THE BHOPAL SCHOOL OF SOCIAL SCIENCES

PROJECT REPORT

On

Online Examination System

SUBMITTED TO

DEPARTMENT OF COMPUTER APPLICATIONS



IN PARTIAL FULLFILLENT OF THE DEGREE OF BACHELOR OF COMPUTER APPLICATIONS (BCA) SESSION (2020-21)

By

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Under the Guidance of Mr. Zeeshan Assistant Professor BSSS, Bhopal **CERTIFICATE OF ORIGINALITY**

This is to certify that the project report entitled "ONLINE

EXAMINATION SYSTEM" Submitted to The Bhopal School of Social Sciences, in partial fulfillment of the requirement for the

award of the degree of Bachelor in Computer Applications (BCA), is

an original work carried out by

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The matter embodied in this project is a genuine work done by the

students and has not been submitted whether to this University or

to any other University / Institute for the fulfillment of the

requirement of any course of study.

Signature of the Guide

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Designation: Assistant Professor

Address of the Guide: BSSS, Bhopal

2

DECLARATION

We do hereby declare that the project work entitled "Online Examination system" submitted by us for the partial fulfillment of the requirement for the award of Bachelor in Computer Applications (BCA), is an authentic work completed by us. The report being submitted has not been submitted earlier for the award of any degree or diploma to any Institute or University.

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project work successfully.

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INDEX

S.NO.	NAME	PAGE NO.	REMARK
1.	Introduction & objectives	1	
2.	Features	2-3	
3.	Tools / Environment Used	4-9	
4.	Analysis	10-16	
5.	Design	17-20	
6.	Testing	21-25	
7.	Input and Output	27-33	
8.	Database	34-36	
9.	Advantages	37	
10.	Disadvantages	38	

11.	Future Scope	39	
12.	Feasibility study	40	
13.	Security	41	
14.	Limitation	42	
15.	Conclusion	43	
16.	References	44	

Introduction & Objectives

These days, *Online examination system* is a web-based examination system where examinations are given online. either through the internet or intranet using computer system. The main goal of this online examination system is to effectively evaluate the student thoroughly through a totally automated system that not only reduce the required time but also obtain fast and accurate results.

The online examination system is an electronic application. This framework will help the college/institution to access the inquiry have different alternatives with one right reply. These days Online Examination System is considered a fast-developing examination method because of its speed, accuracy and also because of pandemic(covid19). Virtually all organizations today, are managing their exams by online examination system, meanwhile it reduces student's time in examinations. It is also needed less manpower to handle the examination. Therefore, of this, the result is calculated in less time. It also helps diminishing the need for paper. Online examination project in PHP is very beneficial to learn it, according to today's requirement Online examination system is significantly important to the educational institution to prepare the exams, saving the time and effort that is required to check the exam papers and to prepare the results reports. Online examination system helps the educational institutions to monitor their students and keep eyes on their progress. The best use of this system in Academic Institute like school, college and training centers because it helps in managing the exams and get the results in easy and an efficient manner.

- ♣ Online examination will diminish the rushed occupation of estimating the answers given by the applicants physically.
- ♣ Being a coordinated online examination framework, it will decrease paper work.
- ♣ To permit workforce to make exams and answer key.
- ♣ To permit programmed reviewing and manual evaluating which can be recorded per test.
- ♣ Responses by the candidates will be checked automatically.
- **♣** It reduces time consumption.

Features

Admin Side-

- ♣ Admin Can Create New Online Exam with Edit and Delete Feature.
- ♣ Admin Can Add Question in Exam which has been define at the time of create exam.

- Admin Can View All Exam Question with Edit and Delete Operation.
- ♣ Admin Can view all user data who has register for online examination system.
- ♣ Admin can view all user who has enrol for particular exam.
- Admin can view individual user exam result on web page and in PDF format.
- ♣ Admin can view combine result of exam with user rank on web page and in PDF format.

User Side-

- ♣ New User Registration for Online Examination with Confirmation Email Feature.
- User can Login into System using Email ID and Password
- User can manage his or her profile details.
- User can change his or her password.
- **↓** User can view available examination list.
- **↓** User can enrol into examination.
- User can attend online examination at the define date and time.
- User can view the history of exam which he or she had enrol.
- User can view the exam result on Web page and in PDF format also.

TOOLS / ENVIRONMENT USED

Those tools that we are concentrates to design the system are

Back-end design tool:

MySQL software of the database system will be used in developing and managing the back end of the system for permanent storage of records.

MySQL, the most popular open-Source SQL database management system, is developed, distributed, and supported by Oracle Corporation.

MySQL is a database management system.

A database is a structured collection of data. It may be anything from a simple shopping list to a picture gallery or the vast amounts of information in a corporate network. To add, access, and process data stored in a computer database, you need a database management system such as MySQL Server. Since computers are very good at handling large amounts of data, database management systems play

a central role in computing, as standalone utilities, or as parts of other applications.

MySQL databases are relational.

A relational database stores data in separate tables rather than putting all the data in one big storeroom. The database structures are organized into physical files optimized for speed. The logical model, with objects such as databases, tables, views, rows, and columns, offers a flexible programming environment. You set up rules governing the relationships between different data fields, such as one-to-one, one-to-many, unique, required or optional, and "pointers" between different tables.

The SQL part of "MySQL" stands for "Structured Query Language". SQL is the most common standardized language used to access databases. Depending on your programming environment, you might enter SQL directly (for example, to generate reports), embed SQL statements into code written in another language, or use a language-specific API that hides the SQL syntax.

MySQL software is Open Source.

Open-Source means that it is possible for anyone to use and modify the software. Anybody can download the MySQL software from the Internet and use it without paying anything. If you wish, you may study the source code and change it to suit your needs. The MySQL software uses the GPL to define what you may and may not do with the software in different situations.

MySQL Server works in client/server or embedded systems.

The MySQL Database Software is a client/server system that consists of a multithreaded SQL server that supports different back ends, several different client programs and libraries, administrative tools, and a wide range of application programming interfaces (APIs).

The MySQL Database Server is very fast, reliable, scalable, and easy to use.

MySQL Server was originally developed to handle large databases much faster than existing solutions and has been successfully used in highly demanding production environments for several years. Although under constant development, MySQL Server today offers a rich and useful set of functions. Its connectivity, speed, and security make MySQL Server highly suited for accessing databases on the Internet.

o Front end design tool:

The user interface will be developed using php integrated development environment. Is a server-side scripting language that designed for web development, as well as used for general purpose language.

PHP is a server-side scripting language. that is used to develop Static websites or Dynamic websites or Web applications. PHP stands for Hypertext Pre-processor, that earlier stood for Personal Home Pages. A script is a set of programming instructions that is interpreted at runtime. A scripting language is a language that interprets scripts at runtime. Scripts are usually embedded into other software environments. The purpose of the scripts is usually to enhance the performance or perform routine tasks for an application. Server-side scripts are interpreted on the server while client-side scripts are interpreted by the client application. Most web hosting servers support PHP by default unlike other languages such as ASP that need IIS. This makes PHP a cost-effective choice.

 PHP is regular updated to keep abreast with the latest technology trends.

- Other benefit that you get with PHP is that it's a server-side scripting language; this means you only need to install it on
- The server and client computers requesting for resources from the server do not need to have PHP installed; only a web browser would be enough.

Other tools used in the system includes

- Microsoft office 2007 for documenting.
 Microsoft Office 2007 is a version of Microsoft office,
 a family of office suites and productivity software for
 Windows, developed and published by Microsoft.
- Notepad++ or Sublime text 3 or Vs code Sublime Text has a powerful, Python API that allows plugins to augment built-in functionality. Package control can be installed via the command palette, providing simple access to thousands of packages built by the community.
- Adobe Photoshop: for editing image.
 The best photo editing software for spectacular photos and graphics.

• Methodology of the project:

In developing this system some methods will be applied in order to accomplish in an effective manner.

Data collection methodology

Data collection is one of the important tasks to analyze how the activities can be done in the proposed system.

- **Interview**: we use this technique to get direct information to those who run the traditional system, the principal of the school and other related persons who have knowledge of alumni.
- **Practical Observation:** we observe physically the current existing system done manually to collect additional information and analysing their difficulties and we observe other social Medias like face book.

ANALYSIS

Data Flow Diagrams (DFD)

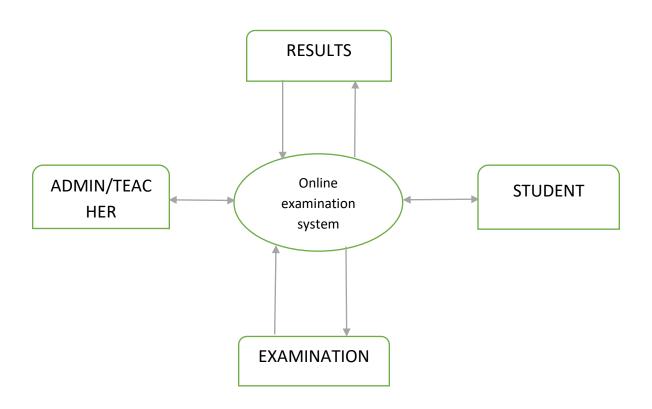
- DFD, Data flow diagrams are used to graphically represent the flow of data in a business information system. DFD describes the processes that are involved in a system to transfer data from the input to the file storage and reports generation.
- Data flow diagrams can be divided into logical and physical. The logical data flow diagram describes flow of data through a system to perform certain functionality of a business. The physical data flow diagram describes the implementation of the logical data flow.
- DFD graphically representing the functions, or processes, which capture, manipulate, store, and distribute data between a system and its environment and between components of a system. The visual representation makes it a good communication tool between User and System designer. Structure of DFD allows starting from a broad overview and expands it to a hierarchy of detailed diagrams.

- In Software engineering DFD (data flow diagram) can be drawn to represent the system of different levels of abstraction. Higher level DFDs are partitioned into low levels-hacking more
- Information and functional elements. Levels in DFD are numbered 0, 1, 2 or beyond. Here, we will see mainly 3 levels in data flow diagram, which are: o-level DFD, 1-level DFD, and 2-level DFD.

Levels in Data Flow Diagrams (DFD)

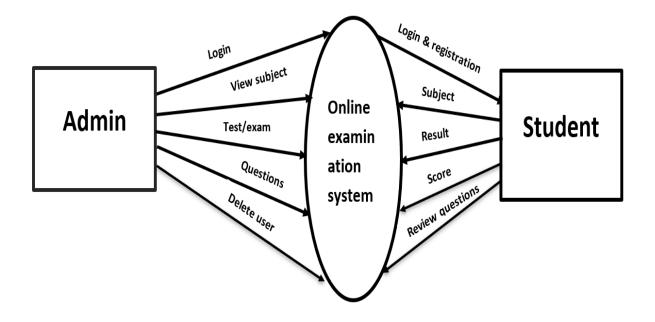
• o-level DFD:

It is also known as context diagram. It's designed to be an abstraction view, showing the system as a single process with its relationship to external entities. It represents the entire system as single bubble with input and output data indicated by incoming/outgoing arrows.



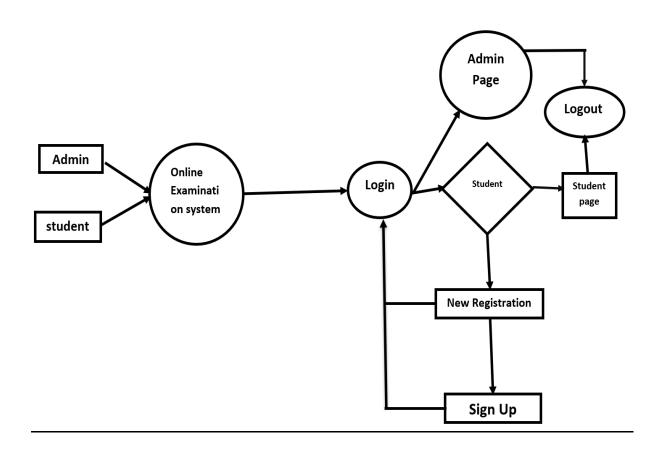
• 1-level DFD:

In 1-level DFD, context diagram is decomposed into multiple bubbles/processes. in this level we highlight the main functions of the system and breakdown the high-level process of o-level DFD into sub processes.



• 2-level DFD:

2-level DFD goes one step deeper into parts of 1-level DFD. It can be used to plan or record the specific/necessary detail about the system's functioning.



• ER Diagram

Entity relationship diagram displays the relationships of entity set stored in a database. In other words, we can say that ER diagrams help you 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.

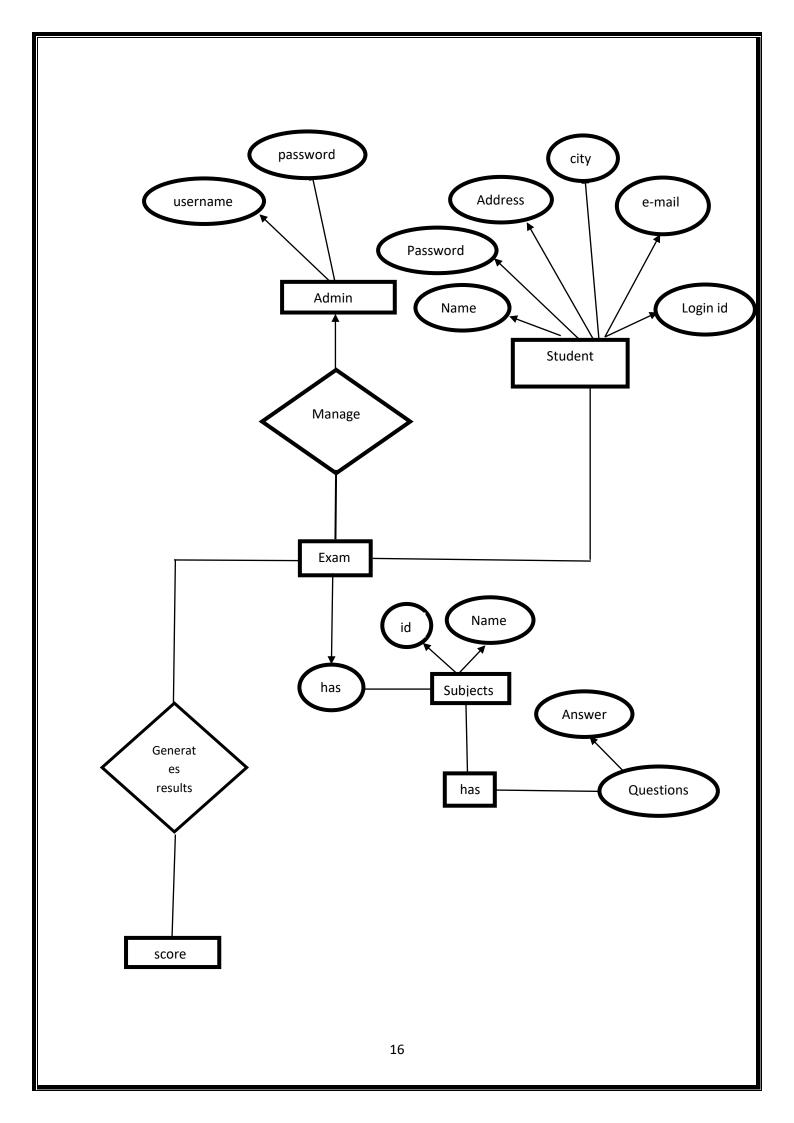
• Components of the ER Diagram

This model is based on three basic concepts: Entities, Attributes, Relationships

• ENTITY RELATIONAL (ER) MODEL

Is a high-level conceptual data model diagram. ER modeling helps us to analyze data requirements systematically to produce a well-designed database. The Entity-Relation model represents real-world entities and the relationship between them. It is considered a best practice to complete ER modeling before implementing one's database.

• It displays the relationships of entity set stored in a database. In other words, we can say that ER diagrams help us 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.



DESIGN

The purpose of designing is to show how the system is built and to obtain clear and enough information needed to make the actual implementation of the system. It is based on understanding of the model the software built on. The objectives of design are to model the system with high quality. Implementing of high-quality system depend on the nature of design created by the designer. If one want to changes to the system after it has been put in to operation depends on the quality of the system design. So if the system is design effectively, it will be easy to make changes to it.

During system design, we focus on the processes, data structures, and software and hardware components necessary to implement it. The challenge of system design is that many conflicting criteria and constraints need to be met when decomposing the system.

1.1. Class type architecture

The architecture which will be used for the proposed system is a two-tier architecture where the first tier is the client or the user side is a web browser containing user interfaces like data entry interfaces; it is used to display information to the user. User directly interacts with the system through the interfaces on this layer. The second layer is the storage layer (server side) which is the MySQL database that stores the data. This increase the extensibility, maintainability and portability of the new system. This class type architecture includes interface class, controller class, business class, system class, and persistence class and persistence store.

Interface classes: - These classes initiate access to the logic of our system and this interface class is the UI classes that provide people access to our system. An example of interface class is login interface class.

Business classes: - These classes implement the concepts and focusing on the data aspects of the business objects, plus behaviors specific to individual objects of the system. Examples:-Record new member, uploading file, delivering information and generate discussion forum.

Controller classes: - These classes implement business logic that involves collaborating with several domain classes or even other process classes.

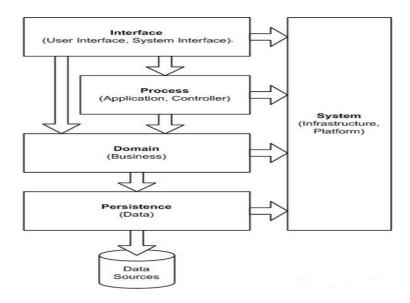
Examples of Controller classes are password, user name and account type.

Persistence classes: - These classes can be used to the capability of store, retrieve, and delete objects permanently without revealing details of the underlying storage technology.

Example of this class is database class.

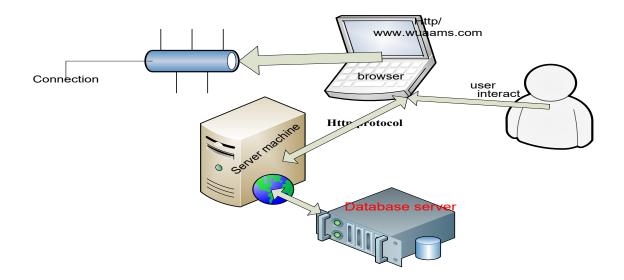
System classes: - These classes provide operating-system-specific functionality for your applications, isolating your software from the operating system (OS) by initiating OS-specific features, increasing the portability of your application.

Persistence store: -These classes can be used to store data permanently on the database that we can retrieve by other classes.



All types of classes interact with system classes. This is because new systems layer implements fundamental software features.

Architecture of the system



TESTING

O UNIT TESTING

Unit testing is a level of software testing where individual units/ components of software are tested. The purpose is to validate that each unit of the software performs as designed. A unit is the smallest testable part of any software. It usually has one or a few inputs and usually a single output. In procedural programming, a unit may be an individual program, function, procedure, etc. in object-oriented programming, the smallest unit is a method,

which may belong to a base/ super class, abstract class or derived/ child class. (Some treat a module of an application as a unit. It is concerned with functional correctness of the standalone modules. The main aim is to isolate each unit of the system to identify, analyze and fix the defects. A unit test is a way of testing a unit – the smallest piece of code that can be logically isolated in a system. In most programming languages, that is a function, a subroutine, a method or property. The isolated part of the definition is important.

Unit Testing Techniques:

- Black Box Testing Using which the user interface, input and output are tested.
- White Box Testing used to test each one of those functions behaviors is tested.
- **Gray Box Testing** Used to execute tests, risks and assessment methods.

• <u>Integration Testing</u>

Integration Testing is a level of software testing where individual units are combined and tested as a group. The purpose of this level of testing is to expose faults in the interaction between integrated units. Test drivers and test stubs are used to assist in Integration Testing. It is defined as a type of testing where software modules are integrated logically and tested as a group. A typical software project consists of multiple software modules, coded by programmers. The purpose of this level of testing is to expose defects in the interaction between these software modules when they are Integrated Integration Testing focuses on checking data communication amongst these modules. Hence it is also termed as 'I & T' (Integration and Testing), 'String Testing' and sometimes 'Thread Testing'.

Approaches, Strategies, Methodologies of Integration Testing

Software Engineering defines variety of strategies to execute Integration testing, viz.

- Big Bang Approach
- Incremental Approach: which is further divided into the following
 - Top-Down Approach
 - Bottom-Up Approach
 - Sandwich Approach Combination of Top Down and
 Bottom Up

System Testing

System Testing is a level of testing that validates the complete and fully integrated software product. The purpose of a system test is to evaluate the end-to-end system specifications. Usually, the software is only one element of a larger computer-based system. Ultimately, the software is interfaced with other software/hardware systems. System Testing is actually a series of different tests whose sole purpose is to exercise the full computer-based system.

System Testing is carried out on the whole system in the context of either system requirement specifications or functional requirement specifications or in the context of both. System

testing tests the design and behavior of the system and also the expectations of the customer. It is performed to test the system beyond the bounds mentioned in the <u>software requirements</u> <u>specification (SRS)</u>.

In system testing, integration testing passed components are taken as input. The goal of integration testing is to detect any irregularity between the units that are integrated together. System testing detects defects within both the integrated units and the whole system. The result of system testing is the observed behavior of a component or a system when it is tested. System Testing is basically performed by a testing team that is independent of the development team that helps to test the quality of the system impartial. It has both functional and nonfunctional testing. System Testing is a black-box testing. It is performed after the integration testing and before the acceptance testing.

Types of System Testing

• Performance Testing:

Performance Testing is a type of software testing that is carried out to test the speed, scalability, stability and reliability of the software product or application.

• Load Testing:

Load Testing is a type of software Testing which is carried out to determine the behavior of a system or software product under extreme load.

• Stress Testing:

Stress Testing is a type of software testing performed to check the robustness of the system under the varying loads.

• Scalability Testing:

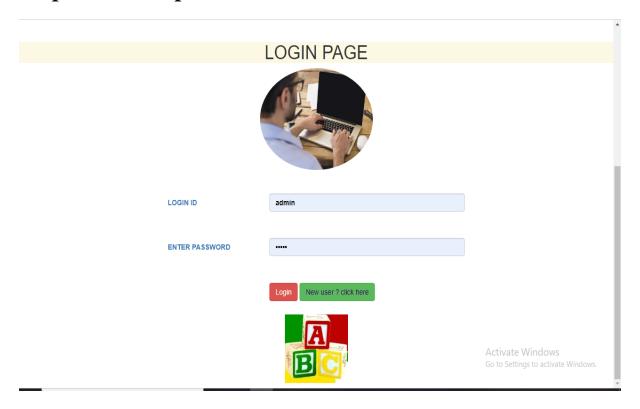
Scalability Testing is a type of software testing which is carried out to check the performance of a software application or system in terms of its capability to scale up or scale down the number of user request load.

System testing is important since:

- a) In Software Development Life Cycle the System Testing is perform as the first level of **testing** where the System is tested as a whole.
- b) System Testing enables you to test, validate and verify both the Application Architecture and Business requirements.

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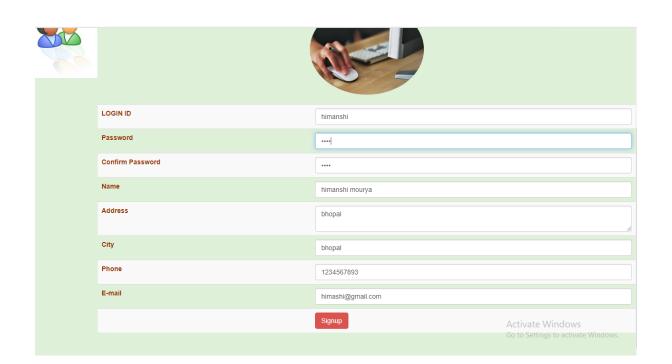
Input and Output





Your Login ID himanshi Created Sucessfully
Please Login using your Login ID to take Quiz
Login

Activate Windows
Go to Settings to activate Windows.





Online Examination Portal

Online Exmination Portal

Welcome to Online Exam





Activate Windows
Go to Settings to activate Windows



Online Examination Portal

Online Exmination Portal

Home |Signout

Select Subject to Give Quiz		
VB		
Oracle		
Java		
PHP		
Computer Fundamental		
Networking		
mysql		

Activate Windows
Go to Settings to activate Windows.



Online Examination Portal

Online Exmination Portal

Home |Signout

Que 1: Which of the follwing contexts are available in the add watch window?

OProject

O Module

OProcedure

OAII

Next Question

Activate Windows
Go to Settings to activate Windows.



Online Examination Portal

Online Exmination Portal

Home |Signout

Result

Total Question 5 True Answer 1 Wrong Answer 4

Review Question

Activate Windows Go to Settings to activate Windows.



Home |Signout

Review Test Question

Que 1: Which of the follwing contexts are available in the add watch window?

Project

Module

Procedure

All

Next Question

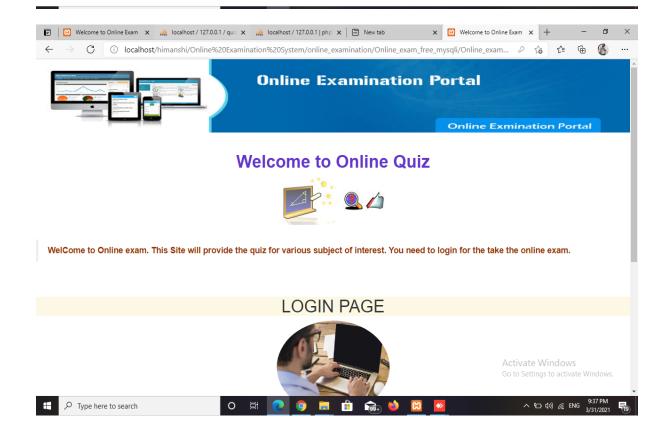
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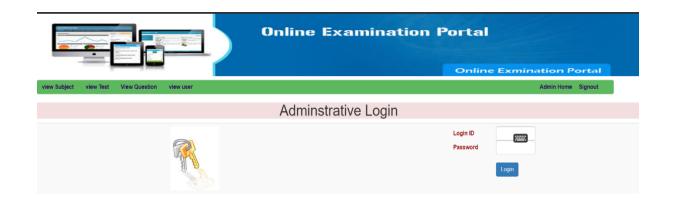


Result

Test Name	Total Question	Score
Essentials of VB	5	1

Activate Windows
Go to Settings to activate Windows.





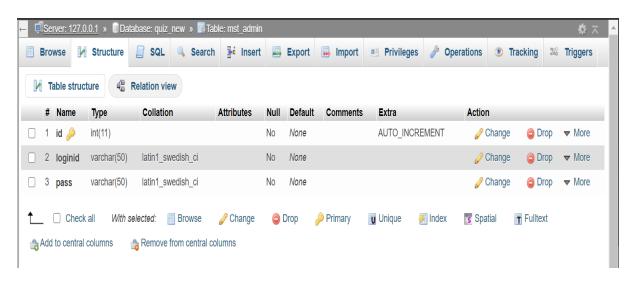


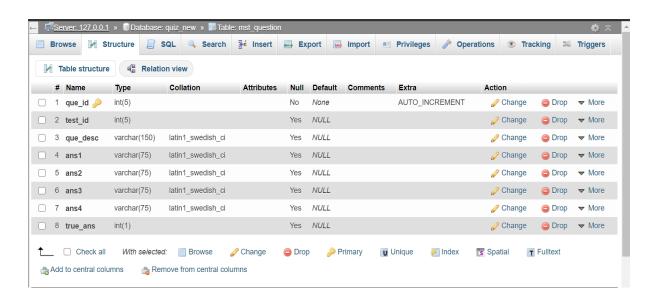


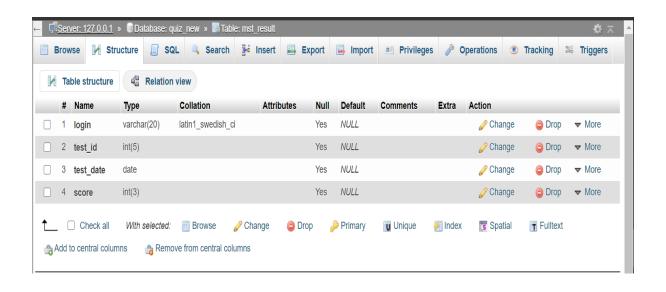


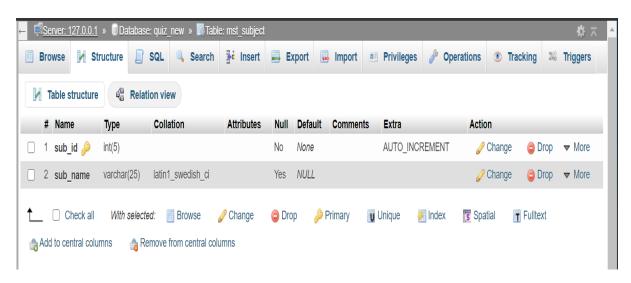


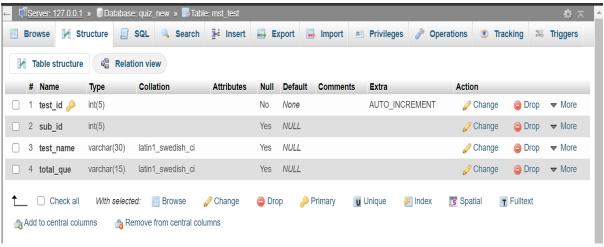
Database

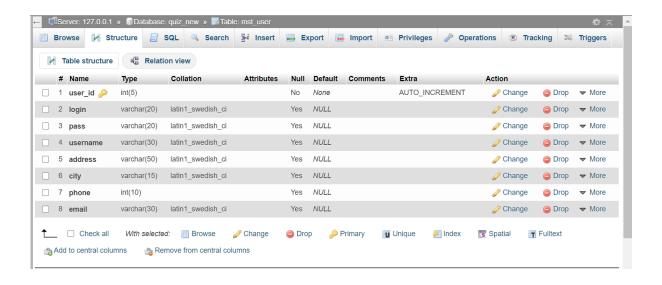


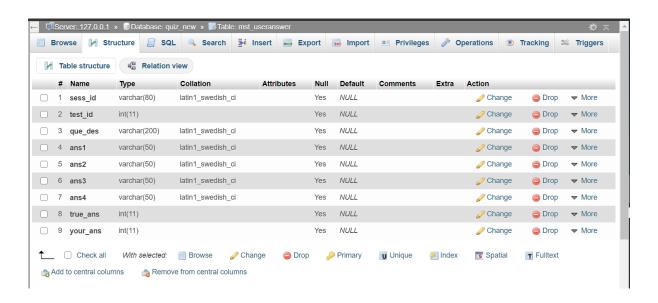












ADVANTAGES OF ONLINE EXMINATION SYSTEM:

- Online Examination System is a computerized system which gives instant results and also saves time.
- It fully automates the previous manual process of taking written exams.
- It is implemented by web based online examination software or through Intranet variance. It decreases the need of supervision during the exam is being examine or taken using web based Online Examination System gives a high level of clarity as opposite of traditional method. Most of Online Examination System gives the result and instantly.
- In high school, Online Examination System is able to reduce the workload of teachers by using automated test paper exams and marking schemes.
- Students can study independently for example at home or any place.
- The amount of time given at a particular question gives you the ability of "Quick Learning Quick Thinking."
- The data in Online Examination System is regenerated repeatedly so that students have access to new data.
- In current scenario, because of COVID-19 we can use "online examination system".

DISADVANTAGES OF ONLINE EXAMINATION SYSTEM:

- The question and answers may be tricky and confusing as there are multiple choices for answers.
- Lack of interaction between the teacher and student.
- Network problems may arise in Online Examination System, test may be postponed or cancel.
- As India is not a fully developed country problem may arise in rural areas where there is deficiency of computers or where computers are not yet discovered.
- Hackers can easily manage to achieve confidential data through fake online application or websites.
- While attempting online exams we can easily manage to open another window on existing computer.
- Teaching techniques of an instructor or teacher may vary from online exam questions.

FUTURE SCOPE OF ONLINE EXAMINATION SYSTEM:

- Online Examination System is widely used as compared to other exams. Online examination system can be used in private institutes as well as educational institution.
- It is user friendly web base application it can be used anywhere and anytime.
- The main purpose of the system is to efficiently evaluate the candidate thoroughly through a fully automated system that not only saves a lot of time but also gives fast result and saves paper.
- The faculty prepares the tests and question for each exam.
- The question are shuffled in a random order so that possibility for getting questions in the same order for the student how are beside, it is very less.

Feasibility Study

• Technical Feasibility

Building this system is technically feasible. The hardware and software needed are all available, it not difficult to get them. Brief I can say the necessary resources needed for the development and maintenance of the system are available. I am going to use "PHP and MySQL".

• Operationally Feasibility

The project I am developing is operationally feasible as there is no need for users to have good knowledge in computer before using it. The user can learn and use the system with easiness; he just needs to read the manual or tutorial from the developers.

• Economic Feasibility

Besides being technically feasible, developing this system is economically feasible as well. The development of the system does not require the developers to spend a lot of money. The tools I will be using to develop the system are not expensive and the software's are open source. All I need is time. Even the maintenance of the system will not be expensive. The system is indeed economically feasible.

Security

Online examination system as an important part of the assessment of student's learning outcomes, which needs to be confidential to the examinee and the related questions. The related data and operation must ensure the safety of the whole system. For system operators, admin need to assigns different operating authority. Before operating, the system needs to authenticate the user's access. Only an operator with corresponding rights is allowed to related operations, otherwise, his operations are refused. In addition, the system interfaces of the user are not allowed to access or operate are hidden. In order to ensure the data security of the system, it is necessary to strengthen the security of database management system, preventing illegal data destruction and loss of important data. In database security, mandatory access control and custom access control need to be implemented. The system assigns different user roles for different database users, and grants the permissions for user. In addition, the system needs to strengthen the management of user access permissions. Only a specific permission operator can do the corresponding operation. The system needs to adopt two methods of access control and network control, ensuring no unauthorized access to the whole system and no illegal use to each function.

Limitation of project

- In case of any type of problem in student verification no functionality is define in a system to correct it or intercommunication among user are also not available.
- Online examination system is restricted to multiple choice question which can be inefficient in assessing a student's topic Mastery. Exams in the form of debates, essays, case-based questions and oral exams are difficult to conduct online.
- Online examination system does not support for adding images with question so questions containing diagram can not be saved in the system.
- It has no real existence in internet just tested on localhost.
- Skip of questions is not possible and the question is not displayed randomly.
- There is no negative marking and there is no fixed time and date for online exam, It can lead to excessive cheating.
- Not suitable for collaborative evaluations or group project.
- There are subject like mathematics, economic, science, that are difficult to attempt online as include formulae

Conclusion

Online Examination System is significantly superior among the other exams. We have come to result that the problems can be solved by introducing new security systems using biometrics, we can identify the student's true identity by analyzing digital signature or by finger print mechanism and also by providing web cameras in the examination hall. Although web cameras Sometimes gets failed, if supposed a candidate is giving exam and facing downwards in such case Iris recognition and face recognition must be used. We conclude that no mechanism is ideal. Each mechanism has some restriction on its own. Key concepts are to develop paperless environment and to convert all the documentation in digital form. With the completion of this project, we conclude that it has achieved its purpose. The whole project provides a base for students to take their exam using software and allow teacher to add questions and answers into the system. The system is developed using PHP and MySQL are saved in the database. Online examination system for introduction to management course is the best compared to paper-based exam. The automated system helps students and lecturers to save time and makes the process faster. It saves space since answers papers will not be used. With a user-friendly system that has security, integrity and the database is neither inconsistent nor redundant.

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