Idea/Approach Details

Ministry Category : Ministry of HRD

Problem Statement : Crowd Sourcing model for preparing large Question banks. Problem Code : #MHRD6

Team Leader Name : Deepak Mitrani College Code : 12989

Idea and Approach details:

To the problem of crowd sourcing model we have a solution of web-portal and app .

In this web portal as social-sites we will let the user create ID and manage their account under a common tree. with the same account a student /teacher can upload questions they feel important in a category specified under different parameters , for example : Maths under trigonometry under a 3 marks question i can upload a question .Further that question will go public for a week where solution and questioning as well as down vote and up vote goes on. Then after the week the question is send to teachers and get approved by them and voted important or not. Then another week of voting afterwards , only when question voted above certain reference limit and final expert view. Question is then kept to a database of most important Q/A. With this we will get different streams database and Q/A as per specified stream we will also collect previous year question and make a database of old questions.Then whenever a question paper is needed : An special expert or teacher account: i.e. the authorized person for paper can generate paper with the freedom of sorting. And selecting from different options: Old + new questions/new questions only /only old or new /repeated with this luxury we can solve the above problem with our web-portal/app and manage it easily. As the voting will be hidden and only be open to admin so it is safe that no one can give the guess of paper. And selected questions will be given after a week and also after collapsing all the questions of the week. After the exam all questions will get updated in old questions stack. As a temporary file is kept and further more the questions not used in any paper will go on to the new paper database and be used for New and next Question-paper generated.

Technology statck :

We have used Django as the backbone of our project because it offers rapid development of highly scalable apps. Django is python framework and it provides a very smooth and secure functionality of the app.

At the frontend we have used Bootstrap 3.3.6 which powers sleek, beautiful and interactive parts of our website.

We use MySQL database which is a world wide recognised open-source database and can handle a very big database, as in our case.

Web Application:

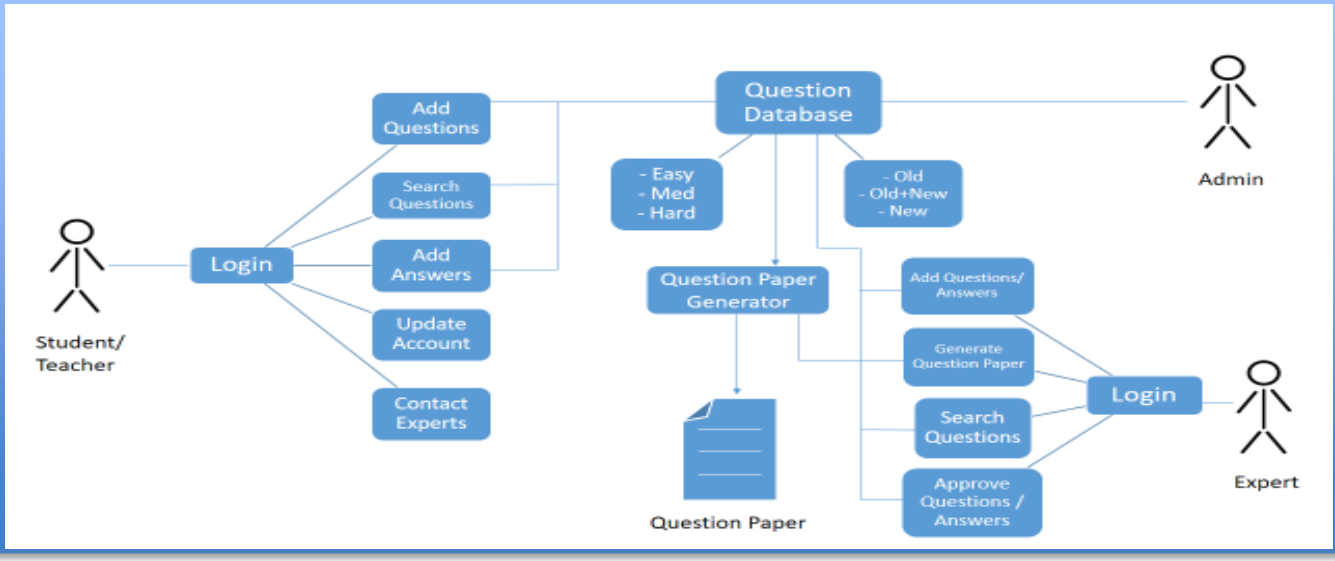
1. **Front-end:** HTML, CSS, JavaScript, Bootstrap 3.3.6
2. **Back-end:**
   - **Programming Language**: Python
   - **Framework**: Django 1.11
   - **Database:** MySQL
   - **PDF library:** pyPDF(output que paper in pdf format)

Android Application:

1. **Front-end:** Android (Java)
2. **Back-end:**
   - **Programming Language**: Python
   - **Framework**: Django REST API
   - **Database:** MySQL

Use Case:

Use Case



1. Student/Teachers login/register on the website
2. Students/Teachers can: Add Questions, Search Questions, Add Answers, Update Account, Contact Experts
3. In Database, the questions are organized on the basis of their difficulty level (easy, medium & hard) and their time of upload.
4. The Expert can: Add Questions/Answers, Search Questions, Approve Questions / Answers & Generate a Question paper on various criteria.

The Admin controls the database & other components.

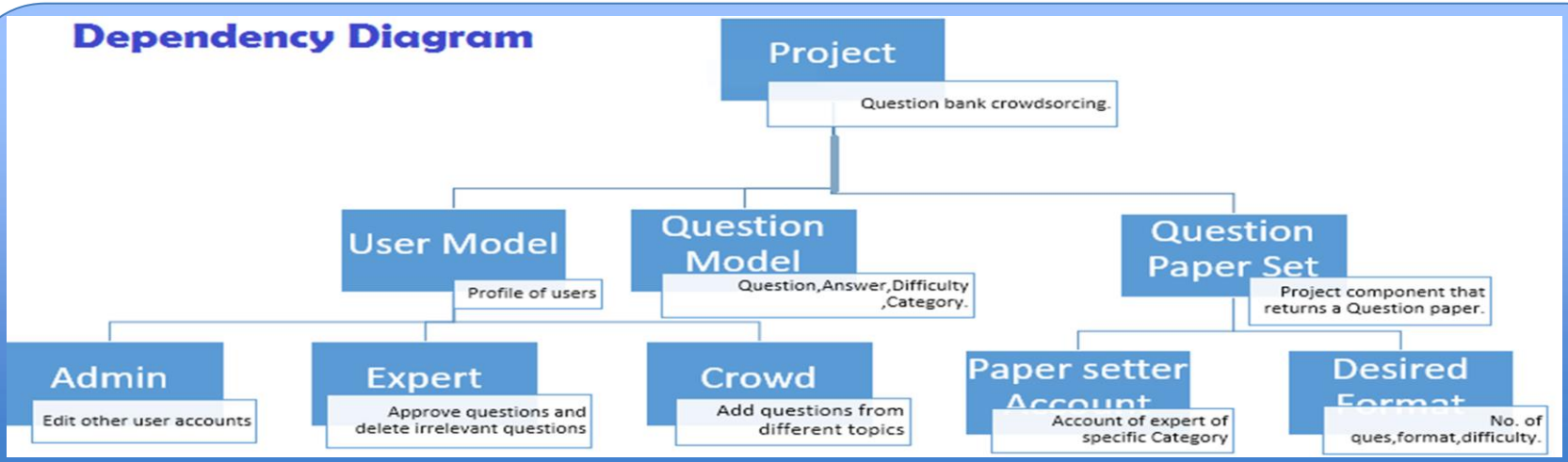
Dependencies :

Our Django project contains three apps : Accounts, Questions, Question Paper Setter.

Accounts : This app deals with all the user database management and user authentication system. The sign up and login process is done through this app. It manages all types of accounts: Admin, Expert & Crowd/User.

Questions : This app deals with the huge crowd-sourced database of question. Each and every question is mapped with the User that uploaded it.

Question paper setter : This app deals with choosing the desired questions from the database and also automates the process of generating question paper in PDF format . Expert can also moderate the question paper.



Note :

We have started working on the app. We have made a few things in Django. You can check this site.

Website : http://devendra8112.pythonanywhere.com

You can sign up and check. Or log in with below credentials:

Username : user Password : admin123

Idea/Approach details

Problem statement type: Healthcare and Biomedical Devices
Problem statement: Predictive analysis on Medicines & Doctors availability in Government hospitals.
Team Leader: Sai Nikhita
Current AICTE application no:

Abstract

Solution: Human life is priceless and it is the most valuable asset in the universe. Medicines are an essential component of patient care and they must be administered to the patient in a timely manner. Non-availability of life-saving drug costs life of patients. Majority of patients at the hospital face problems in getting treatment because of non-availability of the doctors. Hence there is a need for development of a Healthcare Information system to provide predictive analysis on medicines and doctors availability in Government hospitals thereby increasing efficiency of patient treatment.

The historical and current data of the doctors availability,medicine usage and patients inflow for a particular disease is taken and the data is analysed.
The data being analysed is as follows:

- The number of patients with respect to diagnose and medicines prescribed
- The details of doctor along with the rate at which he/she can diagnose a patient per cycle
- Availability of medicines and the amount of medicines required for a diagnose

Based on the analysed data the number of patients of a particular disease, doctors required to treat the patients and medicines required can be predicted.

The prediction is based on each of the below mentioned time frame situations:

- On a daily basis
- Peak of a disease
- Weekends, holidays
- Peak hours of a day

The proposed system that is being described will have the following actors in it.

1. Admin
2. Hospital Personnel
3. Healthcare department

Admin:

- Admin handles the creation of logins to hospital personnel who updates the details of the hospital.

Hospital Personnel:

- The hospital personnel has the responsibility of updating the details of the hospital on a regular basis which include:
    - The details of patients according to diagnose
    - Number of doctors available according to their specialization
    - Medicine availability
    - The timings of the availability of doctors

Healthcare department:

- The department is presented with an interface which consists of a **Search Field** on a **real time map background** centered at the area being monitored by the department.
- If there is a need for a change in location, a location search tab is provided.
- The map shows the location of all the Government hospitals. The details of the hospital such as medicine and doctors availability, predicted number of medicines and doctors for a particular disease can be displayed with a click on a particular hospital on the map.
- The department can search for a particular hospital with respect to:
    - Name of the hospital
    - Disease being treated
- When the department searches for a hospital by its name, the map gets centered at that hospital location and on click the control flow is directed to another instance with the details of the hospital:
    - Diseases treated in that hospital
    - The number of doctors with respect to specialization
    - Medicines availability
    - Predicted number of medicines and doctors
    - Comparison of predicted and available doctors and medicine
- When the department searches by the name of disease, the information about the hospitals treating that particular disease in a list format will be given.
- The UI also consists of a tab which is capable of displaying information about the most trending disease in a given area and the health awareness initiatives being conducted including location in the map.

Technologies Stack:
Backend: Django, MongoDB
Frontend: HTML, CSS, JS

IDEA DETAILS

Technology Bucket : Software - Web App development
Category: Software
Company Name: SSEPL Skills Pvt Ltd
Problem Code :
Team Leader Name : Pawan Bhandarkar
College Code : 1-3516097028

ATTENDANCE BASED APPROACH FOR GENERATING TIME TABLES

Our idea draws inspiration from the way our college implements the attendance system for the lecturers. There are fingerprint sensors placed at the entrance of our college and when the lecturers enter, they mark themselves as being present with it. Our system will include a fingerprint sensor module, a MongoDB database that stores the timetables for every section of every branch, a web application through which the students and lecturers can check the most recent timetables when required and a mobile application through which the concerned lecturers will receive notifications whenever classes have been reassigned.

TECHNOLOGY STACK

- Raspberry Pi
- Fingerprint Sensor
- Android Studio
- MongoDB
- NodeJS
- Atom Editor

APPROACH DETAILS

The front end is a Web application built using HTML and JavaScript which includes a GUI to easily navigate the sections and subjects to access the required time tables.

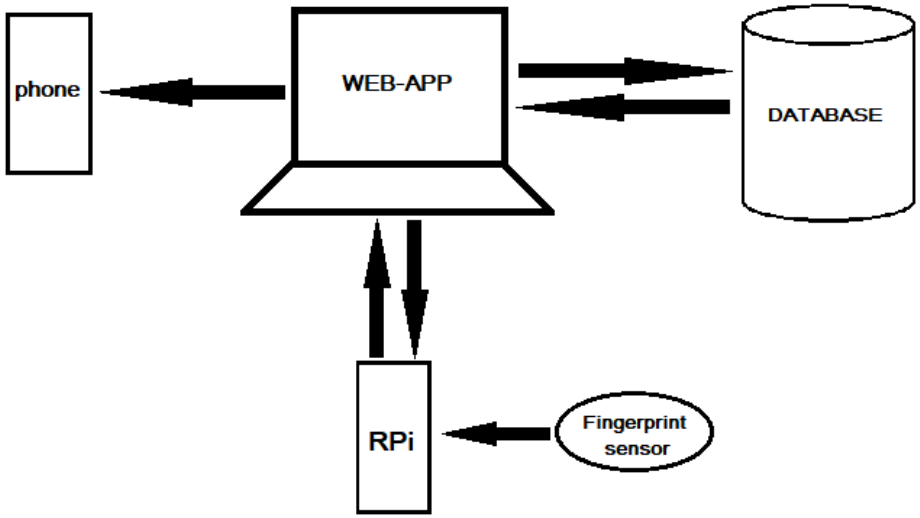
The database will store the details about which lecturers teach which subjects to which sections.

If a lecturer of a particular class is absent for the day, failure to detect a fingerprint within an hour or so before the classes start is conveyed to the database which is then updated to assign a different lecturer of the same section to that hour and send a notification to the concerned lecturers about the same.

If no lecturer of that section is available for that hour, then a notification is sent to the HOD of the department to either assign a separate lecturer for that class or let the class free.

On successful implementation, we can improve on the project to include a module that allows the lecturers to choose their subjects and sections of preference so that instead on contacting the HOD those lecturers can be assigned directly to teach in place of the absent lecturers.

SCHEMA DIAGRAM



USERS

- Lecturers who will be directly influencing the data stored in the database and the time tables allotted, will be notified of the changes and can access information about their next classes on their mobile applications. The notification will include details about the next class, the subject, and the class room number for convenience.

- Students who will be able to at any time, use the web application to check the latest time table for the day.

SHOW STOPPER

We need access to the data regarding the lecturer's assigned classes and their subjects of expertise. The smooth operation of this system will depend on the lecturer's willingness to take up a class during their free time and that they use the fingerprint sensor regularly.