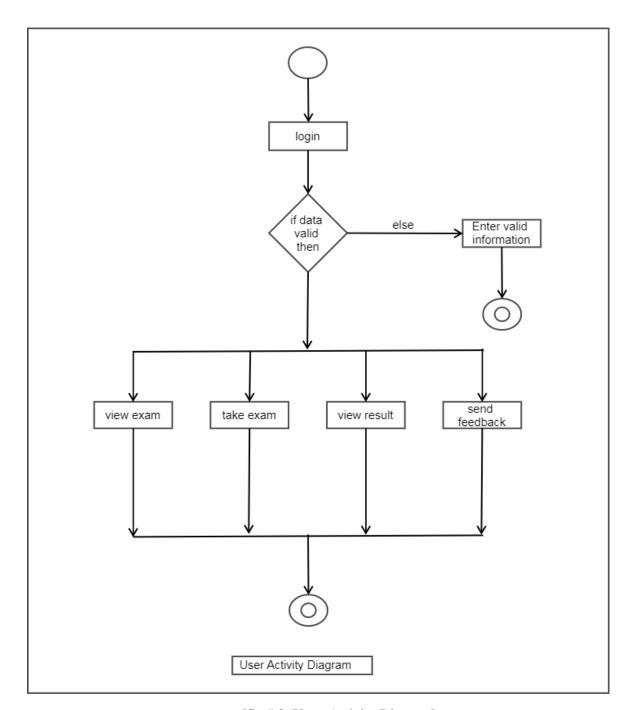
An activity diagram is a behavioural diagram i.e., it depicts the behaviour of a system. An activity diagram portrays the control flow from a start point to a finish point showing the various decision paths that exist while the activity is being executed



[fig 5.1:Admin Activity Diagram]



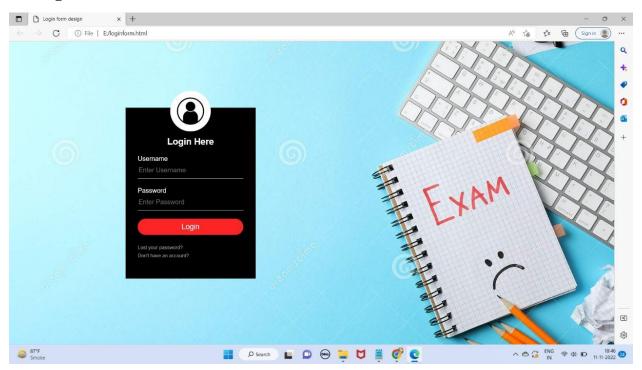
[fig 5.2 Faculty Activity Diagram]



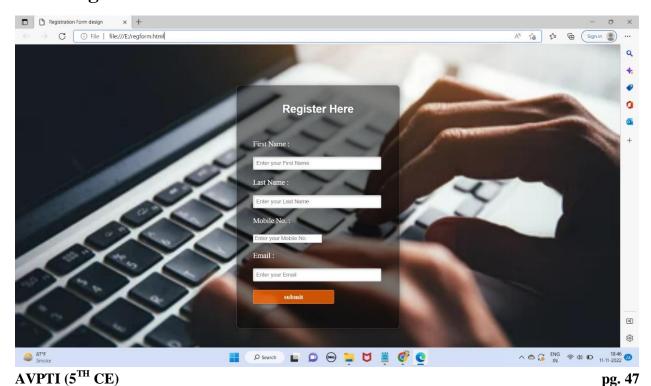
[fig 5.2: User: Activity Diagram]

6 DESIGN

6.2login Form:



6.3 Register Form:



*** REFERENCES**

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