Question Bank and Question Generator SystemUsingAndroid

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Abstract: This application will be implemented in Android Technology. The main aim of our application is providing different question bank required for students during studies. Nowadays almost every student has a smart phone (android). So, our application will help the students to get all question banks at a single place, there will be no need to search for question papers on different sites. Likewise generating the question paper for the tests is hectic for teacher so, to overcome all that problems this application will be develop.

Keywords: Android 2.1, Question Bank, Mock Test, Question Papers, Question Generator System.

I. INTRODUCTION

Old Question papers prove to be important during studies. It helps students to understand the pattern of questions which will be asked in exams. Different books and sites are available for question papers. But searching for required questions in different books and on different sites is time consuming. And it needs lots of efforts. Many times students do not get the questions on a particular topic.

Question paper generation is another issue for examiner/teachers. To conduct exams teachers must have a question paper. If a teacher is above to conduct exam on a selected topic then first he have to study the topic then sort out the questions according to marks. This is really a hectic work and also time consuming.

So taking all this issues into consideration, the attempt is to make an Engineering question bank and question paper generator system for Android Device, which will work on user's devices such as mobile phones, tablets, palmtops, etc. This application will reduce lot of efforts of teachers as well as students. Students can get all the old question papers and questions related to a particular topic in a single application. And it will be easy for teachers to generate question paper, and can conduct examination at any instance of time. This application will be helpful to educational infrastructure.

II. LITERATURE REVIEW

As we all know mobile phone is very essential in every once life, and it is increasing day-by-day for every age group from children to old age people. Different kind of mobile phones are available in market and new from simple mobiles that are just used for calling and messaging. Smart phones make people life easier and very secure in all ways. The smart phones are based on different operating systems like iOS, Symbian, Android and many more. In these operating systems, the android operating system gives variety of applications with user friendly behavior and it is widely used on cell phones. Following graph shows the ratio of smart phones users worldwide.

PuneQP: Previous Year Question Papers (latest) and Sample Question Papers of Pune University and MSBTE are available in just few clicks. All these papers are arranged in the most structured manner

for easy access. Disadvantages of this system are, Topic wise questions are not available, only question papers are available.

JNTUK Old Question Papers: This application is designed for JNTUK university of Hyderabad. Having knowledge on Old Question Papers leads Students towards Success. Taking above points into view this Application has been developed for those who are appearing for External Examinations of Bachelor of Technology. This Application includes all Previous Question Papers of JNTUK. This application has good graphical interface with all sorted question papers subject wise. Flow of their application is they will firstly ask you for your branch. After that they will display you the list of subjects. After choosing subject, app will give you list of all old question papers.

As the name suggests they are only uploading their old question papers as it is in app. But topics wise or chapter sorted questions are also important for the students during their studies which will help them to understand which kind of questions may ask into examination. But this app has not provided this facility. And also they sorted their question papers subjects wise. If year and semester wise sorting will be availableas we all know mobile phone is very essential in every one's life, and the requirement is increasing day-by-day for every age group from children to old age people. Different kind of mobile phones are available in market and new from simple mobiles that are just used for calling and messaging. Smart phones make people life easier and very secure in different ways. The smart phones are based on different operating systems like iOS, Symbian, Android and many more. In these operating systems, the android operating system gives variety of applications with user friendly behavior and it is widely used on cell phones. Following graph shows the ratio of smart phones users worldwide.
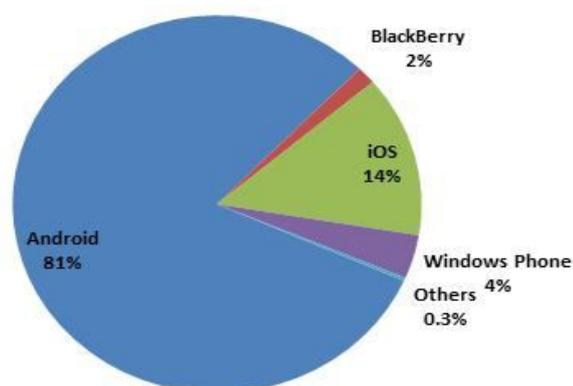

Fig 1: Smartphone analysis in 2013 year

Keeping in consideration all issues an attempt is made to develop a project in android.

Automatic question paper generation system:- For android phones there is no such an app available yet. There are many automatic question paper generator projects are available but they all are in different languages like Pascal n all. Normally they cannot be used on smart phones. And this is only the main limitation of this system. Users cannot use them whenever they want. If app will be available for the users on smart phones then they can use that whenever they wants.

Table 1: Literature Review

Sr No.	Existing System	Features	Limitations
1.	PuneQP	Set of all question papersyearand semester wise. System is in Android	Only old question papers are available for Unipune
2.	JNTUK Old Question Papers	Set of all question papers subject wise. System is in android	Only old question papers are available for JNTUK.
3.	Automatic Question Paper Generator System	It generates questions automatically from text input. System is in Pascal	It is not in app form

III.   PROPOSED SYSTEM

As we have seen many limitations in the existing systems. So we are going to develop a project which may try to cover many limitations of existing systems. In our project we are providing main 3 modules. They are as follows:

    A. Old question papers set
    B. Topic/Unit wise questions
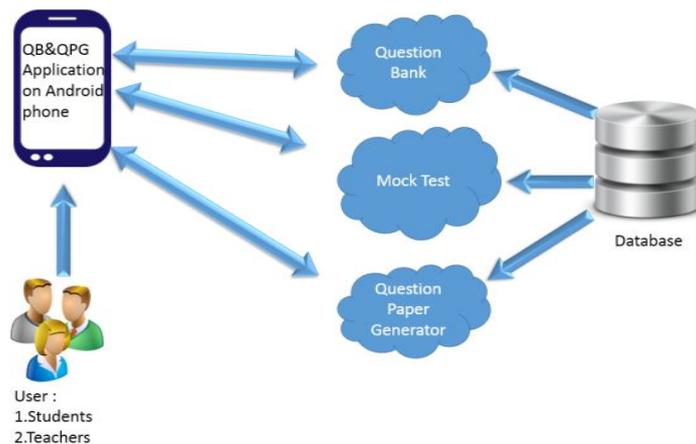   C. Automatic question generator

Fig 2: System Architecture of Question bank & Question generator system.

In first module all old question papers will be available in the app which will be sorted on the basis of year, semester and patterns. It will help students to find question papers very easily. As in the existing system they have sorted their question papers on subject basis only. So we are trying to reduce their efforts by sorting question papers year and semester wise. This will be very useful for the students to find bunches of question papers in the single app. This will definitely reduce their efforts of searching many websites.

In second module we will try to provide questions on the basis of topics and chapters which will students during their studies. As many studies have shown that most learners have problems recognizing their own knowledge deficits and ask very few questions. Questions are useful to recognize learner's knowledge deficits and improve their learning. If they have their own question

bank with them then it will be easy for them to improve their knowledge of learning without going anywhere.

In third module we are trying to generate automatic question papers. This question paper will generate questions according to requirements i.e. according to marks or topics.

For Example: - Suppose, a teacher wants to conduct 30 marks unit test on Prim's algorithm, then he will give the requirements to the system accordingly:5 questions of 2 marks,2 questions of 4 marks,2 questions of 6 marks.Then the system will generate question paperaccording to above requirements. This system will save the user time to write question paper manually.

IV.   TECHNICAL SPECIFICATION

Advantages of this system are: Application can be used Offline, Reduces searching efforts for the Question Paper, Sample Solved Question papers are available, Marks & topic wise Questions are available, Reduces Question Paper generation time. Mock tests can be conducted, Updating is possible. Users can upload their own questions also.

Disadvantages are: Available on smart phones only, only engineering can use it, Size of database will be large, question paper cannot be generated by giving text input, and Update will be done after 6 months only. Applications are: In University, in engineering colleges. And In Private classes of Engineering.

V.   RESULTS

Algorithm Analysis: The propose system uses greedy algorithm, it chooses optimum solution from multiple solutions. At each stage in proposed systemdecision is made regarding whether a particular output is optimal solution. This is done by considering the outputs in an ordered determined by some selection procedure. Greedy algorithm solution has polynomial complexity for sorted input and proposed system has input in sorted manner.

Complexity Analysis:

Rabin-Karp algorithm for question bank module

Consider an M-character sequence as an M-digit number in base b, where b is the number of letters in the alphabet. The text subsequence t [i .. i+M-1] is mapped to the number

$x(i) = t[i] \times bM-1 + t[i+1] \times bM-2 + ... + t[i+M-1]$

Furthermore, given x(i) we can compute x(i+1) for the next subsequence t[i+1 .. i+M] in constant time, as follows:

$x(i+1) = t[i+1] \times bM-1 + t[i+2] \times bM-2 + ... + t[i+M]$

$x(i+1) = x(i) \times b$ Shift left one digit

$- t[i] \times b$ M Subtract leftmost digit

$+ t[i+M]$ Add new rightmost digit

In this way, we never explicitly compute a new value. We simply adjust the existing value as we move over one character. If M is large, then the resulting value (~bM) will be enormous. Because of this, we hash the value by taking it mod a prime number q.

Use footnotes sparingly (or not at all) and place them at the bottom of the column on the page on which they are referenced. Use Times new roman 8-point type, single-spaced. To help your readers, avoid using footnotes altogether and include necessary peripheral observations in the text (within parentheses, if you prefer, as in this sentence).

The mod function (% in Java) is particularly useful in this case due to several of its inherent properties:

$- [(x \bmod q) + (y \bmod q)] \bmod q = (x+y) \bmod q$

- (x mod q) mod q = x mod q

For these reasons:

h(i) = ((t[i]× bM-1 mod q) +

(t[i+1]× bM-2 mod q) + ... +

(t[i+M-1] mod q)) mod q

h(i+1) =(h(i)× b mod q

Shift left one digit -t[i]×bM mod q

Subtract leftmost digit +t[i+M] mod q)

Add new rightmost digit mod q If a sufficiently large prime number is used for the hash function, the hashed values will usually be distinct

for two different patterns .• If this is the case, searching takes O(N) time, here N is the number of characters in the larger body of text.

It is always possible to construct a scenario with a worst case complexity of O(MN). However, this, is likely to happen only if the prime number used for hashing is small.

Random selection for question generator module:

Random selection method is available in java which uses sequential search method.

```
public class RandomNumbers {
public static int OFFSET = 5;
public static void main(String[] s){
RandomNumbersrn = new RandomNumbers();
intprev = 20; //Set prev randomly or any way you want to initialize the list
for (int i = 0; i < 10; i++){
prev = rn.getRandomWithinOffset(prev);
System.out.println(prev);
} }
```

Time complexity for random selection:

Best case: O(1);

Worst case: O(n);

Hence it is proved that given algorithm for the proposed system is Deterministic in polynomial time.

CONCLUSION

The application Question Bank and Question Paper Generator System for Android device will prove to be very helpful for Educational Infrastructure. This application provides ease of facility for faculties as well as students. Efforts of teachers are reduced like generating question papers, etc. This application provides all old question papers in short time. As this application is based on Android mobile devices it becomes simpler to obtain all possible questions related to some particular topics. Most important benefit to faculties is provided of automatic question paper generation. This application also provides a simple way to organize mock tests for students. Result of test will be displayed in short time. So considering all this advantages this application proves to be very useful for students and teacher.

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