

Students Guide: Offline Android Aptitude Application

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ABSTRACT

The students appearing for placements and various other exams like GRE, GMAT, GATE prepare themselves by appearing for mock tests and searching for the study material from different websites. For this they require an internet connection, which is not possible to access everywhere. Today, the smart phones have replaced desktop PC's and laptops in many manners. There are offline android applications available for aptitude tests but there exists none that provides the test for all sections with random set of questions, timer for each test, tutorials, score calculation and maintaining statistics in one single application. This paper provides a comparison of the existing aptitude applications available in Android market along with the idea of developing an application that overcomes the flaws of the existing applications. This application has been developed within the framework of the current study that provides its users with a fast, effective and efficient learning environment, thanks to today's various mobile devices..

Keywords

Android, Aptitude, Test, Mobile Operating System.

1. INTRODUCTION

Today, it is seen that many people that prepare for their exams are studying in buses, in parks or in a cafe with a test book in their hands. The tests prepared via electronic exam systems, now, have been an alternative for those who prepare for their exams by using their personal computers or mobile devices. Connecting such services requires a computer and an internet access. In other words it is necessary that students must be in an environment which provides above mentioned conditions in order to access such electronic exam systems. Mobiles are an integral part of daily life. With time, customers are expecting best and very versatile applications in less time. It is big challenge to develop high performance mobile applications in this competitive market that would meet the expectation of customers. The advancement in mobile technology has improved everyone's life. Nowadays various mobile technologies as well as mobile phones compete in the market. The users use various applications in their day to day life to reduce the burden of work in some way or the other. One of the uses of mobile devices is "mobile learning", which can be defined as "all kinds of learning that do not take place in certain predetermined fixed places".^[1] The student appearing for placements and other engineering related entrance exams, have to prepare themselves in technical as well as non-technical areas. For this they have to accumulate study material from different sources. Also there are many mobile applications available that provide mock tests. But there is no application that provides all the sections under one roof. They also surf around internet for some tests for

practice. But due to some reasons like slow network or no network or many a times the website server may not respond due to server overload, users are refrained from appearing the test. One solution to this is to have an application in mobile for practicing test Offline.

With the number of smartphone users are increasing each day, there is an equal increase in the number of application developers for the same. According to the 2013 survey Android occupies 81.3% of the total market share.

Table 1. Total Android Market Share (2012-2013)^[4]

Global Smartphone Operating System Marketshare %	Q3 '12	Q3 '13
Android	75.0%	81.3%
Apple	15.6%	13.4%
Microsoft	2.1%	4.1%
BlackBerry	4.3%	1.0%
Others	3.0%	0.2%
Total	100.0%	100.0%

Android technology, being available freely for download, along with enhanced data storage (using SQLite framework) occupying less space leading to increasing number of users using android technology. By considering this, Android platform was chosen to develop this application.

2. RELATED WORK

The Pocket Aptitude App is rated in the top 5 aptitude applications in android market developed by Sindu Rajan and designed by Yalini Kumaraguru. Pocket Aptitude is a collection of 1000+ quantitative aptitude questions and word problems frequently asked in competitive examinations and placement papers. It is designed as a preparation tool for job aspirants and those waiting to crack CAT, XAT, MAT, GRE, GMAT, SAT, NTSE and various bank exams. People with an inclination towards mathematics can use this app to sharpen their IQ, test their aptitude skills and enrich their knowledge.^[5] This application has various fine points and flaws like it provides a good user interface but only

quantitative tests are conducted. It provides score calculation for practice test but does not store it for future reference. Another flaw is that the user gets the same set of questions each time they appear for the test.

The Logical Reasoning and Aptitude application developed by esdandro is also popularly used aptitude test application. Logical Reasoning helps in improving problem-solving skills by focusing on Logical Reasoning Questions. Logical Reasoning will help you in preparation of admissions tests and other different kind of exams,^[6] but the user interface is not interactive, the user has to scroll horizontally to view the entire answer. It just has MCQ's without timer for test and without score evaluation.

The Aptitude Interview Questions Application developed by Programmerworld and the Aptitude Questions Application developed by Lakeba Mobile Apps are the applications that do not provide a test.^{[7][8]} They just consists of quantitative questions and answers, yet they are in the list of top rated apps in android market. These apps can be used for just gaining some information, but not to test one's knowledge. In Aptitude Interview Questions Application, sections are not named properly, this may confuse the user which section has what kind of questions and also it is not compatible with all devices. In Aptitude Questions Application, the questions are not categorized.

The Aptitude App is developed by Pradeep Kumar Rapolu is another most frequently used app. This Offline Application provides the entire stuff for the students and job seekers to crack the Campus recruitment tests. A complete information regarding formulas and FAQs have been provided, for almost all type of topics in Arithmetic and Verbal reasoning.^[9] Good navigation flexibility, makes operating the application very simple, but the user interface is not attractive. It does not provide test, just simple questions and answers.

3. PROPOSED SYSTEM

By considering the pros and cons of the existing applications, this application has been developed to cover all the features and overcomes the cons of the already existing applications. By keeping in mind the users need and the topics that are important for placements and other engineering entrance exams, this app consists of many sections like Quantitative, Verbal and Logical, Computer Fundamentals, Programming Languages, Brain Teasers. These sections are further categorized into sub sections, each section name describing the type of the test decently.

- a) **Home:** This option leads the user to the main page of our application. The main page consists of test topics like Quantitative, Verbal and Logical, Programming Languages, Brain Teasers, Computer Fundamentals and All in One test.
- b) **Favorite:** By selecting this option, a list of all the favorite questions with options and solution will be displayed. The user can add a question to Favorite during the test and can also remove the question from the list of Favorite whenever required.
- c) **Tutorial:** For each section like Quantitative, Verbal and Logical, Computer Fundamentals, Programming Languages, Interview, tutorials will be provided that can be referred anywhere and anytime conveniently.
- d) **Test:** Each section will contain 20 questions. During test the user will also be provided with the hint to solve the question and a help option to help the user learn the application. The user can also skip and jump to any other question by using goto option. The attempted and the unattempted questions are differentiated by using specific colors.
- e) **Score Board:** After each test, the score will be calculated. This section wise statistics will also be available for future reference. The user can also erase all the scores for a fresh start.
- f) **Random test:** The user can select multiple sections and appear for the test. The score evaluation of this test will also include negative marking.
- g) **Timer:** For each test, timer will be provided that is enough to complete that particular test. The user can also finish the test before time elapses. The user can pause the test in case of emergency, which will pause the timer and freeze the entire test. Later the user can resume the same test.
- h) **About Us:** This option gives the information about the developers of this application and what is this application about.
- i) **Help :** This option provides the basic idea of how to use this application and how to navigate through different pages.

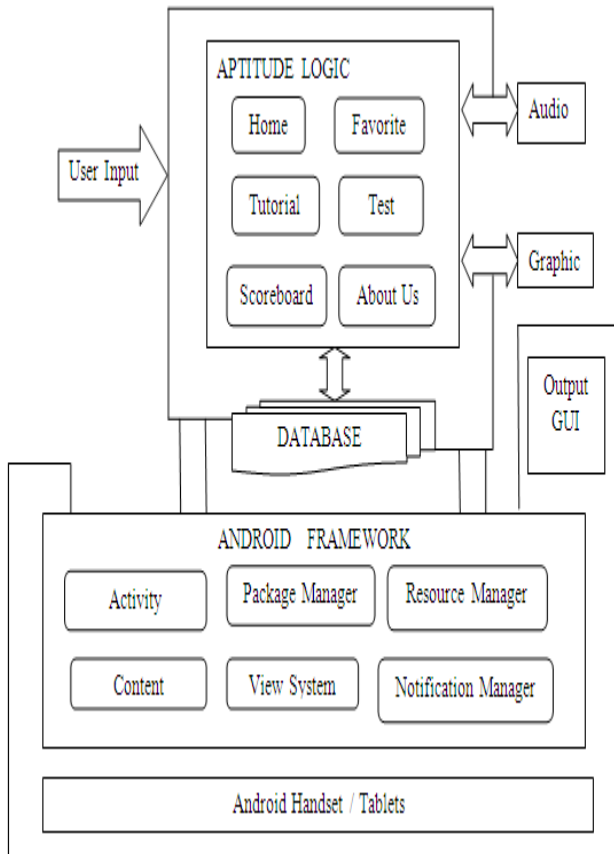


Figure 1. System Architecture Of Offline Android Aptitude Application

4. SYSTEM DESIGN

4.1 Use Case Diagram

A Use Case diagram is used to represent the actions by the user in a system. It has roles and actions. Each user/role has different privileges and each perform different actions. For the Android Aptitude application, there is only one user and the user can do the below actions:

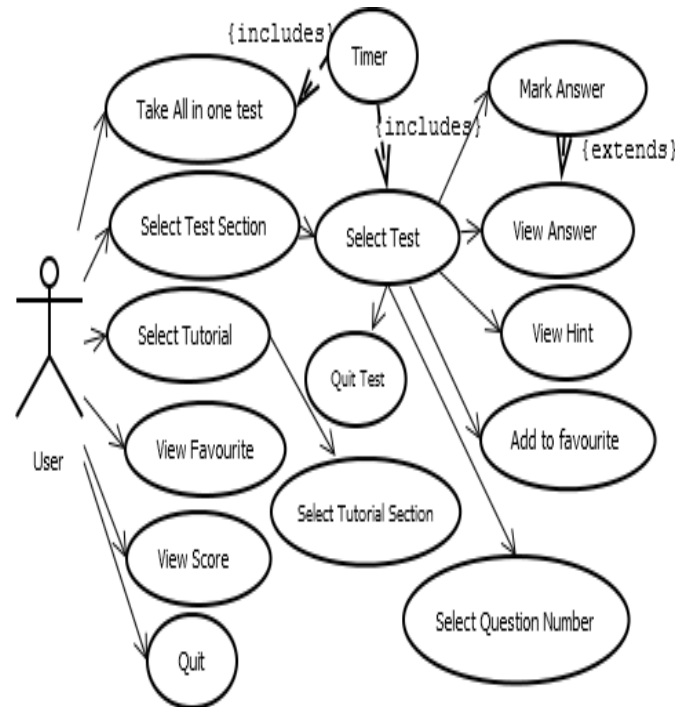


Figure 2. Use Case Diagram

5. IMPLEMENTATION

On starting the offline android aptitude application, the main screen is loaded with the header that provides navigation to the Score Board of the appeared test, questions that are marked as favorite and Tutorials. The dashboard area has 5 sections namely Quantitative, Programming language, Verbal and Logical, Brain teasers, Computer fundamentals and a All In One test.. Selecting any of the sections, a list of sub-sections will be provided. The test with a random set of questions will be started by selecting any of the sub sections. Simultaneously a timer will be started. The user can jump to any other question by using the goto option. The user can mark any question as favorite. The user can finish the test before the time elapses, or once the time is up, the user will be forced to finish the test. At any point, the user can pause the test, which will freeze the entire test and timer as well, later the user can resume the same test from the same state. After that, a score board will be displayed indicating the correctly attempted, unattempted and wrong questions along with the solution of each question.



Figure 3. Main Screen Of Offline Android Aptitude Application

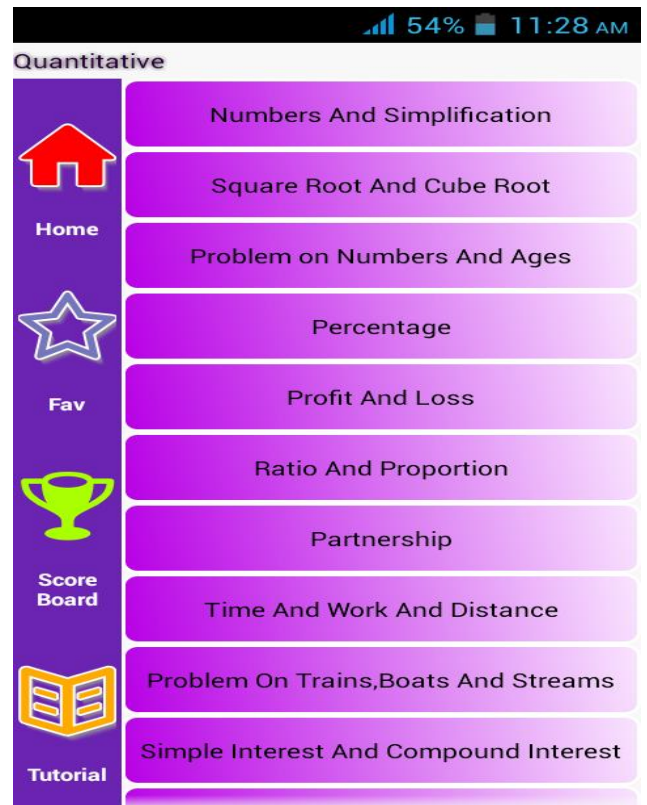


Figure 4. Sub Section List Of Offline Android Aptitude Application



Figure 5. Goto Screen Of Offline Android Aptitude Application

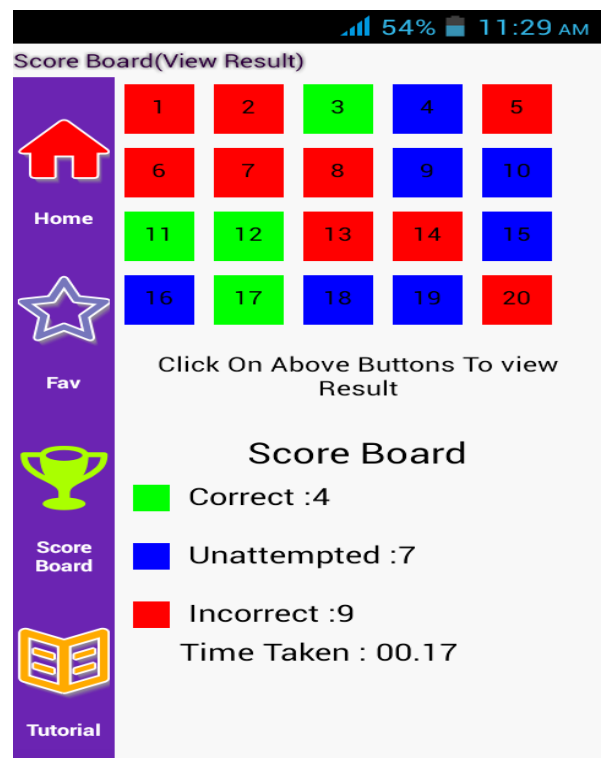


Figure 6. Scoreboard Of Offline Android Aptitude Application

6. RESULT

The following is the comparison of the existing application Pocket Aptitude App, Logical and Reasoning with the newly developed application Offline Android Aptitude Application.

a) User Interface

-The pocket aptitude app has a very user friendly interface that is interactive and provides easy navigation throughout the app.

-The logical and reasoning app is not interactive as the user has to horizontally scroll for viewing the answer.

-In the Offline Android Aptitude Application, the user can smoothly navigate by using header and a help file. The user interface is made interactive by following principles of Human Computer Interaction (HCI) like simplicity, compatibility, comprehensibility, clarity, consistency, aesthetically pleasing, flexibility, efficiency, familiarity, responsive.^[11]

b) Categorization

-The Pocket Aptitude App provides test facility for only quantitative section.

-The Logical and Reasoning provides test for quantitative and logical sections.

-The Offline Android Aptitude Application provides test for

1. Quantitative
2. Verbal and Logical
3. Programming languages like C, C++, Java, HTML
4. Computer Fundamentals that includes Operating System, Database Management System, Data Structures.
5. Brain Teasers

c) Random Questions

-The Pocket Aptitude App and the Logical and Reasoning App provides same set of questions each time the user appears for the test.

-The Offline Android Aptitude Application provides the random feature in all the test where each time the user appears for the test, they get a different set of questions and 2 users appearing for the same test at the same time will not get the same set of questions.

d) All In One Test

-The Offline Android Aptitude Application allows the user to select multiple sections and appear for the test along with negative marking of 0.25 for each incorrect answer.

-The Pocket Aptitude App and the Logical and Reasoning App does not provide All In One test facility

e) Tutorial

-The Pocket Aptitude App and the Logical and Reasoning App does not provide tutorial.

-The Offline Android Aptitude Application provides section wise tutorial.

f) Timer

-The Pocket Aptitude App provides timer for only the practice test.

-The Logical and Reasoning App does not provide timer facility.

-The Offline Android Aptitude Application provides timer for each test.

g) Hint

-The Pocket Aptitude App and the Offline Android Aptitude Application provides hint during test.

-The Logical and Reasoning App does not provide hint during test.

h) Favorite

-The Pocket Aptitude App and the Offline Android Aptitude Application allows the user to add questions to favorite list and also remove from the favorite list.

-The Logical and Reasoning App does not provide favorite facility.

i) Score Board

-The Pocket Aptitude App and the Logical and Reasoning App does not maintain score board for future reference.

-The Offline Android Aptitude Application maintains score board for future reference.

7. CONCLUSION

This research paper discusses about the fine points and flaws of the 5 top most android aptitude applications. By considering the need of the students for placements and other entrance exams, this application has been developed in the most preferred mobile operating system i.e. Android. This application has been developed to overcome the flaws in the existing system like properly categorizing the sections, providing section wise tutorials, random set of questions and timer for each test, maintaining score board along with a user friendly and attractive and easy to use user interface. It is designed as a preparation tool for job aspirants and various aptitude tests.

7. FUTURE SCOPE

The user may require to perform some calculations, so a scratchpad can be provided in future. Also the score can be displayed graphically for easy and fast evaluation of the users progress report.

8. ACKNOWLEDGEMENT

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