

THE QUESTIONS BANK

By:

Zulfaqar Bin Adzhar

(16109)

Supervisor: Mr Ahmad Izzuddin

FINAL YEAR PROJECT

Dissertation submitted in partial fulfilment of
the requirements for the
Bachelor of Technology (Hons)
(Information and Communication Technology)

Universiti Teknologi Petronas,
31260, Bandar Seri Iskandar,
Perak Darul Ridzuan.

CERTIFICATION OF APPROVAL

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CERTIFICATION OF ORIGINALITY This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.

ZULFAQAR BIN ADZHAR

ACKNOWLEDGEMENT

First and foremost the author want to acknowledge and express his deepest gratitude for his supervisor, Mr Ahmad Izuddin bin Zainal Abidin for his guidance and lesson that lead to this completed report of Final Year Project. His comments sure does bring positive things for this report and project to be as complete as possible.

The author also would like to express his gratitude to his friends and family who have always back him during the process of completing this project. All the positive response and help made the author realize that his friends and family really play a big role for this completed report.

Last but not least, the author thanked the fellow respondents who can give some of their time to help the author test the application.

ABSTRACT

In this research paper, the author provide a way to improve multiple choice quiz or questions taking activity. Author himself love to do quizzes to improve his knowledge and still looking for a way to make it better. The author want the user or the quiz taker feel complete and gain something after taken the quizzes. In this project, the author try to find a way for students and people to study and do revision better. The author thought that current way of doing revision is not good enough considering the technology that the world currently have. The main objectives for this project is to use and explore the use of mobile technology to keep our studying and way of doing revision up to date. By using Eclipse, the author would develop a mobile application, named "The Questions Bank". "The Questions Bank" was developed mainly for Android operating system for now. Before the prototype start its development, a group of users have been approached for survey to analyze in terms of its effectiveness and also in terms of technology. The results of the survey and the recommendations were compiled together at the end of this report.

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CHAPTER 1

INTRODUCTION

1.1 Background Study

Multiple choice is a form of assessment where respondents are asked to pick the best possible answer, or even answers, out of the choices from a list. If respondents try guessing an answer, there's usually a 25% chance of getting the answer correct on a question with 4 answer choice. Finding the correct answer from multiple choices can be automated using mcq answering systems. The multiple choice format is mostly and frequently used in market research, educational testing, and even in elections, where a person chooses between multiple parties, policies or candidates.

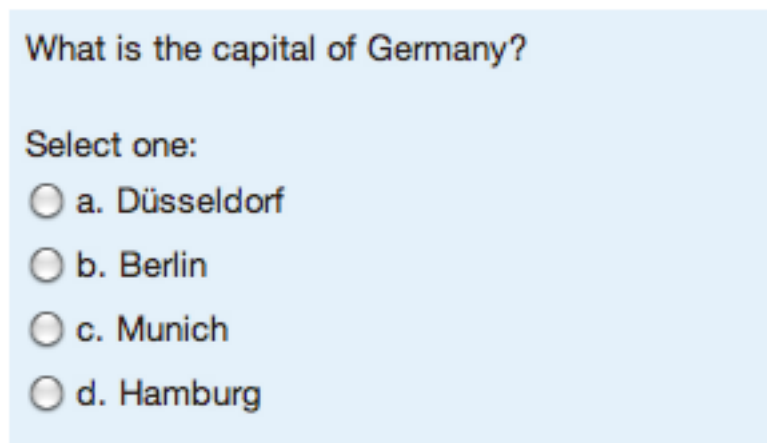


Figure 1.1. A multiple choice question example

Although E. L. Thorndike have developed an early multiple choice test, Frederick J. Kelly was really the first one to use such items as some part of a larger scale assessment. While being the Director of the Training School at Emporia State University (then Kansas State Normal School in 1915, he developed and also administered the Kansas Silent Reading Test. Soon after that, Kelly became the third Dean of College of Education at the University of Kansas. The first of all multiple choice, large assessment scale was the Army Alpha, who used to assess the intelligence and the aptitudes of World War I (WWI) military recruits. Multiple choice testing is popular in the United States of America.

The items and component of a multiple choice test are often referred as "questions," but this is a misnomer because there are many items that are not phrased as questions. For example, it can be presented as an incomplete statement, analogy, or mathematical equation. Therefore, the more general term "item" is more appropriate label. Items, are stored in an item bank.

1.2 Problem Statement

There are some applications about doing multiple choice question quizzes online. But almost all of them are not really relevant and serious. They don't have some crucial functions correctly for example their marking function. The quiz applications out there often used only small scope of subjects as their questions. There are also not many applications out there that let the users create their own set of questions.

1.3 Objective

The users, students especially, really need a good mcq quiz applications to help them when in tight situation for example a quick refreshing round of quizzes before going into the exam hall. Thus, author develops this application and targeted students as its main user so that it can help their brain to work faster and more efficient when doing revision.

The main objective for the author to develop this application is :-

- I. To develop an application that can help student do revision and test themselves about certain subjects or topics.
- II. To provide a platform to learn about subjects by using mcq quizzes.

1.4 Project Scope

Project scope defines what is essential in order to complete a project. In this project, it mainly focused on preparing the set of mcq questions based on difficulties. And also randomized the set of questions.

1.5 Relevance and Feasibility

This application is created to help all the people taking and testing themselves with a quick mcq tests. It is not just targeted for students because the application can also provide quizzes that are non-curricular and just general knowledge for example, set of questions on how to feed a cat. It can be used for all ages. Of course it will give more effects to students who might need to take a quick test or quizzes after studying or before going in for examination.

Mcq tests does not require complicated technique or any difficult mathematical algorithm as the player or user just need to select or guess the correct answer. Mcq tests have several advantages. Such as, mcq test are free from the teachers bias. If we look at subjective style question, the teacher who examine it may be bias to some of the students. But it is not the case with mcq style questions as the taker will be graded purely by their answers

CHAPTER 2 LITERATURE REVIEW

2.1 Multiple Choice Questions Technique

2.1.1 Why we use Multiple Choice Questions test?

Multiple choice question (MCQ) testing is one of the most efficient and effective way to assess a wide range of knowledge, skills, attitudes and abilities (Haladyna, 1999). If it done well enough it can allows deep and broad coverage of content in a very efficient way. Although it often maligned, and of course it is true that there should be no single format to be used exclusively for assessment (American Educational Research Association, the American Psychological Association, and the National Council on Measurement in Education , 1999), mcq testing still maintains it position as one of the most commonly used assessment formats (Haladyna, 1999; McDougall, 1997).

2.1.2 What is Multiple Choice Questions test?

Basically, multiple choice questions test is a very flexible assessment format. It can be used to measure so much including knowledge, abilities, values, skills, thinking skills and so on. For such test usually consist of number of items that act as a question that students must choose or select an answer (or answers) from among a number of other choices. Items can also act as statements to which user must select the best completion. Multiple-choice items are fundamentally recognition tasks where users must identify and select the correct response.

2.1.3 What is involved?

Instructor Preparation Time:	Medium to high if you are writing your own items the first time; low if you have validated items.
Preparing Your Students:	Little or none. Especially in introductory classes, it might be wise not to assume that students know strategies for taking multiple-choice tests. Some time spent on test taking strategies may be useful.
Class Time:	Depends on the length of the test.
Disciplines:	Any.
Class Size:	Any. Especially efficient in large classes.
Special Classroom/Technical Requirements:	None. An optical scanner and scan sheets may be useful with large classes.
Individual or Group Involvement:	Usually individual; team testing is possible.
Analyzing Results:	For grading purposes, analysis is usually quick and straightforward. For developing and refining items or for diagnostic purposes, analysis can be a little more complex.
Other Things to Consider:	Logistical concerns such as your students using scanning sheets correctly.

2.1.4 Description

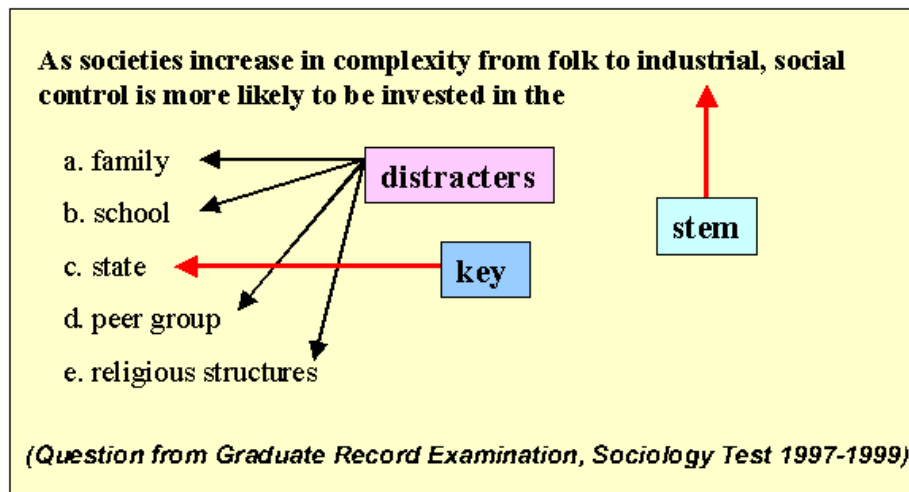
A mcq test is made of multiple choice items, that consist of two, or three parts, as shown below.

- What is Dumbledore full name?
- A. Albus Percival Wulfric Brian Dumbledore
 - B. Albus bin Dumbledore
 - C. Dumble son of Dore
 - D. Dora the Explorer

The stem of a mcq item is the one part that the user respond to. Or as we all named and called it, the question. But because it could maybe a statement or analogy or even equation, we will use the more technical term, that is the Stem.

The Options, are the choices that the user require to choose from. There are a couple kinds of options. Which is the Key, that is the best choice or the correct choice. And the Distracters, that is the less appropriate choices or the incorrect choice.

There are also some stimulus materials included with a mcq item for example a table, bar graph, a map or a short text.



- stem - the question, the text
- options - the options that are listed after stem (include key and distracters)
- the key - the true and correct answer from the list of the options
- distracters - the wrong and incorrect answers from the list of the options

2.1.5 Assessment Purposes

Mcq test have variety of used aside from educational purposes. It is true that they are mostly used in class to measure user or students academic achievement and of course determine their course grades. Some other purposes are for collecting feedback diagnosis and others.

2.1.6 A Few Multiple Choice Myths

- **Mcq tests are objective:** Mcq items are called 'objective'. The truth is, it can be as subjective as an essay like questions if it is written poorly. Objectivity or subjectivity of course doesn't reside with the format but with the construction and also scoring. Therefore objectivity must be planned into mcq. (Dwyer, 1993)
- **Multiple-choice tests assess only superficial knowledge:** It is perhaps because faculty test as they were tested, not following state-of-the-art rules for testing, that multiple choice has the reputation it does. Research has long shown that college-level faculty do not write exams well (Guthrie, 1992; Lederhouse & Lower, 1974; McDougall, 1997), and that both faculty and students notice the side effects, like focusing on memorization and facts (Crooks, 1988; Shifflett, Phibbs, & Sage, 1997).
- **Mcq tests are used only for grading:** The reason for this myth is from the misapprehension that instruction and assessment are different stages of learning. Indeed, there cannot be an instruction without a sound assessment and both are critical and important for learning to happen. As Crooks (1988) succinctly put it: "Too much emphasis has been placed on the grading function of evaluation, and too little on its role in assisting students to learn" (p. 468). There are various ways that mcq items can be made and used to refine and promote learning, to inform the instruction and also to assign user grades.

2.1.7 The Teachings Goals

Student Learning Outcomes:

- Demonstrate recognition and recall of knowledge, skills and abilities
- Demonstrate analysis, synthesis, and evaluation
- Demonstrate critical thinking

Instructor Teaching Outcomes:

- Assess higher-order and lower-order thinking skills
- Assess content broadly and deeply
- Assess quickly and efficiently
- Identify student misconceptions

2.1.8 Mcq Instructions

Writing the Items:

Maybe the first issue on writing the items is whether you actually write our own items or just taking the already made items from item banks or textbooks. Using textbook or publishers' book may come with several risks. First of all, your test blueprint may differ from the publishers' so we must ensure that the test retains our emphases. Secondly, it is a bit doubtful that published item bank consist of true and tried, high quality items (e.g. Hansen & Dexter, 1997; Sims, 1997). Because of the reasoning, we should use the published items sparingly or just use them with extra care as we would with our own items.

Below are tips for item writing. These are synthesized from many sources (e.g. Haladyna & Dowling, 1989).

- Determine at first on how muct total items you want. There are several that can be taken into considerations such as how deep the coverage, how much material to cover, how complex and how long. The rule of thumb for this is one minute/question or more if its complicated (Gronlund, 1988; Oosterhof, 2001).
- Do not being overly specific or overly general with the content. This is dependent on your leaning objectives, just that you do not want to ask about broad and sweeping issues.
- Making sure each item from the tests are one and only concept is also crucial. If you used 'double-barreled' (tests two or more concepts) item, you won't know the student who truly understand from the two if the student got the item correctly.

2.1.9 Rules for Writing Item Stems

- Write the stem as a question or if there are a statement in the stem with its completion among the options, you should put ‘blank’ at the end of stem, Not in the middle.

Poor: When looking at liquid in a test tube, the is the name of the curved surface of the liquid.

Better: The curved surface of liquid in a test tube is called a .

(Answer: meniscus)

- Avoid putting the “main idea” in the options. Put it in the stem.
- Streamline the stem so that it can avoid extraneous language. But put as much as possible to make the options shorter if it is too long.
- Avoid negatives words like "except" or "not". Use them in highlight them in bold , italics or underline if you really need to use it.
- Highlight all the important words.

A. original stem	B. improved stem
Polysaccharide a. are made up of thousands of smaller units called monosaccharides b. are NOT found in the aloe vera leaf c. are created during photosynthesis d. can be described by the chemical formula: CHHOH	Polysaccharides of the plant cell wall are synthesized mainly in the a. endoplasmic reticulum b. cytosol c. plasma membrane d. Golgi complex

In Example A, there is no sense from the stem what the question is asking. Example B more clearly identifies the question and offers the student a set of homogeneous choices.

2.1.10 Rules for Writing Options

- There's no "magic number" of options we should use. (Nitko, 2001). Make sure the number of options we used is making sense. Better to have three-option item rather than four-option item with poor distracter (Nitko, 2001).
- Options should relatively have equal length.
- All option must be grammatically congruent with stem
- Overlapping options must be avoided.

Poor: Water will be a liquid between and degrees centigrade.

- a) 0, 100
- b) -50; 0
- c) 100; 150

(Note that a and b both include 0 and a and c both include 100 -- they overlap.)

Better: Water will be a liquid between and degrees centigrade.

- a) 1; 99
- b) -50; 0
- c) 100; 150

(Note that there is now no overlap.)

- Avoid the use of "all of the above". Its use muddles the interpretation of a student's response (Nitko, 2001).

2.2 Strength and Limitations of MCQ

(Zimmaro, 2004:11)

Strengths:

1. Achievement of learning outcomes from simple to complex can be assessed.
2. Highly structured and clear tasks are provided.
3. A broad sample of achievement can be assessed.
4. Incorrect alternatives provide diagnostic information.
5. Scores are less influenced by guessing than true-false items.
6. Scores are more reliable than subjectively scored items (e.g. essays).
7. Scoring is easy, objective, and reliable.
8. Item analysis can reveal how difficult each item was and how well it discriminated between the strong and weaker students in the class
9. Achievement can be compared from class to class and year to year
10. Can cover a lot of material very efficiently (about one item per minute of testing time for straightforward questions).
11. Items can be written so that students must discriminate among options that vary in degree of correctness.
12. Avoids the absolute judgments found in True-False tests.

Limitations:

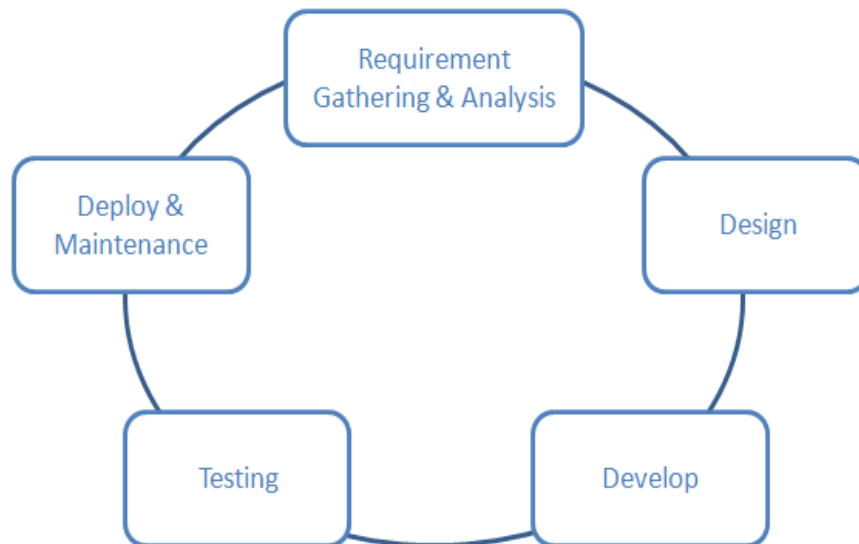
1. Constructing good items is time consuming.
2. It is frequently difficult to find plausible distractors.
3. Can be ineffective for assessing some types of problem solving and the ability to organize and express ideas.
4. Real-world problem solving differs – a different process is involved in proposing a solution versus selecting a solution from a set of alternatives.
5. Scores can be influenced by reading ability.
6. There is a lack of feedback on individual thought processes – it is difficult to determine why individual students selected incorrect responses.
7. Students can sometimes read more into the question than was intended.
8. Often focus on testing factual information and fails to test higher levels of cognitive thinking.
9. Sometimes there is more than one defensible “correct” answer.
10. They place a high degree of dependence on the instructor’s writing ability.
11. Does not provide an assessment of writing ability.
12. May encourage guessing.

CHAPTER 3 METHODOLOGY

On the course of completing this Final Year Project, there are several ways that the author had used to get the data and finding. The author have done an internet research and found some related journals with the author's Final Year Project.

3.1 Project Phases

The author is using SLDC or Software Development Life Cycle method for developing this project. To develop The Questions Bank Mobile Apps, the author must collect requirement for it first. Then, the author will work on prototype and implement it with the real apps. Once the apps is done, the product will be moving to the next stage that is testing phase. This is the phase which involve a lot of testing and finding the bug within the apps. Lastly, the author must keep updating the apps continuously from time to time.



Software Development Life Cycle

Requirement Gathering & Analysis

The first stage of SDLC is Requirement Gathering & Analysis where the author must do research to learn about previous work of software development that are related to education, quizzes and test application. With that, the author finally decided to develop an application with the name of The Questions Bank that have more complete and efficient functions than previous application.

The analysis phase is crucial to make sure that the plans are good and consistent to fulfill the objectives that the author have planned. The author was to carry the research that are related to the topics to understand more about the concept of the proposed applications. The author also must find the user target and it functionality.

The main concept of the apps is to answer multiple choice question (mcq) and be graded on the spot. Because of that, the main target is obviously the young generations that are currently studying and in need of a quick revision. The young generation were a main target not just because of that, but because of their high IT knowledge and almost all of them have their own personal smartphone or tablet to download and use the author's application.

During this stage, the author made discussion, observation and survey for this project. The author chose to do a questionnaires to collect data as the questionnaires are a very popular and efficient way of data gathering.

Design

The second stage is the Design phase where the designing process of the application took place. The author needs to make a right UML diagram that is Unified Modeling Language diagram that consist of many diagrams such as sequence diagram, use case diagram and so on. The author also needs to design the GUI or Graphical User Interface of the author's application during this phase. The reasoning behind it was to show the author a glimpse on how the project going to look like.

Develop

The third stage is Develop. This is where the development of the project starts by writing the code for the said application. It is to determine the software that the author need to write the code, how to translate the GUI sketch into real GUI and other related actions.

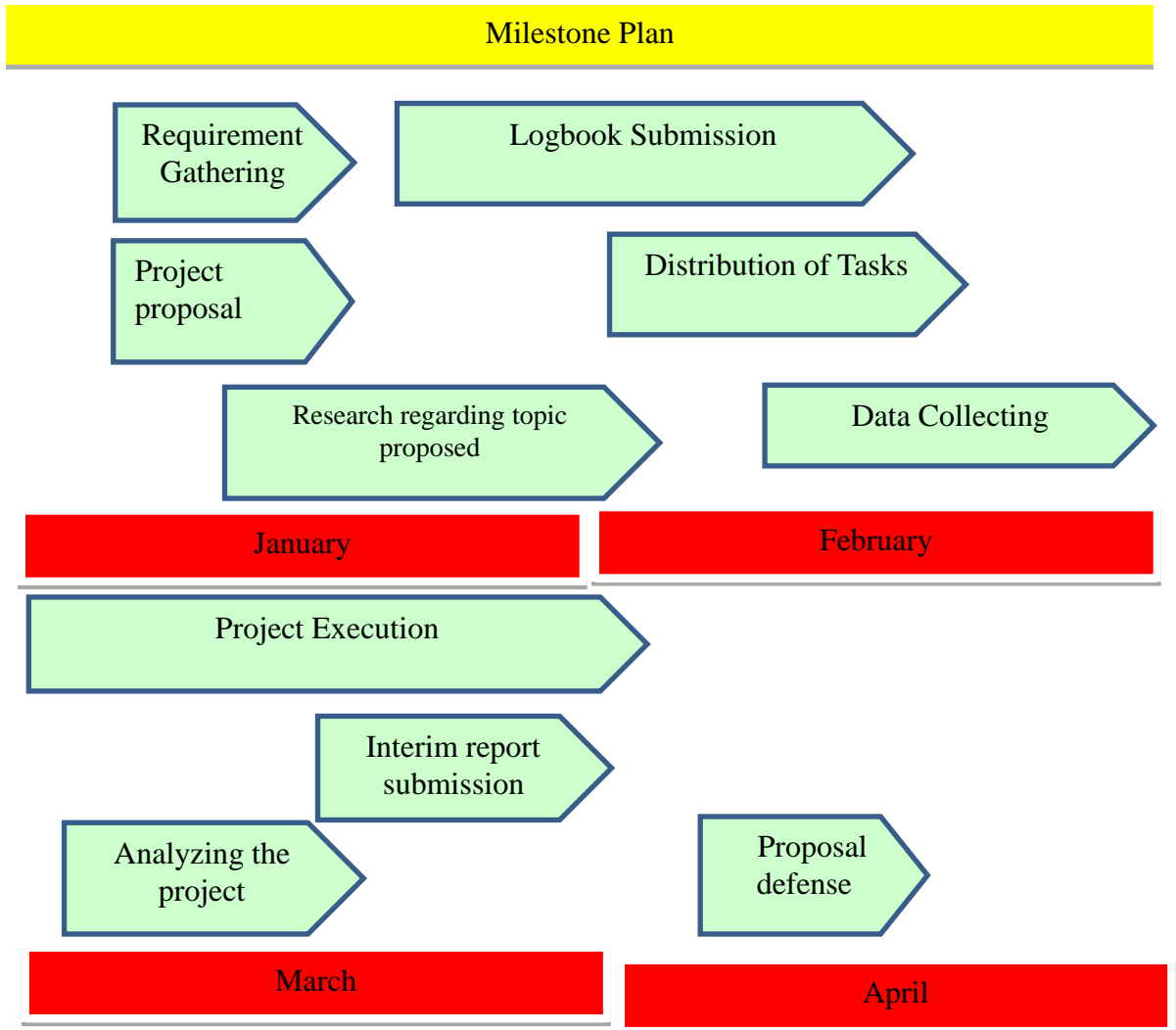
Testing

Next stage of SDLC is Testing. The main objective of this stage is to find and look for bug and to fix the bug. Every developer try to avoid even a single bug because it can give a major problem to a system. A system that have a lot of bug can affect it parts and will be the major reasoning on why the system does not functioning well.

Deploy & Maintenance

The last stage of SDLC is Deploy and Maintenance. During this stage the author will keep updating the system and app and try to keep it well. The author will do whatever that the author suppose to do to maintain the apps in good condition.

3.3 Key Milestone



3.3 Gantt Chart

ID	Task Name	Week	20 -31 Jan 2015		3 - 28 Feb 2015						3 - 28 March 2015			31 March - 25 April 2015		
			1	2	3	4	5	6	7	8	9	10	11	12	13	
1	Requirement gathering		█	█												
2	Project proposal			█												
3	Research regarding topic proposed				█											
4	Logbook Submission				█	█	█	█	█	█	█	█	█	█	█	█
5	Abstract & introduction				█	█	█	█	█	█	█	█	█	█	█	█
6	Objective, scope and problem statement					█	█	█	█	█	█	█	█	█	█	█
7	Research journal						█	█	█	█	█	█	█	█	█	█
8	Analyze the app's concept							█	█	█	█	█	█	█	█	█
9	Completing literature review							█	█	█	█	█	█	█	█	█
10	Constructing questionnaire								█	█	█	█	█	█	█	█
11	Doing survey									█	█	█	█	█	█	█
12	Collection of Data										█	█	█	█	█	█
13	Analysis data											█	█	█	█	█
14	Designing the user interface												█	█	█	█
15	Interim report documentation													█	█	█
16	Interim report submission														█	█
17	Proposal defense															█

3.5 Gantt Chart FYP 2

Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14
ID	Task Name													
1	Development Phase													
1.1	█													
1.2		█	█											
1.3		█	█	█	█	█	█	█	█	█				
2	Maintenance Phase													
2.1											█	█	█	
2.2											█	█	█	

CHAPTER 4

RESULTS AND DISCUSSIONS

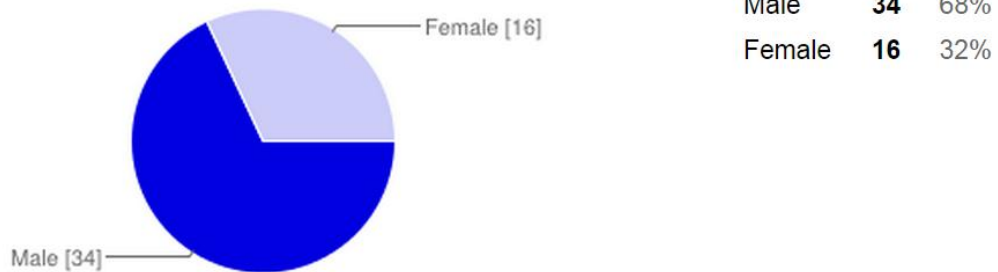
During this chapter, author will discuss about all the results that have been collected from all the phase during the development process. It will helps supporting the evidence for achieving the objective.

4.1 Data Gathering

The author decided to make a set of questions to gather more information about the user prospect. A set of 11 questions were constructed and given to participants through social network, emails and personal messaging. Around 50 respondents feedback has been recorded. The author will discuss more about the questions below.

Q1.

What is your gender?

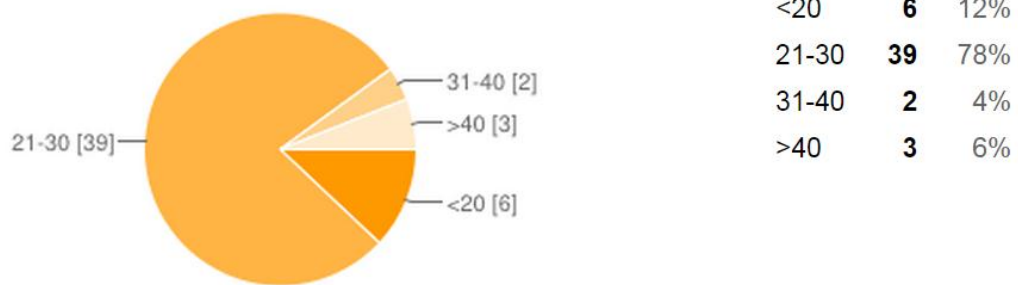


Analysis:

68% of the respondents who answered the questionnaire were male. And the rest are female.

Q2.

How old are you?

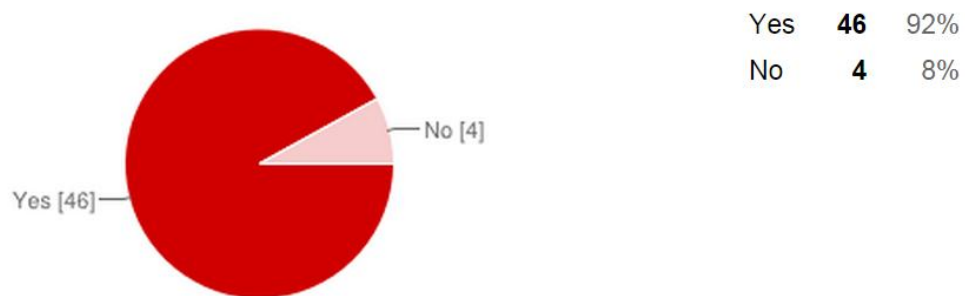


Analysis:

The majority of the respondents are 21-30 years old with 78%. The second largest group are less than 20 years old with 12%. Less than 40 years old are 6% and the smallest group are group or more than 40 years old, which is 2% only.

Q3.

Do you own a smartphone/tablet?

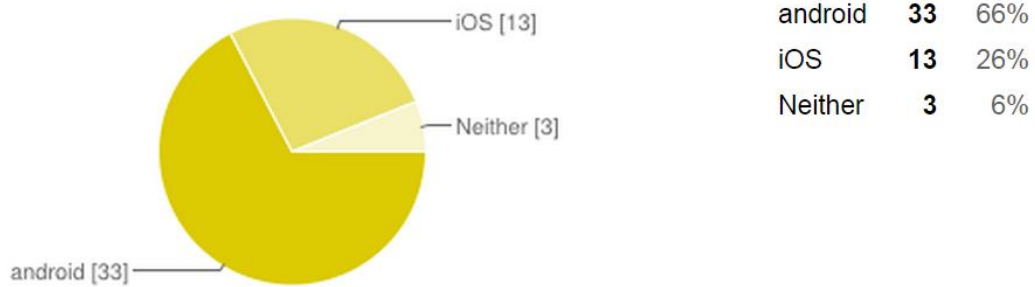


Analysis:

Vast majority of the respondents with 92% answered 'yes' on the ownership of smartphone/tablet. Only 8% said no. It is mainly because nowadays, having a smartphone/tablet is considered as a must.

Q4.

Do you own android or iOS?

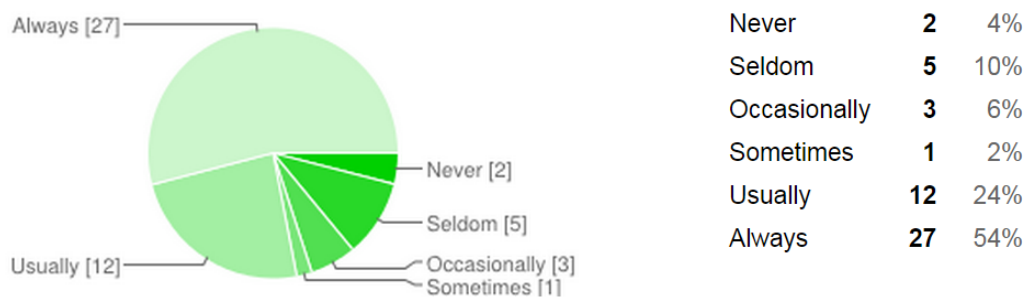


Analysis:

66% of the respondents answered they own android OS. Just 26% of the respondents answered iOS. The ‘neither’ option was prepared also if respondents have other OS for their phone or dont even have a phone.

Q5.

How often do you use your smartphone/tablet per day?

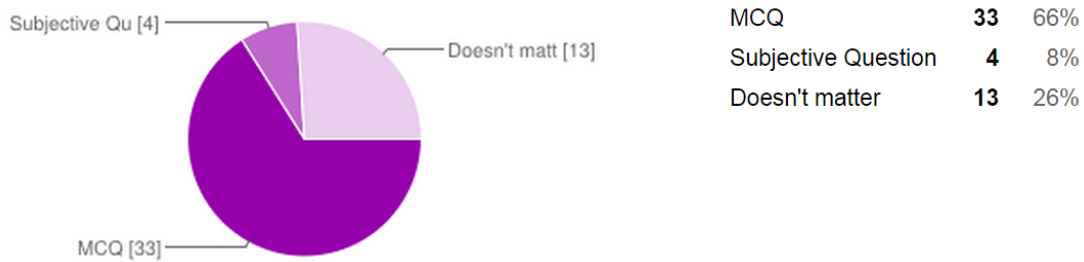


Analysis:

The result is not shocking with 54% respondents answered they always use their smartphone per day. It is mainly because it is the trend for world nowadays. Other answer that can be highlighted are usually with 24% and seldom for 10%.

Q6.

Do you prefer Multiple Choice Question (MCQ) or Subjective Question format?

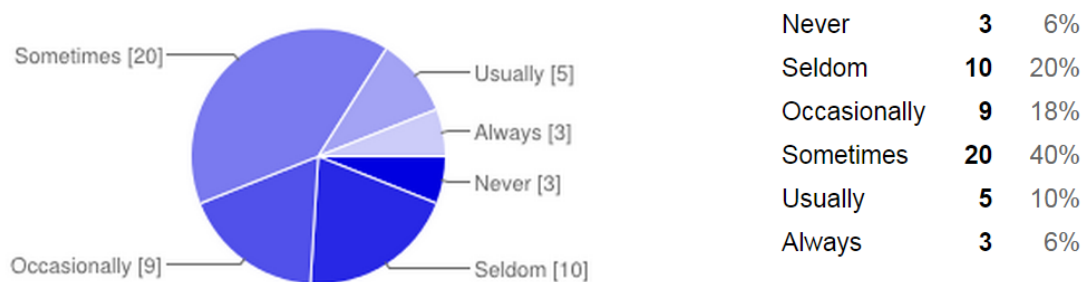


Analysis:

This question is important as the author mobile apps are apps that mainly used multiple choice question (mcq) as it main function. The survey went well as most of the respondents prefer multiple choice question (mcq) with vast majority of 66% rather than subjective question with just a small percentage of 8%. There are 26% of the respondents who prefer both.

Q7.

Do you do quizzes often?

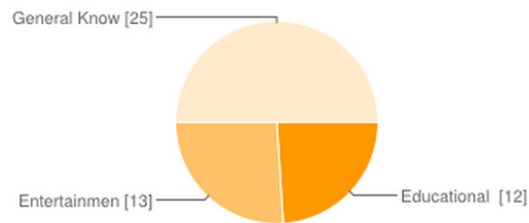


Analysis:

40% of the respondents chose ‘sometimes’ as it is hard to find some good and interesting quiz. ‘Sometimes’ means that if they have a chance or way to find a good apps that provide great quizzes and tests, they will love it. 20% of the respondents answered ‘seldom’ and 18% answered ‘occasionally’. There is only 6% of them who answered ‘always’, tied with ‘never’.

Q8.

What kind of quizzes do you prefer?



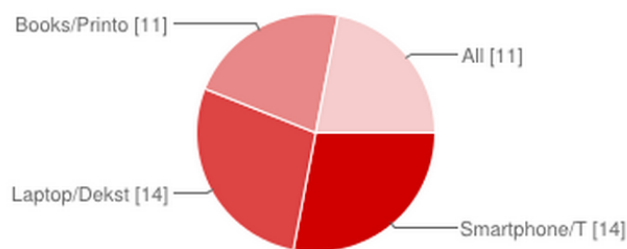
Educational (Courses subject, etc)	12	24%
Entertainment (Music, Film, etc)	13	26%
General Knowledge (How to walk, etc)	25	50%

Analysis:

50% of the respondents prefer 'General Knowledge' as their type of quizzes. Not much different can be found for 'Educational' and 'Entertainment' with 24% and 26% respectively.

Q9.

Which medium do you prefer when studying?



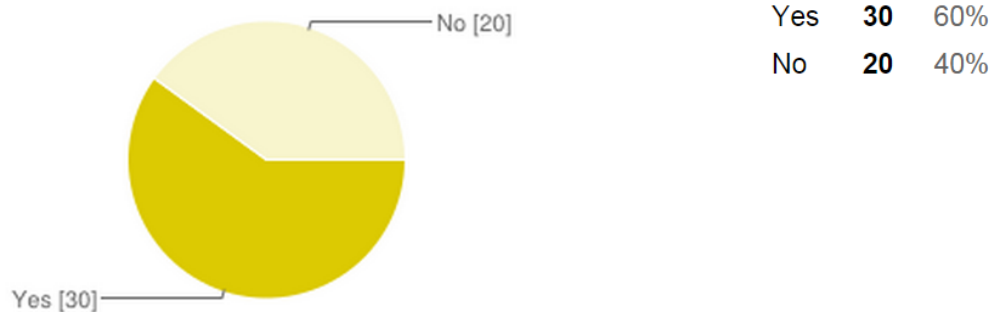
Smartphone/Tablet	14	28%
Laptop/Dekstop	14	28%
Books/Printout	11	22%
All	11	22%

Analysis:

This question have one of the closest result from all other questions. 28% respondents chose 'Smartphone/Tablet' and 'Laptop/Desktop' as their preferred main medium when studying. 22% of the respondents also chose 'Books/Printout' and 'All'.

Q10.

Do you like to compete with your friends when taking tests/quizzes?

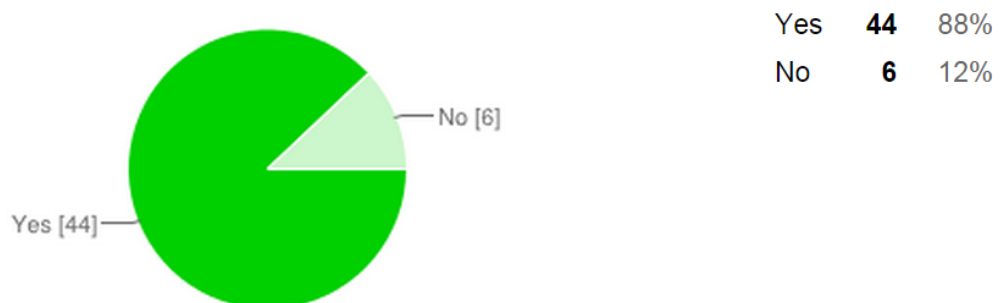


Analysis:

60% of the respondents said that they like to compete with their friends when taking quizzes/tests. 40% of them said no.

Q11.

Do you like the idea of using quizzes as revision material?



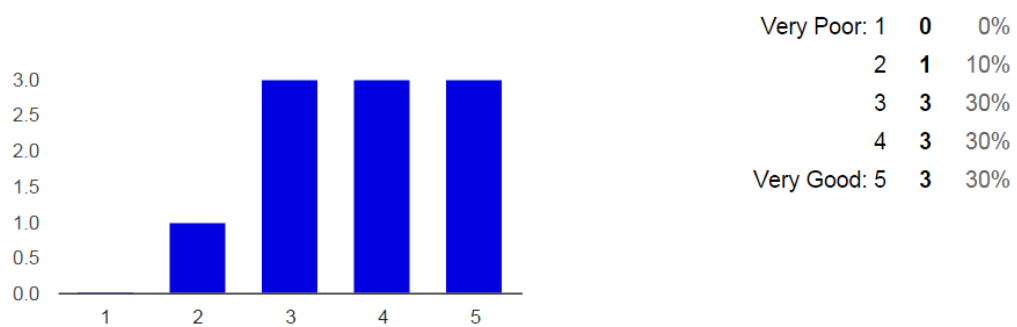
Analysis:

Vast majority of the respondents with 88%, said that the idea of using quizzes as revision material is a good idea. With that answers, they unconsciously agree with what the author apps trying to do, to help them study and take tests. Only small figures of 12% said no with the question.

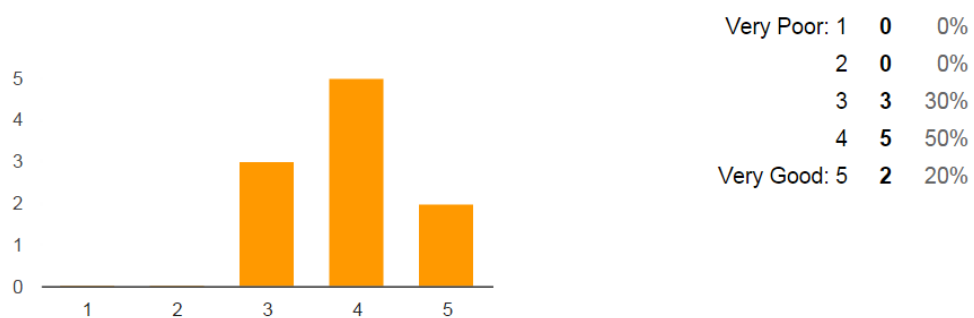
4.2 User Acceptance Testing

A total of 10 students were asked to test the application. After that, they were handed a form for them to fill in about the user acceptance testing. The result of the testing is shown below.

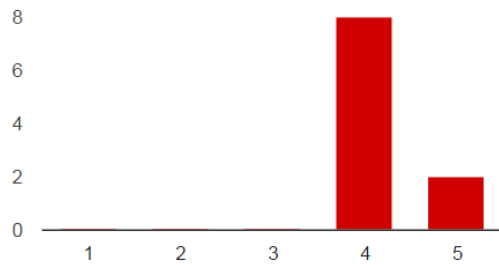
How do you rate the user interface?



How do you rate the performance of the application?

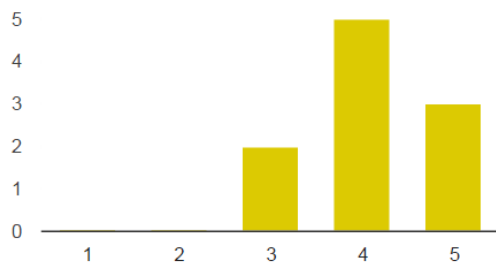


How do you rate the application in term of user friendliness?



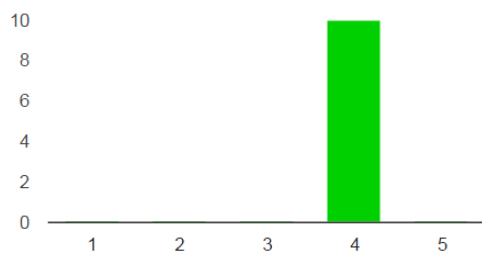
Very Poor: 1	0	0%
2	0	0%
3	0	0%
4	8	80%
Very Good: 5	2	20%

How do you rate operational performance of the application?



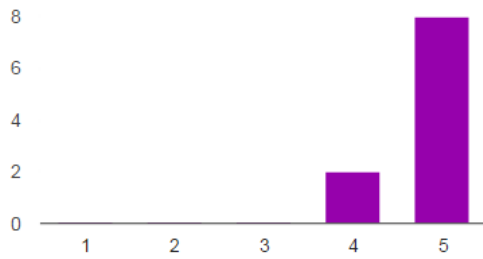
Very Poor: 1	0	0%
2	0	0%
3	2	20%
4	5	50%
Very Good: 5	3	30%

How do you rate android performance for this applicaton?



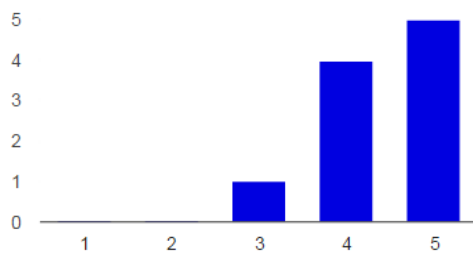
Very Poor: 1	0	0%
2	0	0%
3	0	0%
4	10	100%
Very Good: 5	0	0%

I understand the application concept.



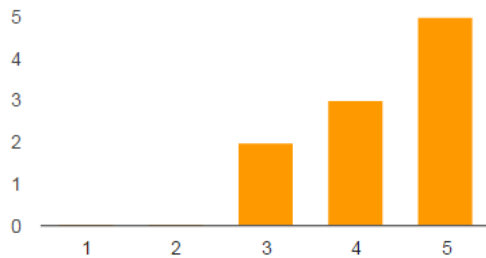
Very Disagree: 1	0	0%
2	0	0%
3	0	0%
4	2	20%
Very Agree: 5	8	80%

I think this application can help everyone.



Very Disagree: 1	0	0%
2	0	0%
3	1	10%
4	4	40%
Very Agree: 5	5	50%

I would rather do testing using application rather than test paper.



Very Disagree: 1	0	0%
2	0	0%
3	2	20%
4	3	30%
Very Agree: 5	5	50%

4.2.1 Discussion

From the questionnaire, there's a lot that the author learn from the respondents. It is basically to learn about the feasibility of the topics that the author has proposed that is 'The Questions Bank'. It is to improve the way people study and taking test. The author tried to take it to a whole new level of taking tests and quizzes.

According to the survey that have been done, majority of the respondents thinks that multiple choice question is one of the best format of testing in comparison of subjective format. But there are not much application about quizzes that can help the user to use it for educational or fun or both.

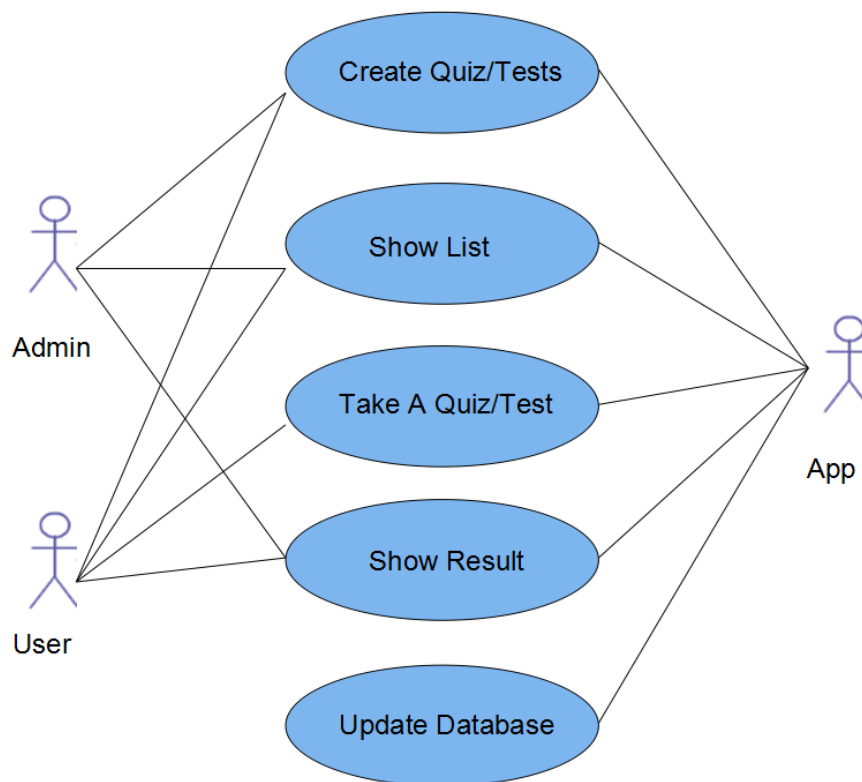
For the mobile application, most of the respondents still cannot find any apps that really suit their taste and functions. Thats why they need apps like 'The Question Bank' that can help them studying. It is because most of them think that quizzes can act as a great revision material as it is simple and really helps our brain. Mobile apps like 'The Questions Bank' also can be fun with a lot of topics included and that can really balance it, fun and educational, in the same context.

The result shows that developing an applications about doing multiple choice questions quizzes and tests could be effective and relevant in the market nowadays as the demand is actually very high.

The respondents for the User Acceptance Testing tells us that a lot of them have considered that this application can help them study better. It also tells about the interface and the function based from user experience. Like theresults show, it has been a positive experience for them.

4.3 Use Case Diagram

Below shows the use case diagram for The Questions Bank. Three different actors engage in this system which is the user, admin and the apps. It illustrates use cases of Create Quiz/Tests, Show List, Take A Quiz/Test, Show Result and Update Database. The admin and the user have similar use cases which is they can create the quiz or test, they can show the list of quizzes of the apps. They can also take the quizzes and show the result. The app can help all of that and update the database.



4.4 Application Screenshot

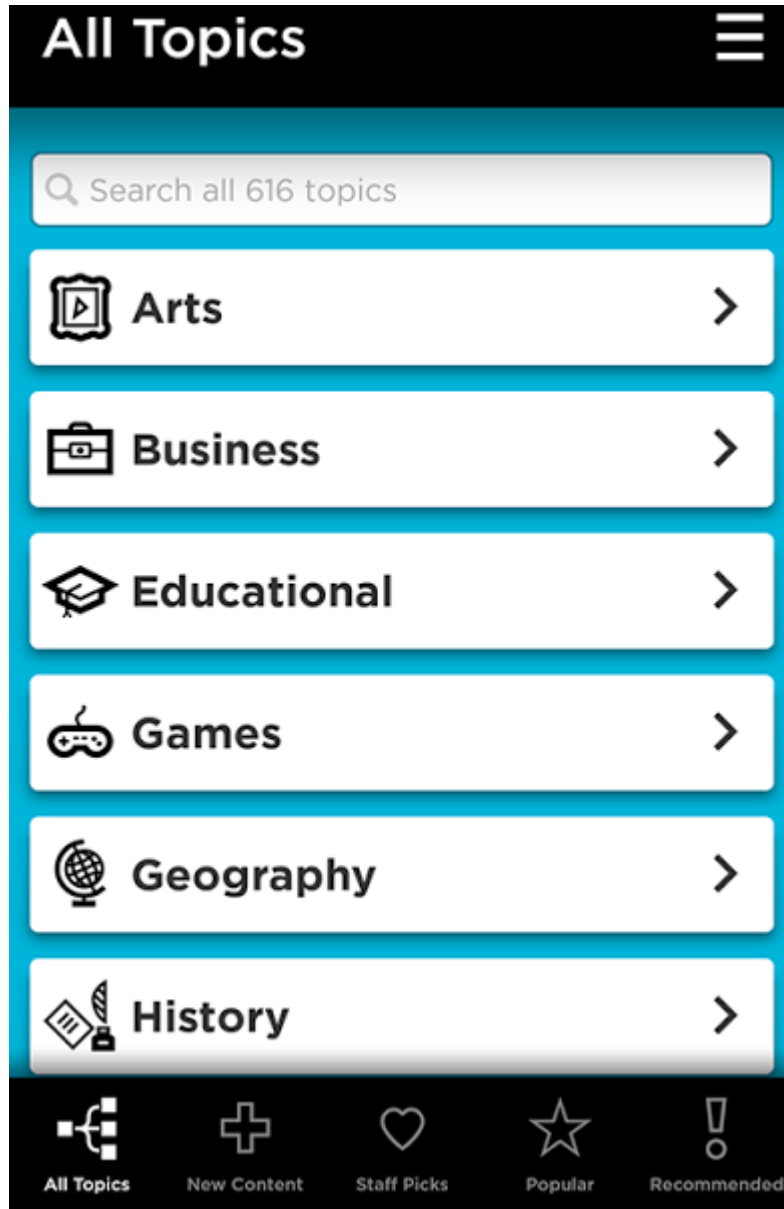
Below are the screenshot of 'The Questions Bank'. It shows the vision on how the real application may end up like. The prototype is not a finished version and some different may be found once the application development is done.



The Questions Bank

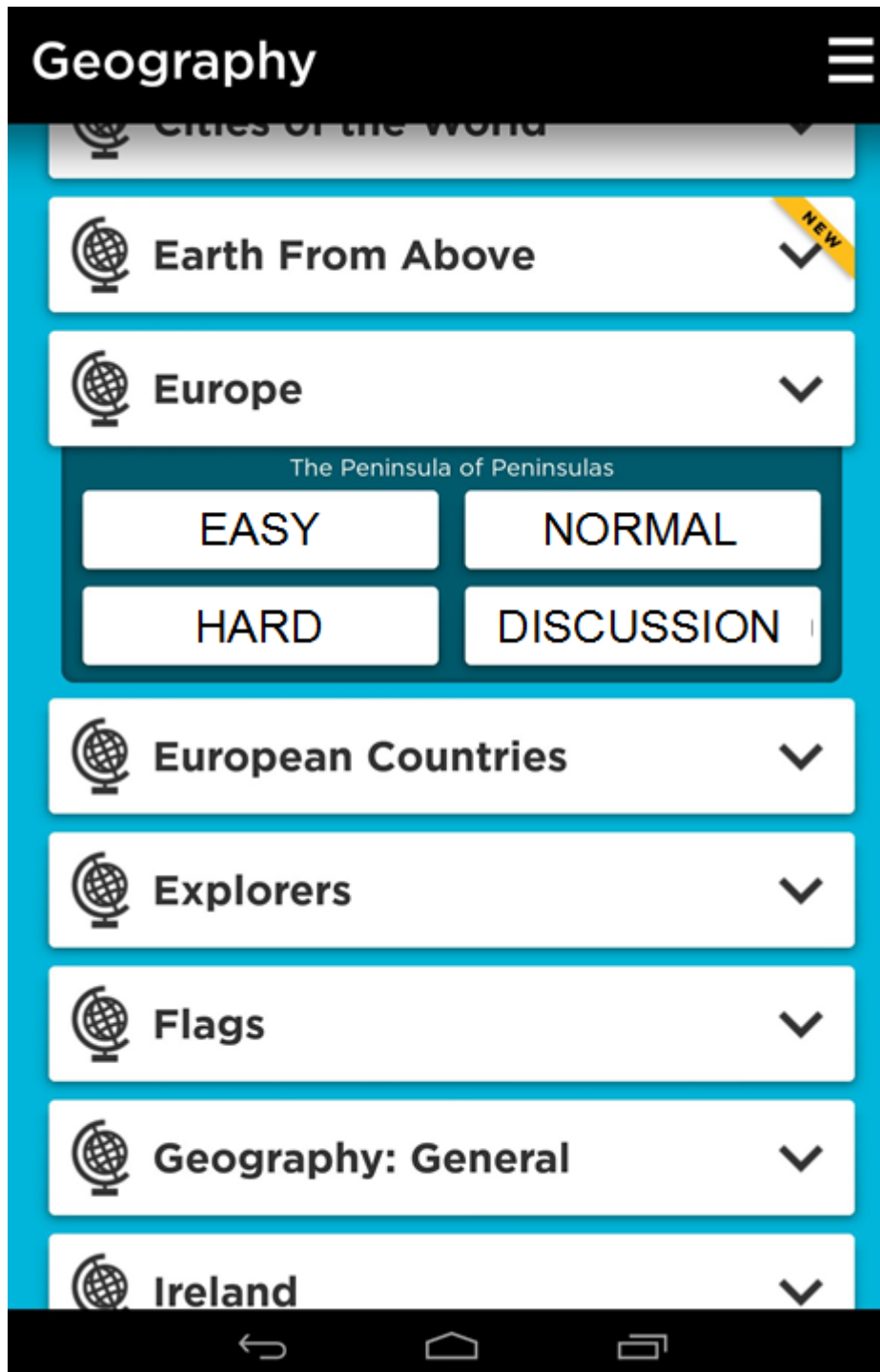
START

The main/start screen of 'The Questions Bank'.



After the user select 'START' from the main/start screen.

The user may choose the topics that they wanted. Whether educational or even topics about sports and some other general knowledge. User also can search the topics using the space that have been prepared.



After the user select 'Geography' from the screen before this.

After choosing the topic that they wanted, they can now choose the set of questions from the chosen topics before. The set of questions have several difficulties like 'Easy', 'Normal' and 'Hard'. There is also discussion link so that the user can revise back the quizzes/tests that they have done regarding to the topics.

Which one of these countries is not located in Europe?

Albania

Ukraine

Algeria

Turkey

After the user select 'Europe' and its difficulties, the quiz/test starts.

The quiz will start after the user choose the difficulties. There are 10 questions for each of the quizzes. Time will be taken for each of the questions answered. After completed all the questions, the grade will be given.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.1 Relevancy of objectives

As stated before, the objective is to To develop an application that can help student do revision and test themselves about certain subjects or topics and to provide a platform to learn about subjects by using mcq quizzes. That's why the application that the author planned, that is 'The Questions Bank', is developed with all the main objectives in the author's mind. It can be concluded that it is very relevant to the objectives because of all the documentation.

Therefore, these are the conclusions that have been made:

- ◆ Multiple choice questions can be as effective as other format like subjective format.
- ◆ It is very important to make use of the modern technologies especially when we use it for educational purposes.
- ◆ Mobile technology is very relevant to assist user to gain knowledge
- ◆ Because of its titled as the leading operating system (OS) in the world, Android OS should be used to reach out more audience.

5.2 Suggested Future Works For Continuation & Expansion

Nothing is perfect in this world and unfortunately, so does the author's mobile apps. There are always ways to improve the system and apps that has been proposed. For reaching it completeness and effectiveness, several things can be done:

- The apps could be made to connect with one another. If a friend of the user also have installed the same apps, maybe they could do the quiz together and compared their answers.
- If we look at the bigger picture, we could link as much user as we can, for example, a classroom of 40 people connected together, and we could do an official test or examination with using only apps. Can we imagine how much paper have been saved if that situation occurs?
- Make the apps with Subjective Format question also rather than just a Multiple Choice Question format. That may be hard now, but for the future it can be a great deal for both the user and the developers.

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APPENDICES

The Questions Bank Mobile Apps

I am conducting a survey for my current final year project. The project is titled The Questions Bank Mobile Apps. It is basically a mobile apps that let you do a quizzes based of your chosen topics and difficulties. It is mainly developed to give a fun experience for students who need a quick revision or just to pass some time.

The author would like you to spend some of the quality time in answering this survey. Your cooperation is truly appreciated. Thank you.

*Required

What is your gender? *

- Male
- Female

How old are you? *

- <20
- 21-30
- 31-40
- >40

Do you own a smartphone/tablet? *

- Yes
- No

Do you own android or iOS? *

- android
- iOS
- Neither

How often do you use your smartphone/tablet per day? *

- Never
- Seldom
- Occasionally
- Sometimes
- Usually
- Always

Do you prefer Multiple Choice Question (MCQ) or Subjective Question format?

- MCQ
- Subjective Question
- Doesn't matter

Do you do quizzes often? *

- Never
- Seldom
- Occasionally
- Sometimes
- Usually
- Always

What kind of quizzes do you prefer? *

- Educational (Courses subject, etc)
- Entertainment (Music, Film, etc)
- General Knowledge (How to walk, etc)

Which medium do you prefer when studying? *

- Smartphone/Tablet
- Laptop/Dekstop
- Books/Printout
- All

Do you like to compete with your friends when taking tests/quizzes? *

- Yes
- No

Do you like the idea of using quizzes as revision material? *

- Yes
- No

Submit

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The survey for data gathering

The Questions Bank

*Required

How do you rate the user interface?

1 2 3 4 5

Very Poor Very Good

How do you rate the performance of the application? *

1 2 3 4 5

Very Poor Very Good

How do you rate the application in term of user friendliness? *

1 2 3 4 5

Very Poor Very Good

How do you rate operational performance of the application? *

1 2 3 4 5

Very Poor Very Good

How do you rate android performance for this applicaton? *

1 2 3 4 5

Very Poor Very Good

I understand the application concept. *

1 2 3 4 5

Very Disagree Very Agree

I think this application can help everyone. *

1 2 3 4 5

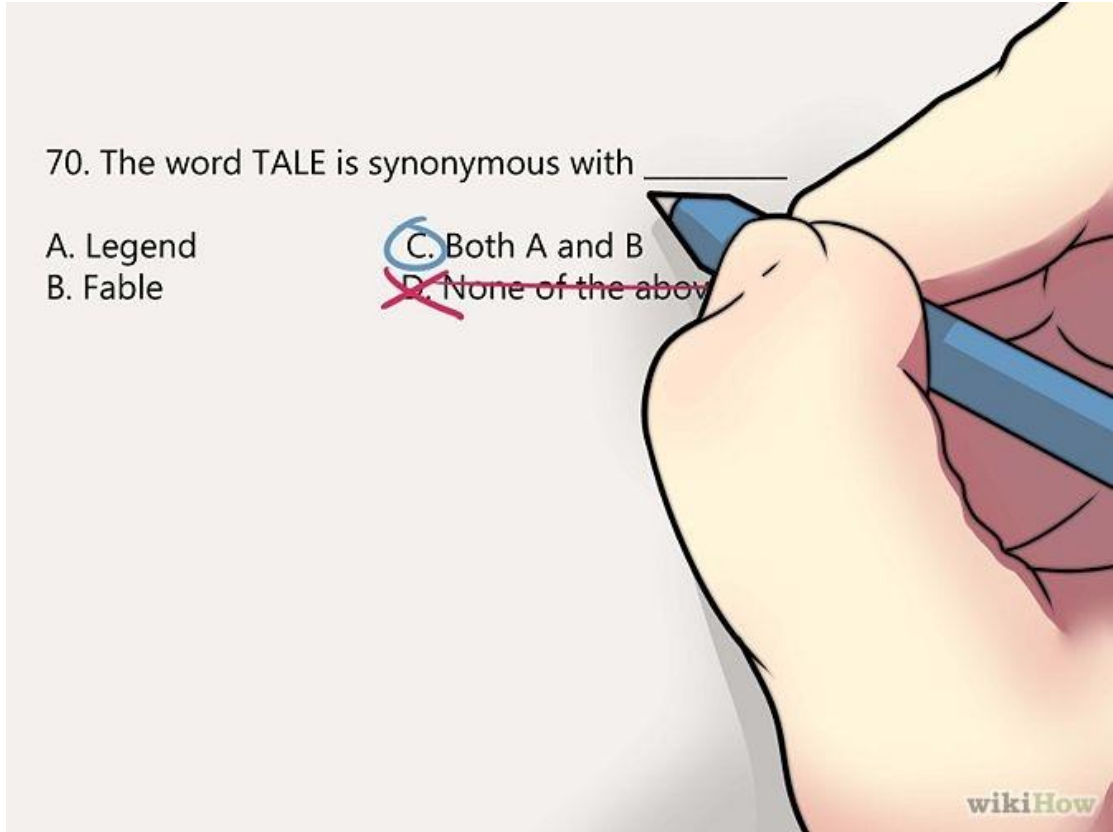
Very Disagree Very Agree

I would rather do testing using application rather than test paper. *

1 2 3 4 5

Very Disagree Very Agree

User Acceptance Testing Form



How MCQ quiz/test usually done

