

# Online quizzing system ‘Quizone’



## Database management project

A project devoted to development of an online quiz generation and administration system, with flexible usage on any administrative server. Projected use is for any kind of educational institution or more generally any institute requiring a customised and efficient platform for mass evaluation.

**M A N I T , B h o p a l**

**A d i t y a G a u r**  
**2 0 1 5**

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## 1.0 Introduction

This project provides a take on betterment of quality and efficiency of evaluation techniques used in various institutions for providing a qualitative bound on student performance.

Most institutes use primitive ways of evaluation, which can easily be upgraded to a more efficient and productive method. With a centralised online test/quiz system, using a network, devices such as PCs, laptops, tablets, and even hand held smartphones can easily be used for the basic requirements of providing students with questions and noting their responses. Further, the need for manual checking of the noted responses can also be removed by introduction of an automated result and rank calculation procedure which can easily be implemented if the results are pre-fed into the system.

Our project aims to provide a highly functional network accessible web based application which will allow subject coordinators to add quizzes for their respective subjects. They can further add the students who are a part of their subject, and also select invigilators for tests. There shall be an added functionality for the invigilators to start/stop the test or to ban a student from the test if he is caught cheating.

The students will be able to access tests of their respective subjects, and also see all of their results in one place. Similarly, the subject coordinators will be able to easily track student performance instantly.

## 2.0 Project Overview

### 2.1 Project Summary

#### 2.1.1 Context:

- i. The conceptualisation of the project owes itself to various factors, such as unavailability of better, advanced methods for evaluation, test taking for students, unavailability of a centralised record keeping mechanism, and further use of unsystematic methods for performing the same
- ii. The project is aimed at institutions where a large number of evaluations are required, on a periodic basis. It will facilitate the people in charge of these evaluations, and also make sure the testing procedures are accurate and efficient
- iii. The project helps in keeping a better record of all students, quizzes and even teachers in charge, thus creating a systematic environment for education
- iv. The project aims at providing subject coordinators easy ways to create new quizzes and assess student performances. It also aims at improving the quality of such quizzes and keeps in mind the required flexibility of subject choices made by students
- v. The project is made to be as general as possible, so as to appeal to a larger user base, and be used in multiple differing situations

#### 2.1.2 Operating Environments:

- i. The project is cross-platform and operates under all kinds of operating systems as it is totally server based and only requires a system with some internet/LAN connection.
- ii. System requirements – 32/64 bit operating system with a web browser enabled with javascript and INTRANET/INTERNET.

#### 2.1.3 Design and Implementation constraints:

- i. The project is implemented as a server-side project using SQL as backend and html, css, javascript , php in the front end .
- ii. sql is used to store the information in the database in the form of database tables and it maintains all the records.
- iii. html/css is used to make the template for the web pages and designing the pages, further Bootstrap is used for better adaptive user interface design
- iv. php is used for server side scripting and it communicates with the databases and handles the user requests.
- v. Javascript is used for client side scripting and it improves user experience.

## 2.2 Software Features

The software provides various minimal as well as extended features which would seem fit for an online quizzing platform's requirements. These are listed below

- i. Compatibility: The software has been developed using web based and highly used and acknowledged languages, which can be accessed seamlessly on any operating system using a web browser. As most, if not all, computer systems/tablets/mobile devices have some or the other web browser, accessing the content is possible across different operating systems
- ii. Concurrency: Various user groups will access the software for their respective requirements, which differ greatly. The software provides simultaneous access to these different groups and provides a way to fulfil the requirement of all user groups together
- iii. Portability: The software has been especially designed so as to work on devices other than PCs or laptop computers, so as to make the quizzing facilities available on smaller, more portable devices. The web design uses adaptive designing which changes according to the screen size of the device making use of the software, thus making it possible to use it on various platforms
- iv. Reliability: The software has been designed in a way that the dependencies of various database entities are set correctly, so as to make all corrective changes each time an update or deletion is made. Because of this the reliability of the software is quite commendable
- v. Maintainability: The software can easily be maintained, as the web design platform provides easy access to the code, and making changes is as easy as addition, or updating the files present in the database. In the event of an update, the web interface can easily be made unavailable, so no user may perform undesirable tasks
- vi. Scalability: The software is designed to be used in conjunction with a server, providing the services using Apache, and a MySQL backend. Both of these are industry level tools, and can bear large loads depending on the user requests, hence the performance can vary according to the requirements
- vii. Simplicity: The software provides simple tools to create multiple choice questions with 4 options, without loss of generality, this scheme can be used for evaluation in all different circumstances, and at the same time provides a simple design and interface

## 2.3 End user functionality

The software consists of 3 main user groups, all these have their own separate functionalities. For more detailed user functionality, here are the user groups, ordered by their authority level:

### *Administrator:*

The administrator is the basic control possessing user. The first account created is the administrators' during the initialisation of the software. The administrator can:

- i. Add Students
- ii. Add Subject coordinators
- iii. Add more Admins
- iv. Remove any user
- v. View all added subject coordinators
- vi. Reset the stored database

Additionally, the layers of users are insulated in reference of functionality, so, the administrator can not:

- i. Remove subjects
- ii. Remove quizzes
- iii. Remove students from specific subjects
- iv. Access or evaluate quizzes

### *Subject coordinator:*

The subject coordinator has control over the actual quizzes and subjects. Following are the functionalities for a subject coordinator:

- i. Add new subjects (for which he/she is the coordinator)
- ii. Accept/Reject student requests for joining the subject
- iii. Remove existing students from a subject
- iv. Add new quizzes
- v. Add new questions and options for the quizzes
- vi. Upon ending of a quiz, allow evaluation of the quiz results
- vii. View the result of all students for a given quiz
- viii. View list of all their subjects, students enrolled in them
- ix. View list of all their quizzes
- x. Delete their quizzes

***Student:***

The student is the last major user group to access the software. From a power/authority perspective, the student has the least power. A student can:

- i. Send subject requests for specific subject IDs
- ii. View the status of all previous subject requests sent
- iii. View list of all quizzes from enrolled subjects
- iv. Give a quiz from the list of quizzes present
- v. After evaluation of the result, view his/her result
- vi. Within questions, mark/unmark answers
- vii. View next and previous questions
- viii. View time remaining for commencement of quiz(before start)
- ix. View time remaining in ending of active quiz(while quiz is active)
- x. View result of the quiz(after quiz has finished)

## 2.4 Existing software

As of now, there is no specific software which provides complete quizzing capabilities on a network based platform. There are a few quizzing software which can be used online, but these are both commercially expensive, and not suitable for institute controlled/secure tests.

Nevertheless, the following are some software presently providing quizzing capabilities:

### *ClassMarker*

ClassMarker is a website which provides facilities for creation of online tests. The amount of flexibility and impact is widespread, and there is a high amount of functionality.

The problem with class marker is, that it requires an internet based connection, and cannot be used as a local software on local networks.

For example, consider the case of an institute where internet facilities are scarce or non-existent, in such a scenario, the use of such a website would be impossible, and that would create a constraint for the institute, and it would not be able to use ClassMarker

### *ProProfs*

This is similar to ClassMarker, and along with it come the same constraints. This software cannot be deployed for a specific server, as it is an independent internet based website.

Because of this major limitation, Quizzone can be preferred to these software in absence of an internet connection.

### *Advantage of Quizzone*

As stated above, the major features of other online software are not of much use as they require a sturdy internet connection. In addition, these software require users to pay high amounts of money for each registration, and thus are not suitable for institution based quizzing requirements. Summarising the advantages:

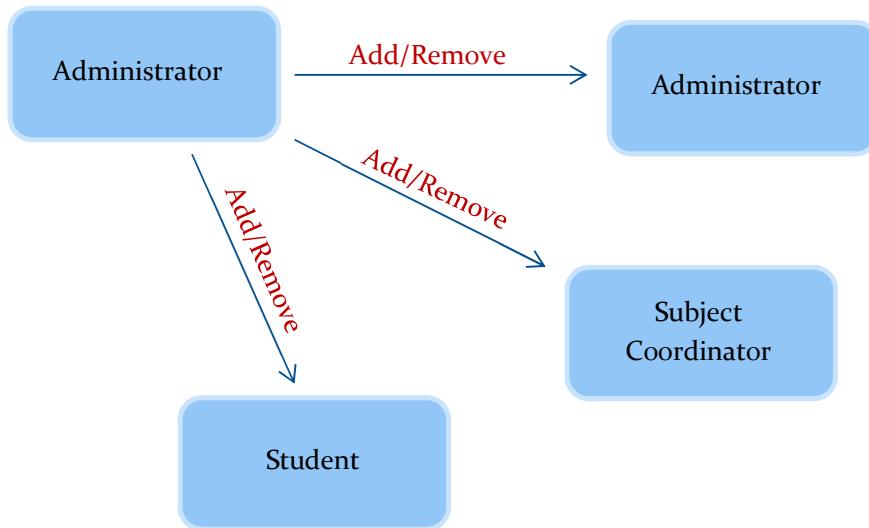
- i. Quizzone provides a network based interface specific to each server which uses it.
- ii. There is no security risk, as local servers can have stricter measures of hacking checks
- iii. There is no load dependency on a 3<sup>rd</sup> party
- iv. There are more institute friendly constructs such as subjects, coordinators, which make it the better choice over other software

## 2.5 Software organisation and work description

The software consists of 3 main user groups, namely: Administrators, subject coordinators, and students. Additional functionality may be added for invigilators.

The work of the Administrators is to add all different users to the database; they also have the power to remove users from the database in case such an action is required.

*Administrators-*



Subject coordinators, once added, can add their own subjects.

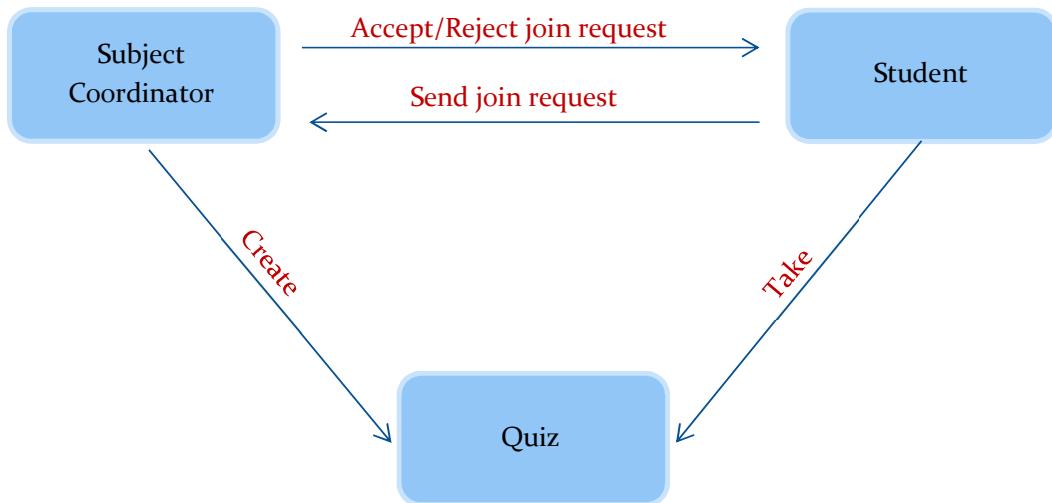
Students, once added, can send requests to their respective subject coordinators to join the subject using the subject code

Further the subject coordinators have the power to either accept or reject requests from the students.

The subject coordinators can also add new quizzes for the respective subjects they have. All the students enrolled in that subject (whose join requests were accepted) can give the quiz.

For students, before the quiz begins, a timer works to show how much time is remaining in the starting of the quiz, once the quiz has started, the timer shows the time left for ending of the quiz, and finally once the quiz has ended, the student is taken to the results page.

The result is only declared once the subject coordinator opens the quiz after the ending of the allotted time. On doing so, the result is evaluated and made available for the students to see.



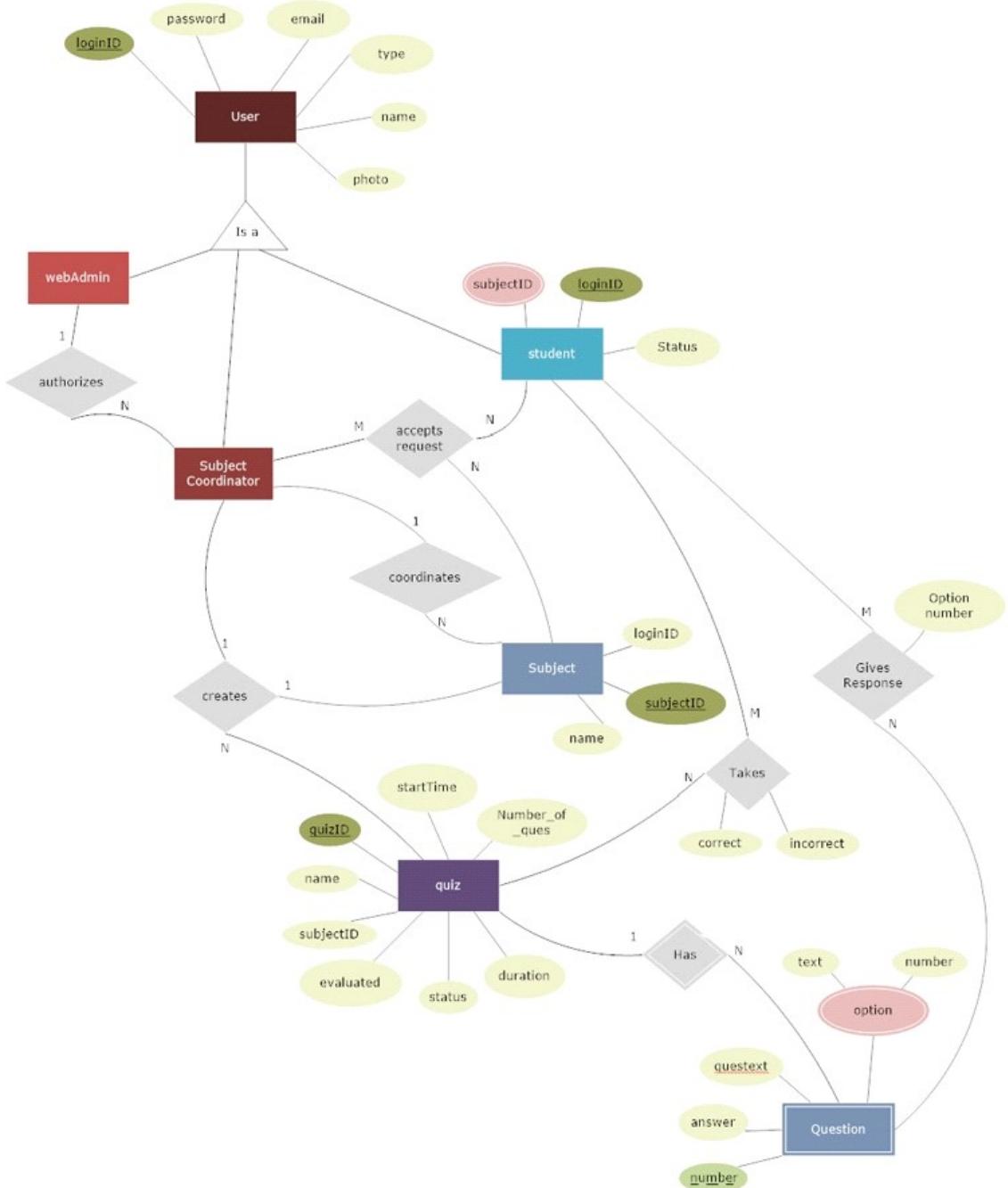
Subject coordinators further have the power to remove a student from their subjects if required.

Addition of students is done only by the administrators for integrity reasons. Independent addition would not only create confusion, but would also lead to security issues.

Addition should preferably be done on the basis of an identifying number such as enrolment number/scholar number, so as to keep identification easy. This number can be made the userID/loginID, whereas for other entities such as subjects, subject coordinators etc. there should be a systematic ID creating methodology.

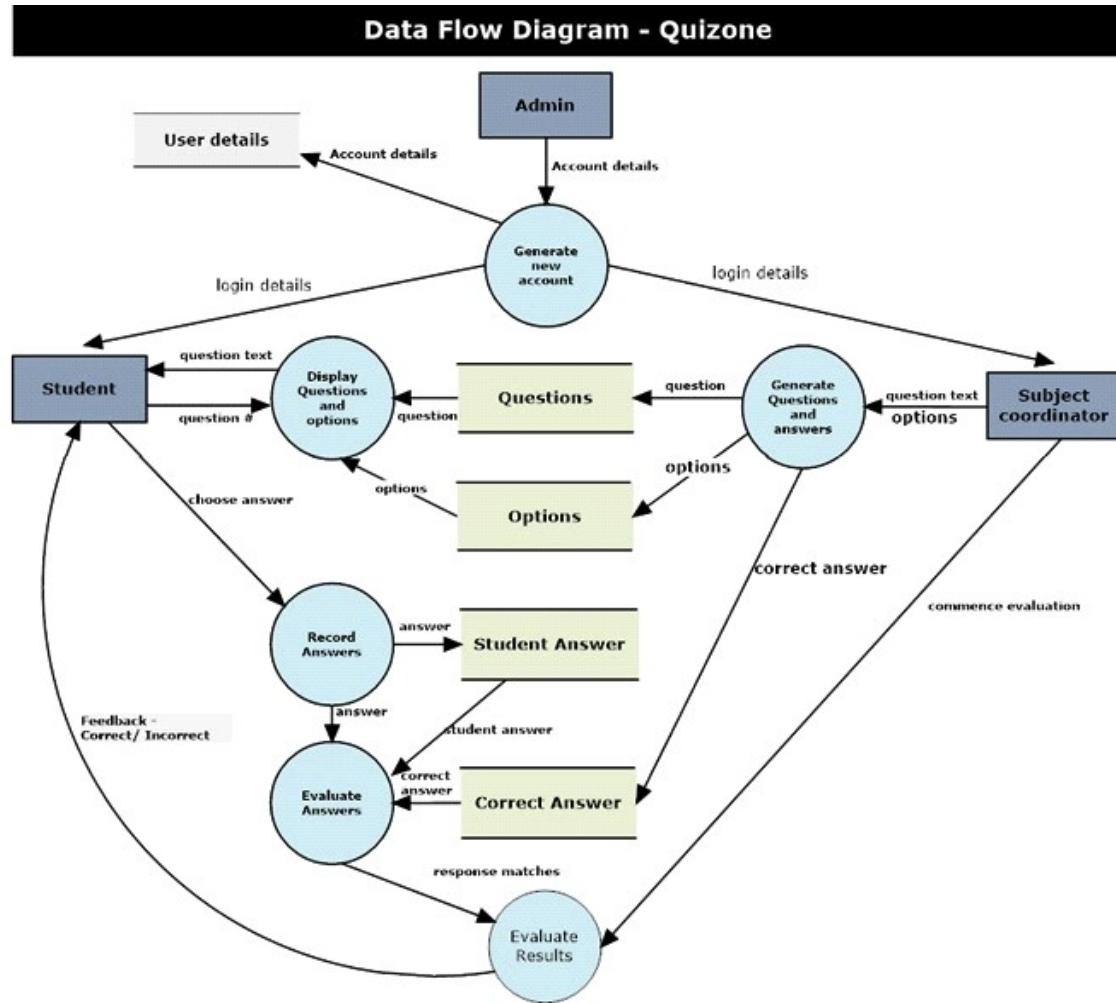
## 2.6 Entity relationship diagram

Following is the proposed entity relationship diagram corresponding to the project:



## 2.7 Data flow diagram

Following is the proposed data flow diagram corresponding to the project:



## 3.0 Development details

For development of this project, the following were used-

### Front end development:

- HTML 5
- CSS 3
- JavaScript
- Bootstrap for UI design

### Back end development:

- PHP 5.6.3
- MySQL 5.6.21

### Testing done on local networks using:

- XAMPP (Apache server)
- phpMyAdmin 4.2.11

## 4.0 Implementation (Screenshots)

Following are some of the screenshots from the live software

### *Login page*

Welcome to Quizzone!

Quizzone is a network based test taking platform for ease of access, evaluation and record retrieval.

User login:

LoginID:

Password:

**Submit**

### *Admin Control panel*

Add new User account    Modify account details    Remove user account    Reset Quizzone database    Logout

Admin Control panel

Enter details to make a new user account:

LoginID:

Password:

Re-enter:

Email:

Full Name:

User type:

**Submit**

## Subject coordinator panel

Add Subject    Modify account details    Add new Quiz    Logout

**Subject Coordinator panel**

Enter details to add a new subject:

<b>SubjectID:</b>	<input type="text" value="Enter Subject ID"/>
<b>Subject Name:</b>	<input type="text" value="Enter Subject name"/>

**Submit**

My Subjects	My Quizzes			
SubjectID	Name	Students Enrolled	Requests Pending	
cse101	Introduction to CSE	2	0	<b>delete</b>
cse102	Introduction to C Programming	2	0	<b>delete</b>

## Quiz addition form

Add Subject    Modify account details    **Add new Quiz**    Logout

**Subject Coordinator panel**

Enter details to add a new Quiz:

<b>QuizID:</b>	<input type="text" value="cse101Q01"/>
<b>Quiz Name:</b>	<input type="text" value="Basics quiz"/>
<b>SubjectID:</b>	<input type="text" value="cse101"/>
<b>Start Time:</b>	<input type="text" value="10-04-2015 10:00"/>
<b>Duration:</b>	<input type="text" value="01:30"/>

**Submit**

## Student account

Send Subject request    Modify account details    Logout

**Student account**

Enter details to add a new subject request:

SubjectID:	Enter Subject ID
------------	------------------

**Submit**

SubjectID	Name	Status
cse101	Introduction to CSE	enrolled
cse102	Introduction to C Programming	enrolled
cse103	Digital Electronics for CSE	enrolled
cse104	Digital Communication	Request rejected
cse105	Data Structures	enrolled

## My Quizzes tab

Send Subject request    Modify account details    Logout

**Student account**

SubjectID	QuizID	Quiz Name	Scheduled time
cse102	cse102Q02	Sessional 1	2015-04-14 12:45:00
cse102	cse102Q01	Syntax quiz	2015-04-16 10:00:00
cse101	cse101Q01	Basics quiz	2015-04-21 09:00:00

## Adding new quiz

Add new quiz

Quiz ID: cse102Q01  
Quiz Name: Syntax quiz  
Subject ID: cse102

Question 1

Question text: What is the correct syntax for while loop in C?

Option 1: while(initialisation;condition;updation)

Option 2: while condition do

Option 3: while(condition)

Option 4: do {} while condition

Answer: Option 3

Add Question

Finish

## Before starting quiz

Quiz ID: cse101Q01  
Quiz Name: Basics Quiz  
Subject ID: cse101

0 days, 0 hours, 0 minutes and 14 seconds to quiz

Back to Account

*During active quiz (presently answered option shown in blue)*

Quiz ID: cse102Q02  
Quiz Name: Sessional 1  
Subject ID: cse102

00:00:50 left

### Question 1

Which of the following is a looping structure?

if  
 else  
 while  
 switch

[Submit Answer](#) [Reset](#) [Next Question](#)

[Back to Account](#)

*Before result declaration*

Quiz ID: cse102Q02  
Quiz Name: Sessional 1  
Subject ID: cse102

### Result not declared!

[Back to Account](#)

*After declaration (student view)*

 **Quizzone**  
The network based Quizzing Platform

Quiz ID: cse102Q02  
Quiz Name: Sessional 1  
Subject ID: cse102

LoginID	Student Name	Correct	Incorrect	Total
stu1	Siddharth Singh	1	0	3

[Back to Account](#)

## 5.0 Conclusion

There are a plethora of options and variations possible to be added to the already proposed software, but the present one provides along with it the possibility of revolutionising institute requirements where high amount of evaluation and test are required on a relatively shorter timescale.

Other software do not provide a cheap and easy solution for server based, i.e. network based quizzing solutions, and hence cannot be compared to the presented solution. Quizzone is a simple, yet effective software for simple multi-platform, multi OS and general evaluation. The possibility of addition to the software at this point are endless, and future additions may include a number of distinguishing features making the software even more capable and useful for its intended purpose. The present facilities of the software can tend to the need of many institutions which require simple assessment tools, while keeping with the environment's benefit under consideration.

Quizzone may prove to be a boon to many institutes where test taking is required, and can provide a better, efficient, modern way of quiz taking and evaluation.

## 6.0 References

For the creation of the project, various sources on the internet were most helpful, apart from books and other materials. These require a special mention as their contributions were a great help for creation of Quizone.

### *Web references:*

W3schools - <http://www.w3schools.com/>

For Javascript, AJAX, MySQL

<http://php.net/>

For all php references

StackOverflow - <http://stackoverflow.com/>

For specific answers pertaining to various questions covering all fields

### *Books:*

Database Systems by Ramez Elmasri & Shamkant B. Navathe

For theoretical and practical designing issues