Project Report

On

"ONLINE COMPUTER SCIENCE QUIZ PORTAL"

Submitted to:

Faculty of Computer Science & Applications

Amrapali Institute of Management & Computer Applications, Haldwani

In the partial fulfilment for the award of degree of MCA

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DECLARATION

I, hereby declare that the work presented in this reportentitled "**ONLINE COMPUTERSCIENCE QUIZ PORTAL**" in fulfillment of the requirement for the award of degree of Master of Computer Applications at Amrapali Institutes of Management and Computer Applications (Amrapali Group of Institutes) affiliated to Uttrakhand Technical University, Dehradun is an authentic record of my own carried out work.

MCA 3rdSem

CERTIFICATE

This is to certify that the report, entitled "**ONLINE COMPUTER SCIENCE QUIZ PORTAL**"submitted by(MCA 3rdsem, 2019-2020), student of Amrapali Institute of Management andComputer Applications, Haldwani embodies the finding of his work carried out under my/our guidance and it fulfills all the conditions prescribedby Uttrakhand Technical University, Dehradun for theaward of Master of Computer Applications to the best of my/our knowledge**.**

External Examiner

Internal Examine
Assistant professor
FCSA, AIMCA

ACKNOWLEDGEMENTS

On the submission of this report of "**ONLINE COMPUTER SCIENCE QUIZ PORTAL**", I would like to express my thanks to my supervisor , for his guidance throughout the entire project.I would like to thank him for his encouragement, and support throughout the course of this work from thecore of my heart.As my supervisor his insight, observation and suggestionshelp me to establish theoveralll direction of the research and contributed immensely for the success of this work.My thank are extended to my parents who helped me with the moral support throughout my project. I would alsolike to thank themto providing me with all necessary equipmentrequired to complete this project.

Table of Content

Abstract of the project

The aim of this project is to provide quick, immediate and easy way to appear theexam. It can provide special advantages to the students/applicants. The online examination system can automatically add the marks allocated in each question to determine the total mark for the questions. Online Examination System allows jumping to specific questions based on the previous answer. Login module helps the user to login to the site. For that he/she must type the username and password correctly. The login provision in this page helps the already registered user to directly access the site and there is a link for registration to a user who is new to this site. Student module is mainly for the students. This helps the students to register for the exam and answer the exam. For registration name, address, phone no, role id, password should be entered and other are filled. This will provide result after the exam according to correct and wrong answer. Administrator module is mainly for the administrator. This will contain the creation of question paper, preview of already created question paper, and the report of the administrator. For creating the question paper he/she must enter Login ID, No: of questions, Marks per Question, Option type. For showing the preview of already created question paper he/she must enter the correct Examid.

Study of existing system

The first problem is that there are loads of hard copied documents being generated. This brings usto the age-old discussion of keeping information in the form databases versus keeping the same on sheets of paper. Keeping the information in the form of hard-copied documents leads to the following problems.

System requirements

Product Definition

The ONLINE QUIZ is a web application for to take online test in an efficient manner and no time wasting for checking the paper. The main objective of ONLINE QUIZ is to efficiently evaluate the candidate thoroughly through a fully automated system that not only saves lot of time but also gives fast results. For students they give papers according to their convenience and time and there is no need of using extra thing like paper, pen etc. This can be used in educational institutions as well as in corporate world. Can be used anywhere any time as it is a web based application (user location doesn't matter). No restriction that examiner has to be present when the candidate takes the test.

Problem Statement

The first problem is that there are loads of hard copied documents being generated. This brings us tothe age-old discussion of keeping information in the form databases versus keeping the same on sheets of paper. Keeping the information in the form of hard-copied documents leads to the following problems.

Function to be provided

The ultimate aim of this project is to help the quiz analysis and facilitate the faculties the faculties for easy evaluation of the students and generation of the automatic score cards. The system shall display the set of questions with certain rules. It also displays the category for which the students wish to answer. Once the student has completed choosing the category starts answering the questions. The mark is given and report is generated based on the correct answers.

Performance: The scope of this project gives immense opportunity for the students to know their levels in quiz. It provides effective software so as to help the students as well as the evaluators who are involved in evaluating the student's performance.

Safety: No data loss occurs in the quiz system.

It is very much protected in such a way that it gives permission to the students to access only when the username and password is correct.

The results are produced electronically so that nobody is prone to mistakes.

Reliability: We assure that the project is completely authenticated in order to enhance security and corruptions of database as well as the software. The person is given access only if he/she has a valid username and password.

Quality: The project is developed with the help of Web Technologies which meets the requirement of the user, the project is checked whether the phases individually have a served its purpose.

Processing environment: hardware/software

Hardware Requirements

The processor used is intel®core™2 duo at 2 GHz. The capacity of Random Access Memory (RAM) is 4GB. The capacity of the storage element of disk space is 2.99GB. The monitor used is HDMI monitor. The keys available in the keyboard is 104 keys.

Software Requirements

The client used is the web browser(Chrome). The Database Server used is MYSQL. The application Server used is WASCE (Web Sphere Application Server Community Edition) . The front end is HTML5, CSS3, Bootstrap4, Javascript.

Feasibility analysis

What are the user's demonstrable needs ?

User needs a web-based system, which will remove all the above-mentioned Problems that, the user is facing. The user wants a web-based system, which will reduce the bulk of paperwork, provide ease of work, flexibility, fast record finding, modifying, adding, removing and generating the reports

.

How can the problem be redefined ?

We proposed our perception of the system, in accordance with the problems of existing system by making a full layout of the system on paper. We tallied the problems and needs by existing system and requirements. We were further updating in the layout in the basis of redefined the problems. In feasibility study phase we had undergone through various steps, which are described as under:

How feasible is the system proposed ?

This was analyzed by comparing the followingfactors with both the existing system and proposed system.

Cost : The cost required in the proposed system is comparatively less to the existing system.

Effort : Compared to the existing system the proposed system will provide a better working environment in which their will be ease of work and the effort required will be comparatively less than the existing system.

Time: Also the time required generating a report or for doing any other work will be comparatively very less than in the existing system. Record finding and updating will take less time than the existing system.

Labor : In the existing system the number of staff required for completing the work is more while the new system will require quite less number of staff.

Project plan

➢ Team Structure

- **Shailendrasinghdeo**
- **Vandana pant**
- **Vartika joshi**
- **Yogesh kumar Sharma**
- **Ram kumar**
- **Rishi dutta**

➢ Development Schedule

- This project involves following phases

➢ Administrator

1. Authentication phase
2. Question generation phase
3. Report generation phase

➢ Participation

1. Authentication phase
2. Registration phase
3. Rules and category selection phase
4. Question bank phase
5. Result generation phase

Administrator authentication phase

This proposed system is completely authenticated in order to enhance security and corruptions of database as well as the software. A person is given access permission to this system when he/she has got a valid username and password i.e. the administrator. Hence this authentication module includes two fields where administrator (programmer) is asked to enter the username and password. The details include:

1. Username
2. Password

Question generation phase

This phase includes the various categorized question generation. In this phase the administrator can perform add, modify, delete, move_next, move_previous, clear_all operation. This phase may be the most important phase in proposed system, because it is the one where the entire system gets the categorized question.

Report generation phase

This phase contains various report generation related to our system such as Administrator report, Participant report, Rank etc. the report gives the overall view about our system

.

Participant authentication phase

This proposed system is completely authenticated in order to enhance security and corruptions of database as well as the software. A person is given access permission to this system when he/she has got a valid username and password. Hence this authentication module includes two fields where participant is asked to enter their username and password. The details include:

1. Username
2. Password

Registration phase

If the participant is an existing user then he can enter into the system, using his valid username and password.

If the participant is a new one then he has to fill the registration form. Now valid username and password will assign to the user. Using that he can enter into the system.

Rules and category selection phase

This phase provides the students with a set of rules and regulations to be followed while attending the quiz. It is useful for the user who is new to the online process so that they can have a clear idea of what has to be done. This module also provides the students a special feature of category selection. This category includes Sports, Science, Software, and General Knowledge. Based on the category questions are put forth to the students.

Question bank phase

This phase provides the students a set of multiple-choice questions and a set of answers below the specific question. Once after the current question has been answered it automatically makes a move to the second question with their corresponding answers.

This module is provided with four fields:

1. Question number
2. Question field
3. Option 1
4. Option 2
5. Option 3
6. Option 4

Result generation phase

The result of the corresponding student is generated based on his, her performance in the test. The result is generated at the end of the quiz. The result is generated with the help of following field:

1. Username
2. Category
3. Mark

Programming languages and development tools

Ide

Sublime Text is a shareware cross-platform source code editor with a Python application programming interface (API). It natively supports many programming languages and mark up languages, and functions can be added by users with plugins, typically community-built and maintained under free-software licenses.

Developer(s): Sublime HQ

Operating system: Linux 32/64-bit, macOS 10.6

Html 5

HTML5 is the next major revision of the HTML standard superseding HTML 4.01, XHTML 1.0, and XHTML 1.1. HTML5 is a standard for structuring and presenting content on the World Wide Web.

HTML5 is a cooperation between the World Wide Web Consortium (W3C) and the Web Hypertext Application Technology Working Group (WHATWG).

The new standard incorporates features like video playback and drag-and-drop that have been previously dependent on third-party browser plug-ins such as Adobe Flash, Microsoft Silverlight, and Google Gears.

Browser Support

The latest versions of Apple Safari, Google Chrome, Mozilla Firefox, and Opera all support many HTML5 features and Internet Explorer 9.0 will also have support for some HTML5 functionality.

The mobile web browsers that come pre-installed on iPhones, iPads, and Android phones all have excellent support for HTML5.

New Features

HTML5 introduces a number of new elements and attributes that can help you in building modern websites. Here is a set of some of the most prominent features introduced in HTML5.

- **New Semantic Elements** − These are like <header>, <footer>, and <section>.
- **Forms 2.0** − Improvements to HTML web forms where new attributes have been introduced for <input> tag.
- **Persistent Local Storage** − To achieve without resorting to third-party plugins.
- **Web Socket** − A next-generation bidirectional communication technology for web applications.
- **Server-Sent Events** − HTML5 introduces events which flow from web server to the web browsers and they are called Server-Sent Events (SSE).
- **Canvas** − This supports a two-dimensional drawing surface that you can program with JavaScript.
- **Audio & Video** − You can embed audio or video on your webpages without resorting to third-party plugins.
- **Geolocation** − Now visitors can choose to share their physical location with your web application.
- **Microdata** − This lets you create your own vocabularies beyond HTML5 and extend your web pages with custom semantics.

• **Drag and drop** − Drag and drop the items from one location to another location on the same webpage.

CSS3

Cascading Style Sheets (CSS) is a style sheet language used for describing the look and formatting of a document written in a markup language. CSS3 is a latest standard of css earlier versions

(CSS2). The main difference between css2 and css3 is follows −

- Media Queries
- Namespaces
- Selectors Level 3
- Color

CSS3 modules

CSS3 is collaboration of CSS2 specifications and new specifications, we can called this collaboration is **module**. Some of the modules are shown below −

- Selectors
- Box Model
- Backgrounds
- Image Values and Replaced Content
- Text Effects
- 2D Transformations
- 3D Transformations
- Animations
- Multiple Column Layout
- User Interface

Why is used CSS3 ?

CSS is the language for describing the presentation of Web pages, including colors, layout, and fonts. It allows one to adapt the presentation to different types of devices, such as large screens, small screens, or printers. **CSS** is independent of HTML and can be **used** with any XML-based markup language.

What is the html5 css3 ?

There are also **HTML5** APIs (Application Programming Interfaces) that enable you to add multimedia elements like audio and video. We now look at CSS, which stands for Cascading Style Sheets. **CSS3** is its third and latest release. ... All web developers had to do is to link their web pages to a given CSS file.

JAVASCRIPT

JavaScript is a lightweight, interpreted **programming** language. It is designed for creating network-centric applications. It is complimentary to and integrated with Java. **JavaScript** is very easy to implement because it is integrated with HTML. It is open and cross-platform.

Why to Learn Javascript

1. Javascript is a MUST for students and working professionals to become a great Software Engineer specially when they are working in Web Development Domain. I will list down some of the key advantages of learning Javascript:

2. Javascript is the most popular **programming language** in the world and that makes it a programmer's great choice. Once you learnt Javascript, it helps you developing great front-end as well as back-end softwares using different Javascript based frameworks like jQuery, Node.JS etc.

3. Javascript is everywhere, it comes installed on every modern web browser and so to learn Javascript you really do not need any special environment setup. For example Chrome, Mozilla Firefox , Safari and every browser you know as of today, supports Javascript.

4. Javascript helps you create really beautiful and crazy fast websites. You can develop your website with a console like look and feel and give your users the best Graphical User Experience.

5. JavaScript usage has now extended to mobile app development, desktop app development, and game development. This opens many opportunities for you as Javascript Programmer.
6. Due to high demand, there is tons of job growth and high pay for those who know JavaScript. You can navigate over to different job sites to see what having JavaScript skills looks like in the job market.
7. Great thing about Javascript is that you will find tons of frameworks and Libraries already developed which can be used directly in your software development to reduce your time to market.

There are many useful **Javascript frameworks** and libraries available:

- Angular
- React
- jQuery
- Vue.js
- Ext.js
- Ember.js
- Meteor
- Mithril
- Node.js
- Polymer
- Aurelia
- Backbone.js

It is really impossible to give a complete list of all the available Javascript frameworks and libraries. The Javascript world is just too large and too much new is happening.

Applications of Javascript Programming

As mentioned before, **Javascript** is one of the most widely used **programming languages** (Front-end as well as Back-end). It has it's presence in almost every area of software development. I'm going to list few of them here:

- **Client side validation** - This is really important to verify any user input before submitting it to the server and Javascript plays an important role in validting those inputs at front-end itself.

- **Manipulating HTML Pages** - Javascript helps in manipulating HTML page on the fly. This helps in adding and deleting any HTML tag very easily using javascript and modify your HTML to change its look and feel based on different devices and requirements.

- **User Notifications** - You can use Javascript to raise dynamic pop-ups on the webpages to give different types of notifications to your website visitors.

- **Back-end Data Loading** - Javascript provides Ajax library which helps in loading back-end data while you are doing some other processing. This really gives an amazing experience to your website visitors.

- **Presentations** - JavaScript also provides the facility of creating presentations which gives website look and feel. JavaScript provides RevealJS and BespokeJS libraries to build a web-based slide presentations.

- **Server Applications** - Node JS is built on Chrome's Javascript runtime for building fast and scalable network applications. This is an event based library which helps in developing very sophisticated server applications including Web Servers.

Bootstrap

What is Bootstrap 4 ?

Bootstrap 4 is a powerful and popular mobile first front-end framework for building responsive mobile first sites on the web. It is a latest version of Bootstrap, which uses HTML, CSS and JavaScript.

History

The last stable release of Bootstrap v3.3.7 was in July 2016 and in August 2017, Bootstrap 4.0.0 beta version released.

Why to use Bootstrap ?

- It contains mobile first styles throughout the entire library, instead of using them in the separate files.
- With just the knowledge of HTML and CSS anyone can get started with Bootstrap. Also the Bootstrap official site has a good documentation.
- It is supported by all popular browsers and its responsive CSS adjusts to Desktops, Tablets and Mobiles.
- Provides a clean and uniform solution for building an interface for developers.
- It contains beautiful and functional built-in
- components which are easy to customize.
- It is an open source and provides web based customization.

Bootstrap 3 v/s Bootstrap 4

Bootstrap 4 is a latest version of Bootstrap 3, who's source CSS files are converted into SCSS. It uses the flex modal for grid system and supports all the latest browsers. However, it supports Internet Explorer 9+ and iOS 7+ and dropped support for IE 8 and lesser versions, iOS 6 and lesser versions. For more information on difference between Bootstrap 3 and Bootstrap 4, checkout this chapter.

What is bootstrap used for ?

Bootstrap is a framework to help you design websites faster and easier. It includes HTML and CSS based design templates for typography, forms, buttons, tables, navigation, modals, image carousels, etc. It also gives you support for JavaScript plugins.

PHP

What is PHP 7?

PHP 7 is a major release of PHP programming language and is touted to be a revolution in the way web applications can be developed and delivered for mobile to enterprises and the cloud. This release is considered to be the most important change for PHP after the release of PHP 5 in 2004.

New Features

There are dozens of features added to PHP 7, the most significant ones are mentioned below –

- **Improved performance** − Having PHPNG code merged in PHP7, it is twice as fast as PHP 5.
- **Lower Memory Consumption** − Optimized PHP 7 utilizes lesser resource.
- **Scalar type declarations** − Now parameter and return types can be enforced.
- **Consistent 64-bit support** − Consistent support for 64-bit architecture machines.
- **Improved Exception hierarchy** − Exception hierarchy is improved.
- **Many fatal errors converted to Exceptions** − Range of exceptions is increased covering many fatal error converted as exceptions.

- **Secure random number generator** − Addition of new secure random number generator API.

- **Deprecated SAPIs and extensions removed** − Various old and unsupported SAPIs and extensions are removed from the latest version.

- **The null coalescing operator (??)** − New null coalescing operator added.

- **Return and Scalar Type Declarations** − Support for return type and parameter type added.

- **Anonymous Classes** − Support for anonymous added.

- **Zero cost asserts** − Support for zero cost assert added.

Why PHP7 is faster ?

PHP 7 review: Upgrading For Performance ReasonsThis means that your server returns pages to your users twice as fast. It also means that a single server can handle twice as many requests and you could need half as many servers in order to serve the same number of customers at the same speed as they did before.

MYSQL

What is a Database ?

A database is a separate application that stores a collection of data. Each database has one or more distinct APIs for creating, accessing, managing, searching and replicating the data it holds.

Other kinds of data stores can also be used, such as files on the file system or large hash tables in memory but data fetching and writing would not be so fast and easy with those type of systems.

Nowadays, we use relational database management systems (RDBMS) to store and manage huge volume of data. This is called relational database because all the data is stored into different tables and relations are established using primary keys or other keys known as **Foreign Keys**.

A **Relational DataBase Management System (RDBMS)** is a software that –

- Enables you to implement a database with tables, columns and indexes.
- Guarantees the Referential Integrity between rows of various tables.
- Updates the indexes automatically.
- Interprets an SQL query and combines information from various tables.

MySQL Database

MySQL is a fast, easy-to-use RDBMS being used for many small and big businesses. MySQL is developed, marketed and supported by MySQL AB, which is a Swedish company. MySQL is becoming so popular because of many good reasons −

- MySQL is released under an open-source license. So you have nothing to pay to use it.

- MySQL is a very powerful program in its own right. It handles a large subset of the functionality of the most expensive and powerful database packages.

- MySQL uses a standard form of the well-known SQL data language.

- MySQL works on many operating systems and with many languages including PHP, PERL, C, C++, JAVA, etc.

- MySQL works very quickly and works well even with large data sets.

- MySQL is very friendly to PHP, the most appreciated language for web development.

- MySQL supports large databases, up to 50 million rows or more in a table. The default file size limit for a table is 4GB, but you can increase this (if your operating system can handle it) to a theoretical limit of 8 million terabytes (TB).

- MySQL is customizable. The open-source GPL license allows programmers to modify the MySQL software to fit their own specific environments.

System Requirements Specifications

A software requirements specification (SRS) is a document that captures complete description about how the system is expected to perform. It is usually signed off at the end of requirements engineering phase.

Qualities of SRS

- Correct
- Unambiguous
- Complete
- Consistent
- Ranked for importance and/or stability
- Verifiable
- Modifiable
- Traceable

Types of Requirements

The below diagram depicts the various types of requirements that are captured during SRS.

Introduction

It is good source of interactivities among students and between the teacher and students. It is done in order to improve student‘s comprehension levels and learning motivation . As one of their tools, online test tools are quite effective. However, in order to use the online test tool, a teacher is generally required a great deal of labor.

For example, a teacher needs to create quizzes and input them in the online test tool.

In order to solve these problems, we have developed a Web-based online test system which can create quizzes competitively and collaboratively by students for the purpose of reducing the load required for a teacher and promoting interactions among students and between the teacher and students.

Requirement analysis

Requirements analysis in systems engineering and software engineering, encompasses those tasks that go into determining the needs or conditions to meet for a new or altered product, taking account of the possibly conflicting requirements of the various stakeholders, such as beneficiaries or users. Requirements analysis is critical to the success of a development project. Requirements must be documented, actionable, measurable, testable, related to identified business needs or opportunities, and defined to a level of detail sufficient for system design. Requirements can be architectural, structural, behavioral, functional, and non-functional.

The development of project needs some requirement to make the project perform better and achieves the goal of project. In developing Online Quiz, the capabilities of computer and hardware plays a big impact on project quality. The project maker should determine the minimum requirements of hardware and also software to be used to develop a good and attractive project. There are two phases of requirement analysis as given below :

1) Primary Research: Identifying the user requirements conducting a survey based on a questionnaire.

2) Secondary Research: Comparing the indentified requirements with already existing software. having similar functionalities. Based on these researches the result is defined as the Software Requirement Specification.

Purpose

This Web Application provides facility to conduct online examination world wide. It saves time as it allows number of students to give the exam at a time and displays the results as the test gets over, so no need to wait for the result. It is automatically generated by the server. Administrator has a privilege to create, modify and delete the test papers and its particular questions. User can register, login and give the test with his specific id, and can see the results as well.

Scope

Scope of this project is very broad in terms of other manually cheking yourself.
Few of them are:-
-This can be used in educational institutions as well as in corporate world.
-Can be used anywhere any time as it is a web based application (user Location doesn’t matter).
-No restriction that examiner has to be present when the candidate takes the test.

Hardware requirements

The processor used is intel®core™2 duo at 2 GHz. The capacity of Random Access Memory (RAM) is 4GB. The capacity of the storage element of disk space is 2.99GB. The monitor used is HDMI monitor. The keys available in the keyboard is 104 keys.

Software requirements

The client used is the web browser(any). The Database Server used is MYSQL workbench 5.2 CE. The application Server used is WASCE (Web Sphere Application Server Community Edition) . The front end is HTML5,CSS3,Javascript,Bootstrap4.

Data Dictionary.

-

Data dictionary is the centralized collection of information about data. It stores meaning and origin of data, its relationship with other data, data format for usage etc. Data dictionary has rigorous definitions of all names in order to facilitate user and software designers.

Data dictionary is often referenced as meta-data (data about data) repository. It is created along with DFD (Data Flow Diagram) model of software program and is expected to be updated whenever DFD is changed or updated.

Requirement of Data Dictionary

The data is referenced via data dictionary while designing and implementing software. Data dictionary removes any chances of ambiguity. It helps keeping work of programmers and designers synchronized while using same object reference everywhere in the program.

Data dictionary provides a way of documentation for the complete database system in one place. Validation of DFD is carried out using data dictionary.

Contents

Data dictionary should contain information about the following

- Data Flow
- Data Structure
- Data Elements
- Data Stores
- Data Processing

Data Elements

Data elements consist of Name and descriptions of Data and Control Items, Internal or External data stores etc. with the following details:

- Primary Name
- Secondary Name (Alias)
- Use-case (How and where to use)
- Content Description (Notation etc.)
- Supplementary Information (preset values, constraints etc.)

Data Store

It stores the information from where the data enters into the system and exists out of the system. The Data Store may include –

Files

- Internal to software.
- External to software but on the same machine.
- External to software and system, located on different machine.

Tables

- Naming convention
- Indexing property

Data Processing

There are two types of Data Processing:-

Logical: As user sees it

Physical: As software sees it

Developing

Apache Server

Apache uses httpd.conf file for global settings, and the .htaccess file for per-directory access settings. Older versions of Apache split up httpd.conf into three files (access.conf, httpd.conf, and srm.conf), and some users still prefer this arrangement.

Apache server has a very powerful, but slightly complex, configuration system of its own. Learn more about it at the Apache Web site − www.apache.org

The following section describe settings in httpd.conf that affect PHP directly and cannot be set elsewhere. If you have standard installation then httpd.conf will be found at /etc/httpd/conf:

Timeout

This value sets the default number of seconds before any HTTP request will time out. If you set PHP's max_execution_time to longer than this value, PHP will keep grinding away but the user may see a 404 error. In safe mode, this value will be ignored; you must use the timeout value in php.ini instead

HTML5

HTML5 is the next major revision of the HTML standard superseding HTML 4.01, XHTML 1.0, and XHTML 1.1. HTML5 is a standard for structuring and presenting content on the World Wide Web.

HTML5 is a cooperation between the World Wide Web Consortium (W3C) and the Web Hypertext Application Technology Working Group (WHATWG).

The new standard incorporates features like video playback and drag-and-drop that have been previously dependent on third-party browser plug-ins such as Adobe Flash, Microsoft Silverlight, and Google Gears.

Browser Support

The latest versions of Apple Safari, Google Chrome, Mozilla Firefox, and Opera all support many HTML5 features and Internet Explorer 9.0 will also have support for some HTML5 functionality.

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New Features

HTML5 introduces a number of new elements and attributes that can help you in building modern websites. Here is a set of some of the most prominent features introduced in HTML5.

- **New Semantic Elements** − These are like <header>, <footer>, and <section>.

- **Forms 2.0** − Improvements to HTML web forms where new attributes have been introduced for <input> tag.

- **Persistent Local Storage − To achieve** without resorting to third-party plugins.

- **WebSocket** − A next-generation bidirectional communication technology for web applications.

• **Server-Sent Events** − HTML5 introduces events which flow from web server to the web browsers and they are called Server-Sent Events (SSE).

• **Canvas** − This supports a two-dimensional drawing surface that you can program with JavaScript.

• **Audio & Video** − You can embed audio or video on your webpages without resorting to third-party plugins.

• **Geolocation** − Now visitors can choose to share their physical location with your web application.

• **Microdata** − This lets you create your own vocabularies beyond HTML5 and extend your web pages with custom semantics.

• **Drag and drop** − Drag and drop the items from one location to another location on the same webpage.

Backward Compatibility

HTML5 is designed, as much as possible, to be backward compatible with existing web browsers. Its new features have been built on existing features and allow you to provide fallback content for older browsers.

It is suggested to detect support for individual HTML5 features using a few lines of JavaScript.

Functional and performance specifications.

TESTING

INTRODUCTION

Testing is a set of activities that can be planned in advance and conducted systematically testing requires that the developer discard preconceived notations of the correctness of the software just developed and overcome a conflict of interest that occurs when errors are encountered. Testing also provides the main objective of our project and understand the risk of implementation. Testing is a process of technical investigation, performed on behalf of stakeholder, that is intended to reveal quantity related information about the product with respect to the context in which it is intended to operate. Testing is the process of executing a program or an application with an intent of finding an error or bugs. Testing can be stated as the process of validating and verifying that a software program/application/product:

Test plan

Test plan will describe about the scope and activities of our modules in the project .We must plan the test plans in the starting of our project. It will provide a unique identifier for our document. Testing should begin in “small” and proceeds in the “large”. Exhaustive testing is not possible. Provides an overview of our test plan.

Specify the goals/objectives/constraints.

Our project has eight modules. So, we will do testing from the starting phase itself .The main aim of test plan is to produce a correct code with all users requirements satisfied.

Unit testing

Unit testing is used to test or verify the functionality of specific section of code.
This is written by the developers to ensure that specific function is working or not.
A unit is the smallest part of an application.

Unit tests are created by programmers or occasionally by white box testers during the development process.

Integration testing

Integration testing (sometimes called Integration and Testing, abbreviated "I&T") is the phase in software testing in which individual software modules are combined and tested as a group. It occurs after unit testing and before validation testing . Integration testing takes as its input modules that have been unit tested, groups them in larger aggregates, applies tests defined in an integration test plan to those aggregates, and delivers as its output the integrated system ready for system testing.

Integration testing is a type of software that seeks to verify the interface between components. The components are integrated in an iterative way.

Integration testing will allow the interface to find the issues more quickly and fixed.
It works to expose defects in the interfaces and interaction between integrated components (Modules).

Test case for end user

If the user is just visiting our website then he /she can access only the home page.

Test case for login

If the user has joined into our website they will be provided wih an user id
And using that they can access their account.

Test case for create session

If the user wants to take a test then they can login as user and select their category and can proceed to next step.

Validation testing

While verification is a quality control process, quality assurance process carried out before the software is ready for release is known as validation testing. The validation testing goals is to validate and be confident about the software product or system, that it fulfills the requirements given by the customer. The acceptance of the software from the end customer is also a part of validation testing. Validation testing answers the question, "Are you building the right software system". Another question, which the entire process of validation testing in software engineering answers is, "Is the deliverable fit for purpose". In other words, does the software system provide the right solution to the problem. Therefore, often the testing activities are introduced early in the software development life cycle. The two major areas, when validation testing should take place are in the early stages of software development and towards the end, when the product is ready for release. In other words, it is acceptance testing which is a part of validation testing.

Design

Use-Case Diagram

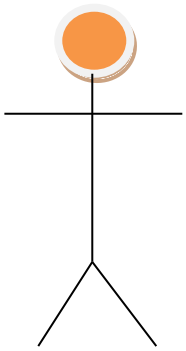
To model a system, the most important aspect is to capture the dynamic behavior. Dynamic behavior means the behavior of the system when it is running/operating.

Only static behavior is not sufficient to model a system rather dynamic behavior is more important than static behavior. In UML, there are five diagrams available to model the dynamic nature and use case diagram is one of them. Now as we have to discuss that the use case diagram is dynamic in nature, there should be some internal or external factors for making the interaction.

These internal and external agents are known as actors. Use case diagrams consists of actors, use cases and their relationships. The diagram is used to model the system/subsystem of an application. A single use case diagram captures a particular functionality of a system.

Hence to model the entire system, a number of use case diagrams are used.

Actor



Cases

Purpose of Use Case Diagrams

The purpose of use case diagram is to capture the dynamic aspect of a system. However, this definition is too generic to describe the purpose, as other four diagrams (activity, sequence, collaboration, and Statechart) also have the same purpose. We will look into some specific purpose, which will distinguish it from other four diagrams.

Use case diagrams are used to gather the requirements of a system including internal and external influences. These requirements are mostly design requirements. Hence, when a system is analyzed to gather its functionalities, use cases are prepared and actors are identified.

When the initial task is complete, use case diagrams are modelled to present the outside view.

In brief, the purposes of use case diagrams can be said to be as follows −

- Used to gather the requirements of a system.
- Used to get an outside view of a system.
- Identify the external and internal factors influencing the system.
- Show the interaction among the requirements are actors.

How to Draw a Use Case Diagram ?

Use case diagrams are considered for high level requirement analysis of a system. When the requirements of a system are analyzed, the functionalities are captured in use cases.

We can say that use cases are nothing but the system functionalities written in an organized manner. The second thing which is relevant to use cases are the actors. Actors can be defined as something that interacts with the system.

Actors can be a human user, some internal applications, or may be some external applications. When we are planning to draw a use case diagram, we should have the following items identified.

- Functionalities to be represented as use case
- Actors
- Relationships among the use cases and actors.

- Use case diagrams are drawn to capture the functional requirements of a system. After identifying the above items, we have to use the following guidelines to draw an efficient use case diagram
- The name of a use case is very important. The name should be chosen in such a way so that it can identify the functionalities performed.
- Give a suitable name for actors.
- Show relationships and dependencies clearly in the diagram.
- Do not try to include all types of relationships, as the main purpose of the diagram is to identify the requirements.
- Use notes whenever required to clarify some important points.

Following is a sample use case diagram representing the order management system. Hence, if we look into the diagram then we will find three use cases **(Order, SpecialOrder, and NormalOrder)** and one actor which is the customer.

The SpecialOrder and NormalOrder use cases are extended from *Order* use case. Hence, they have extended relationship. Another important point is to identify the system boundary, which is shown in the picture. The actor Customer lies outside the system as it is an external user of the system.

Where to Use a Use Case Diagram ?

As we have already discussed there are five diagrams in UML to model the dynamic view of a system. Now each and every model has some specific purpose to use. Actually these specific purposes are different angles of a running system.

To understand the dynamics of a system, we need to use different types of diagrams. Use case diagram is one of them and its specific purpose is to gather system requirements and actors.

Use case diagrams specify the events of a system and their flows. But use case diagram never describes how they are implemented. Use case diagram can be imagined as a black box where only the input, output, and the function of the black box is known.

These diagrams are used at a very high level of design. This high level design is refined again and again to get a complete and practical picture of the system. A well-structured use case also describes the pre-condition, post condition, and exceptions. These extra elements are used to make test cases when performing the testing.

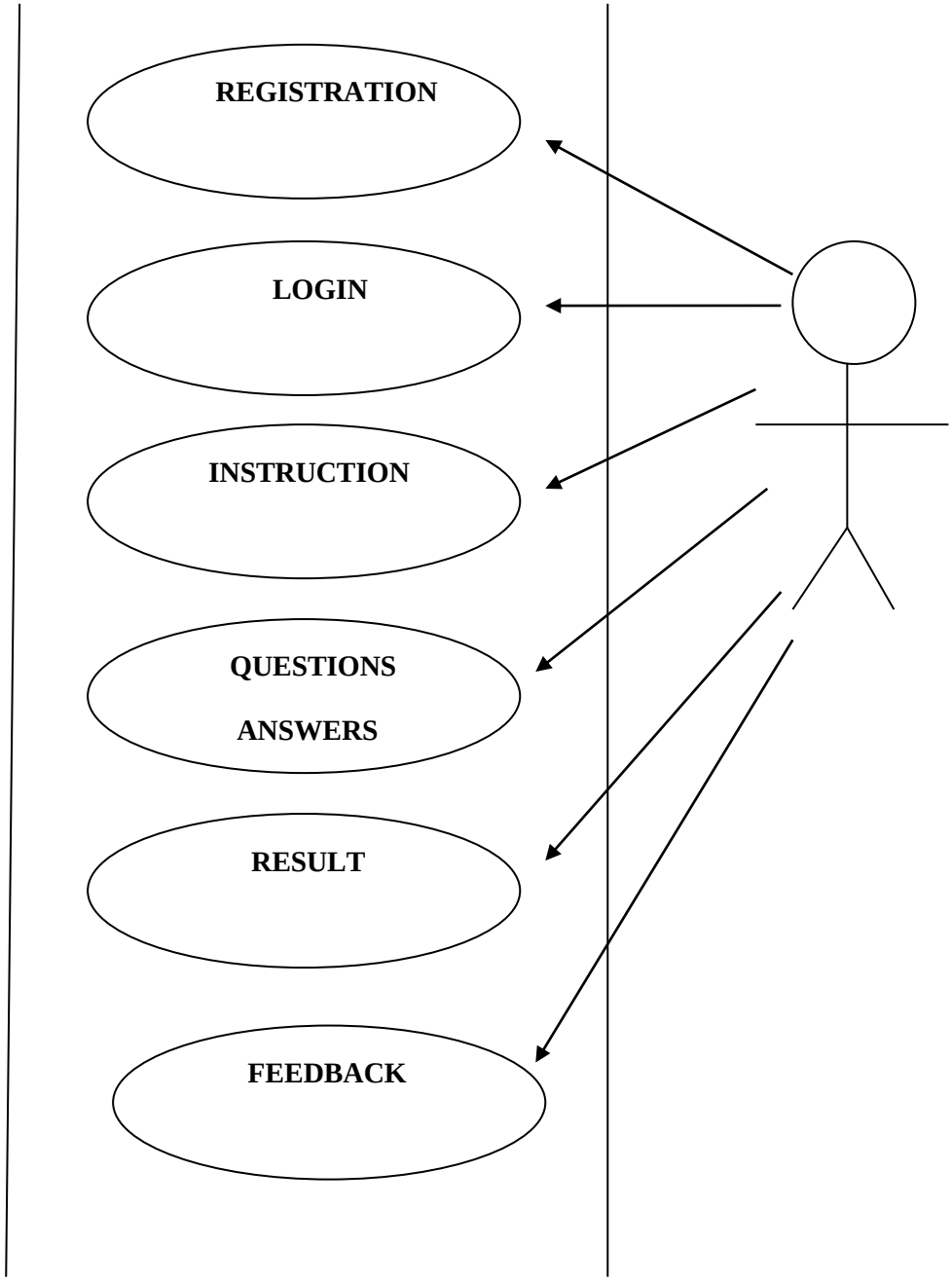
Although use case is not a good candidate for forward and reverse engineering, still they are used in a slightly different way to make forward and reverse engineering. The same is true for reverse engineering. Use case diagram is used differently to make it suitable for reverse engineering.

In forward engineering, use case diagrams are used to make test cases and in reverse engineering use cases are used to prepare the requirement details from the existing application.

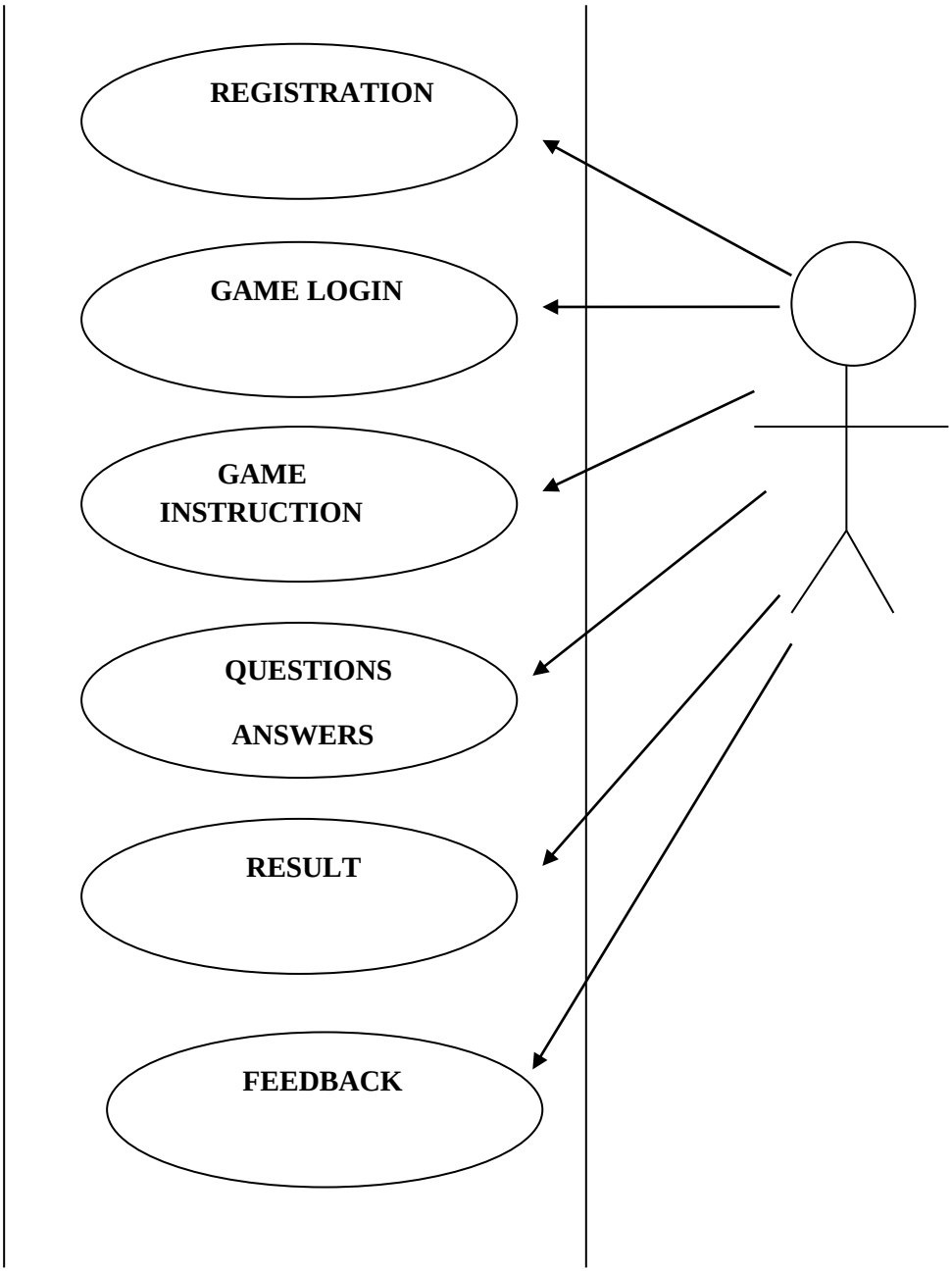
Use case diagrams can be used for –

- Requirement analysis and high level design.
- Model the context of a system.
- Reverse engineering.
- Forward engineering.

Use case diagram for quiz



Use case diagram for Game quiz



Detailed DFDs and Structure diagram

Software analysis and design includes all activities, which help the transformation of requirement specification into implementation. Requirement specifications specify all functional and non-functional expectations from the software. These requirement specifications come in the shape of human readable and understandable documents, to which a computer has nothing to do.

Software analysis and design is the intermediate stage, which helps human-readable requirements to be transformed into actual code.

Let us see few analysis and design tools used by software designers:

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.

Types of DFD

Data Flow Diagrams are either Logical or Physical.

- **Logical DFD** - This type of DFD concentrates on the system process, and flow of data in the system.For example in a Banking software system, how data is moved between different entities.
- **Physical DFD** - This type of DFD shows how the data flow is actually implemented in the system. It is more specific and close to the implementation.

DFD Components

DFD can represent Source, destination, storage and flow of data using the following set of components -

- **Entities** - Entities are source and destination of information data. Entities are represented by a rectangles with their respective names.

- **Process** - Activities and action taken on the data are represented by Circle or Round-edged rectangles.

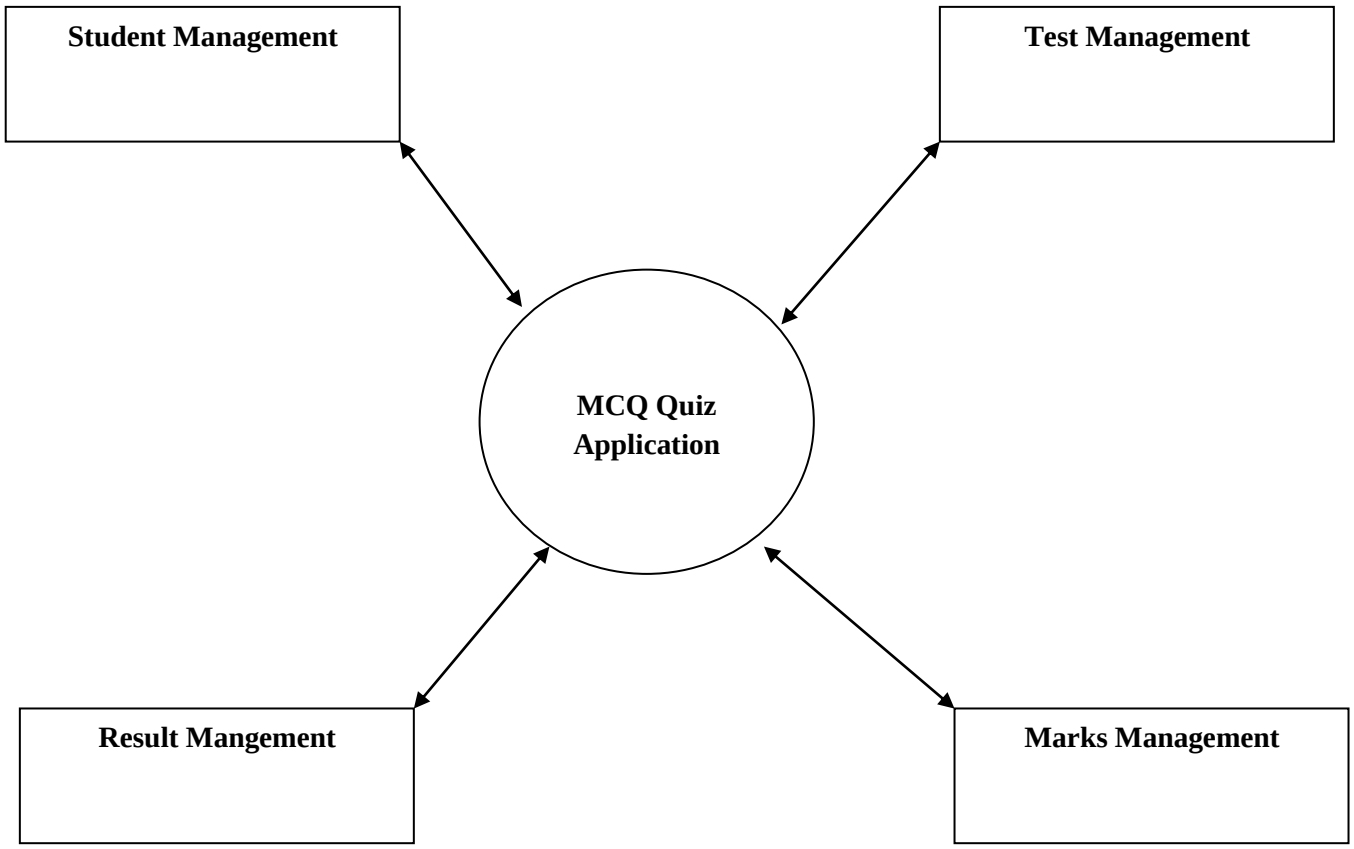
- **Data Storage** - There are two variants of data storage - it can either be represented as a rectangle with absence of both smaller sides or as an open-sided rectangle with only one side missing.

- **Data Flow** - Movement of data is shown by pointed arrows. Data movement is shown from the base of arrow as its source towards head of the arrow as destination.

Levels of DFD

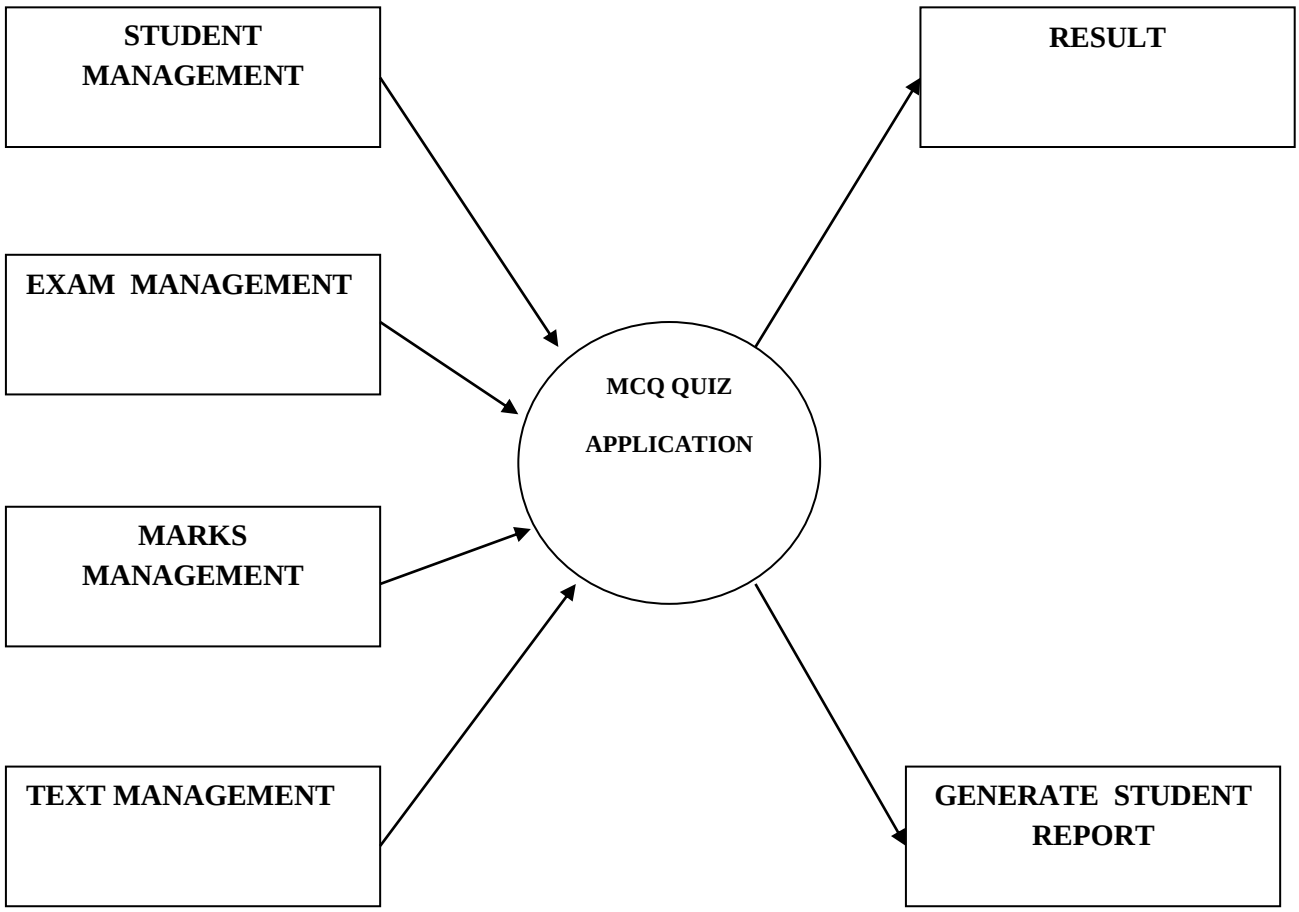
• **Level 0** - Highest abstraction level DFD is known as Level 0 DFD, which depicts the entire information system as one diagram concealing all the underlying details. Level 0 DFDs are also known as context level DFDs.

Zero level 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.



- **Level 2** - At this level, DFD shows how data flows inside the modules mentioned in Level 1.

Higher level DFDs can be transformed into more specific lower level DFDs with deeper level of understanding unless the desired level of specification is achieved.

Structure Charts

Structure chart is a chart derived from Data Flow Diagram. It represents the system in more detail than DFD. It breaks down the entire system into lowest functional modules, describes functions and sub-functions of each module of the system to a greater detail than DFD.

Structure chart represents hierarchical structure of modules. At each layer a specific task is performed.

Here are the symbols used in construction of structure charts –

Module - It represents process or subroutine or task. A control module branches to more than one sub-module. Library Modules are re-usable and invokable from any module.

Condition - It is represented by small diamond at the base of module. It depicts that control module can select any of sub-routine based on some condition.

Jump - An arrow is shown pointing inside the module to depict that the control will jump in the middle of the sub-module.

Loop - A curved arrow represents loop in the module. All sub-modules covered by loop repeat execution of module.

Data flow - A directed arrow with empty circle at the end represents data flow.

Control flow - A directed arrow with filled circle at the end represents control flow.

HIPO Diagram

HIPO (Hierarchical Input Process Output) diagram is a combination of two organized method to analyze the system and provide the means of documentation. HIPO model was developed by IBM in year 1970.

HIPO diagram represents the hierarchy of modules in the software system. Analyst uses HIPO diagram in order to obtain high-level view of system functions. It decomposes functions into sub-functions in a hierarchical manner. It depicts the functions performed by system.

HIPO diagrams are good for documentation purpose. Their graphical representation makes it easier for designers and managers to get the pictorial idea of the system structure.

In contrast to IPO (Input Process Output) diagram, which depicts the flow of control and data in a module, HIPO does not provide any information about data flow or control flow.

Example

Both parts of HIPO diagram, Hierarchical presentation and IPO Chart are used for structure design of software program as well as documentation of the same.

Structured English

Most programmers are unaware of the large picture of software so they only rely on what their managers tell them to do. It is the responsibility of higher software management to provide accurate information to the programmers to develop accurate yet fast code.

Other forms of methods, which use graphs or diagrams, may are sometimes interpreted differently by different people.

Hence, analysts and designers of the software come up with tools such as Structured English. It is nothing but the description of what is required to code and how to code it. Structured English helps the programmer to write error-free code.

Other form of methods, which use graphs or diagrams, may are sometimes interpreted differently by different people. Here, both Structured English and Pseudo-Code tries to mitigate that understanding gap.

Structured English is the It uses plain English words in structured programming paradigm. It is not the ultimate code but a kind of description what is required to code and how to code it. The following are some tokens of structured programming.

Analyst uses the same variable and data name, which are stored in Data Dictionary, making it much simpler to write and understand the code.

Pseudo-Code

Pseudo code is written more close to programming language. It may be considered as augmented programming language, full of comments and descriptions.

Pseudo code avoids variable declaration but they are written using some actual programming language's constructs, like C, Fortran, Pascal etc.

Pseudo code contains more programming details than Structured English. It provides a method to perform the task, as if a computer is executing the code.

Decision Tables

A Decision table represents conditions and the respective actions to be taken to address them, in a structured tabular format.

It is a powerful tool to debug and prevent errors. It helps group similar information into a single table and then by combining tables it delivers easy and convenient decision-making.

Creating Decision Table

To create the decision table, the developer must follow basic four steps:

- Identify all possible conditions to be addressed
- Determine actions for all identified conditions
- Create Maximum possible rules
- Define action for each rule

Decision Tables should be verified by end-users and can lately be simplified by eliminating duplicate rules and actions.

E-R Diagram

Entity-Relationship Model

Entity-Relationship model is a type of database model based on the notion of real world entities and relationship among them. We can map real world scenario onto ER database model. ER Model creates a set of entities with their attributes, a set of constraints and relation among them.

ER Model is best used for the conceptual design of database. ER Model can be represented as follows :

Entity - An entity in ER Model is a real world being, which has some properties called **attributes**. Every attribute is defined by its corresponding set of values, called **domain**.

For example, Consider a school database. Here, a student is an entity. Student has various attributes like name, id, age and class etc.

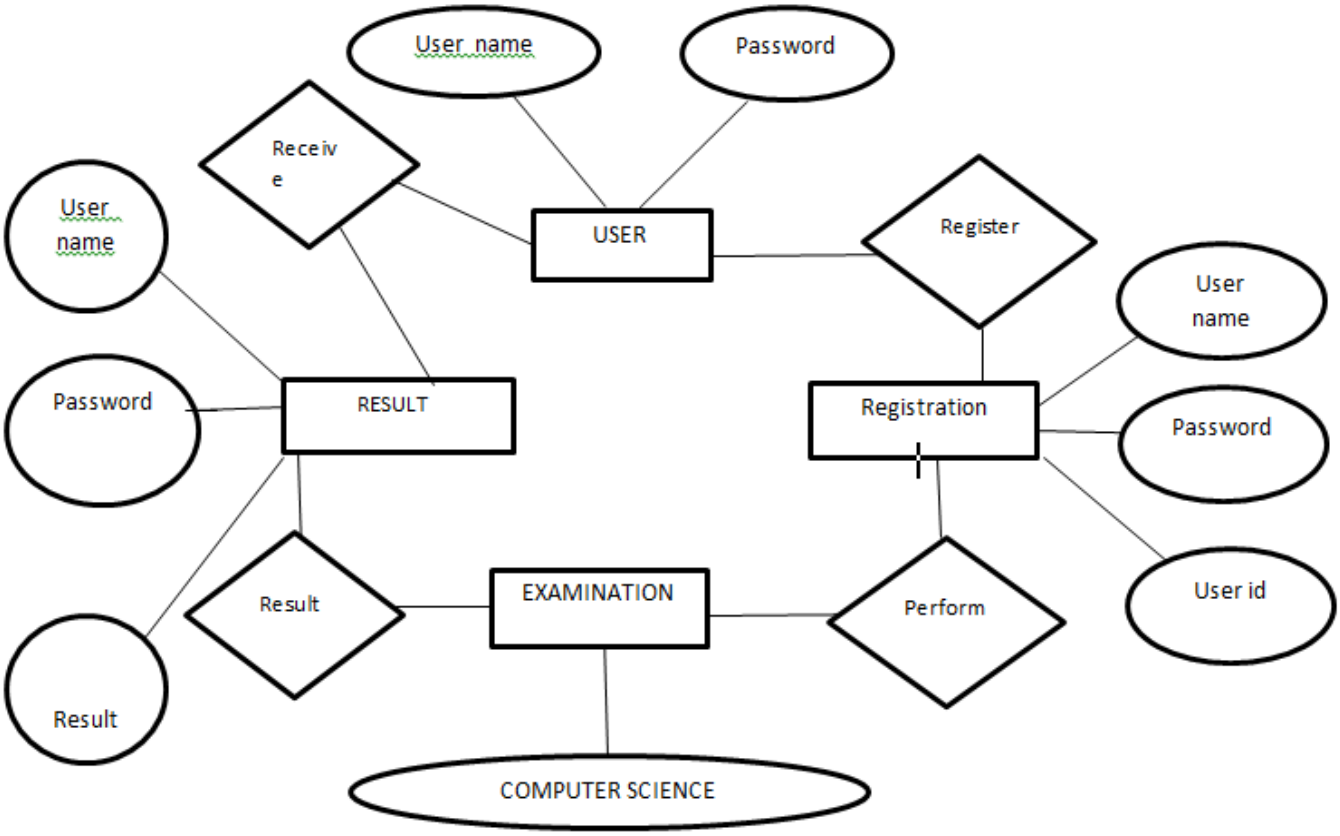
Relationship –

The logical association among entities is called **relationship**. Relationships are mapped with entities in various ways. Mapping cardinalities define the number of associations between two entities.

Mapping cardinalities:

- one to one
- one to many
- many to one
- many to many

ER-Diagram


User name
Password
Receiv e
User name
USER
Register
User name
Password
RESULT
Registration
Password
Result
EXAMINATION
Perform
User id
Result
COMPUTER SCIENCE

Implementation

Database Design

Create Database Quizdbase

Table: Question

Field	Type	Null	Key	Default	Extra
Qid	Int(250)	NO	PRI	NULL	Auto_increment
Question	Varchar(250)	YES		NULL	
Ans_id	Int(250)	YES		NULL	

Table: Answer

Field	Type	Null	Key	Default	Extra
Aid	Int(250)	NO	PRI	NULL	Auto_increment

Answer	**Varchar(250)**	**YES**		**NULL**	
Ans_id	**Int(250)**	**YES**		**NULL**	

Table: Userdata

Field	Type	Null	Key	Default	Extra
Uid	**Int(250)**	**NO**	**PRI**	**NULL**	**Auto_increment**
Username	**Varchar(250)**	**YES**		**NULL**	
Totalques	**Int(250)**	**YES**		**NULL**	
Answercorrect	**Int(250)**	**YES**		**NULL**	

Create Database sessionpractical

Table: signin

Field	Type	Null	Key	Default	Extra

Id	**Int(250)**	**NO**	**PRI**	**NULL**	**Auto_increment**
Username	**Varchar(250)**	**YES**		**NULL**	
Password	**Int(250)**	**YES**		**NULL**	

Table: GameQuestions

Field	**Type**	**Null**	**Key**	**Default**	**Extra**
Qid	**Int(250)**	**NO**	**PRI**	**NULL**	**Auto_increment**
Question	**Varchar(250)**	**YES**		**NULL**	
Ans_id	**Int(250)**	**YES**		**NULL**	

Table: GameAnswer

Field	**Type**	**Null**	**Key**	**Default**	**Extra**
Aid	**Int(250)**	**NO**	**PRI**	**NULL**	**Auto_increment**

Answer	**Varchar(250)**	**YES**		**NULL**	
Ans_id	**Int(250)**	**YES**		**NULL**	

Table: GameUserdata

Field	Type	Null	Key	Default	Extra
Uid	**Int(250)**	**NO**	**PRI**	**NULL**	**Auto_increment**
Username	**Varchar(250)**	**YES**		**NULL**	
Totalques	**Int(250)**	**YES**		**NULL**	
Answercorrect	**Int(250)**	**YES**		**NULL**	

Project Legacy (Conclusion)

Current Status of project

This online quiz system provides facility to conduct online examination world wide. It saves time as it allows number of students to give the exam at a time and displays the results as the test gets over, so no need to wait for the result. It is automatically generated by the server. Administrator has a privilege to create, modify and delete the test papers and its particular questions. User can register, login and give the test with his specific id, and can see the results as well.

Future Recommendation

The main aim of our project is create a good interaction between the student and teacher.
We are trying to do the project at best level to satisfy all the end users (i.e, student/faculty).
In our future we are decided to provide more security to our website which may not be hacked.
And we give the choice to student to add their name under the faculty who they wish and get advice for their betterment.
It will be more empowering.
Next we are aiming to provide some online classes in to our website

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