

QBase – A Bloom Taxonomy based Question Paper Generator

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Abstract - An "QBase – A Bloom Taxonomy based Question Paper Generator" is a web software solution, which allows any institute to set up, direct and manage question paper for examinations. Some of the problems faced in the process of creating question paper is managing questions in an efficient categorisation, It takes a lot of time to manage and create question papers. The chance of loss of questions collections is more as well as searching questions for any subject's question paper. Question paper generation is one of the essential parts for an educational system.

Key Words: Question paper generator, Bloom taxonomy based Question Paper Generator, web application, Examination control, Randomize Question, Multi Platform

1. INTRODUCTION

The name of the software product is "QBase – A Bloom Taxonomy based Question Paper Generator". Qbase is an automatic question paper generator that reduces the hectic job of manually selecting or writing question papers. The aim of Qbase is to provide a platform to the user working for any educational institute. The user of Qbase can generate question papers according to their specific need. It will allow users to live edit, print question papers and also it can be shared to multiplatform.

2. BACKGROUND AND RELATED WORK

2.1 Working sequence of software is as following –

- a. After user authentication, it suggests layout for the question paper.
- b. The user will select the layout or create a custom layout as per their need.
- c. After selecting layout qbase will ask some basic information about the question paper such as course, branch, subject, topic, difficulty level, maximum marks, total number of questions .
- d. It will start the process of auto generation of question paper according to earlier information given by the user.
- e. Newly generated question papers will be fully flexible for Re-edit manually, shuffle question automatic or replace the question manually.
- f. If the user is satisfied with the question paper, then he can save, print or share.

2.2 Collection of question and its usability in question paper generation-

- a. The method of storing questions in the database can be through csv or our software data upload platform.
- b. During upload every question is associated with a wide variety of attributes such as question type (theoretical, multiple choice), subject, units, topics, question type on basis of long, short or medium, course outcome, bloom taxonomy based difficulty level.

3. LITERARY SURVEY

This paper discovers the principle of the design system, that represents the main functions of the system, analyses the algorithm of generating question paper. Question paper generation for any Examination is a significant activity for institutions to evaluate the performance of students. Hence the quality of the Exam questions will determine the quality of the students developed by the institutions; also preparing exam questions is challenging, long winded and takes more time for the instructors. Current technologies will help instructors to add the questions banks in databases.

Automatic Question Generation Using Software Agents for Technical Institutions [1] developed an system in which take an input in form of the text file from user which contains of the text upon which the user desires to fetch questions; the output is produced in form of a text file containing questions based on **Bloom's taxonomy**. The advantage of generating questions based on Bloom's taxonomy enables the questions that help to assess the learning ability of the students. The proposed framework helps in question generation by deploying agents, the agents will perform various operations like document

processing, information classification and question generation. Thus system may also be termed as a multi agent system. In Document processing tree tagger tool and stemming process is done to eliminate the human process. Information classification takes a list of keywords generated by Data Processing and finds the Bloom's category of those words, by searching appropriate action verbs in the repository which fits with the given keyword. The question generation module takes the output of Information classification as input to generate questions. The process is a template based approach, which fits the selected keywords in the question template according to the Bloom's levels.

4. IMPLEMENTATION

QBase – A Bloom Taxonomy based Question Paper Generator is implemented with NodeJs and Angular.
Refer_code: https://github.com/dwivedi618/qbase_version1_public

a. Nodejs : is a platform built on Chrome's JavaScript runtime for easily building fast and scalable network applications. It uses an event-driven, non-blocking I/O model that makes it lightweight and efficient, perfect for data-intensive real-time applications that run across distributed devices.

b. Angular : is a structural framework for dynamic web apps. It lets you use HTML as your template language and lets you extend HTML's syntax to express your application's components clearly and succinctly.

4.1 STEPS TO GENERATE QUESTION PAPER

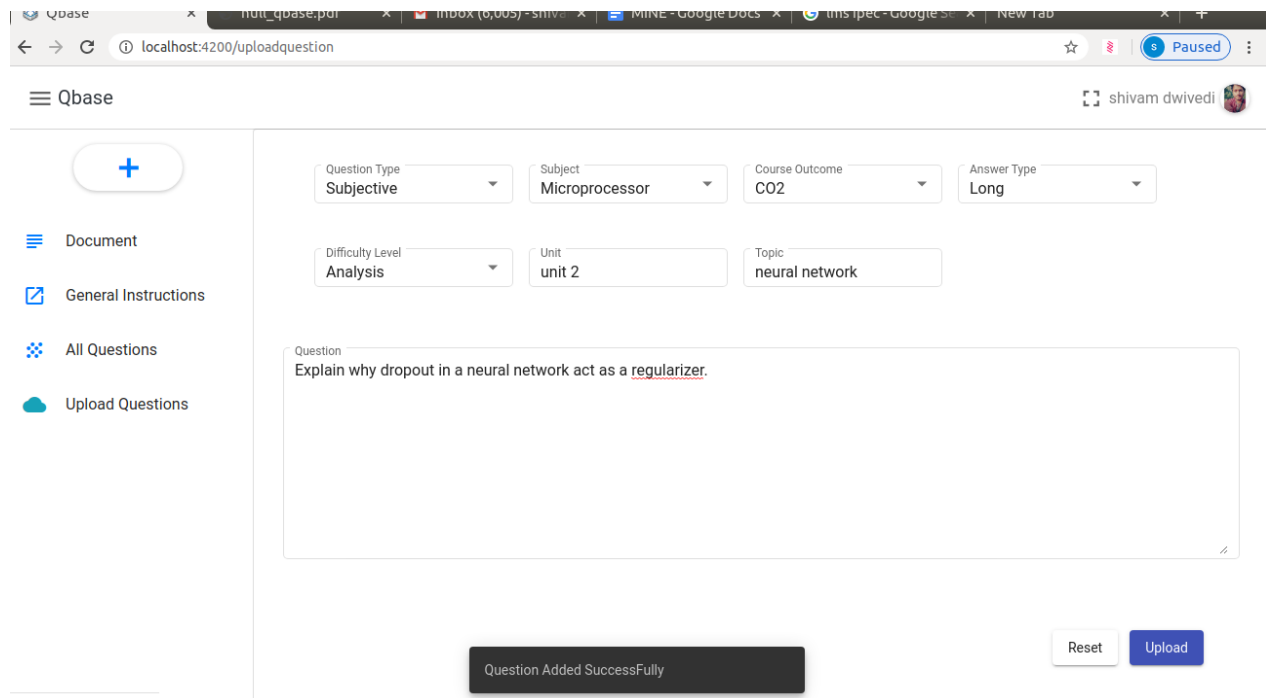


Fig - 4.1.1: Uploading Questions in Database

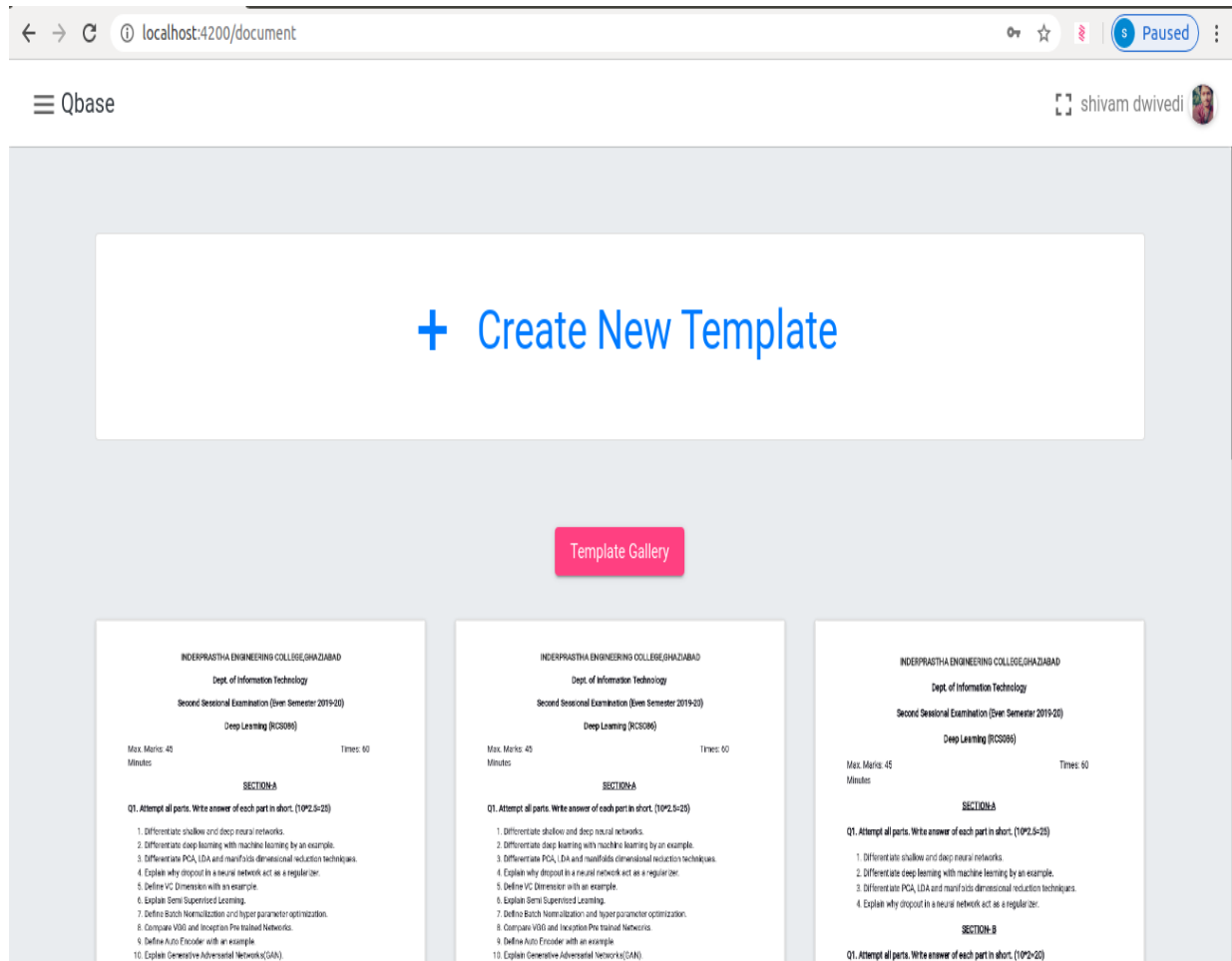


Fig - 4.1.2: Creating a Template/Format

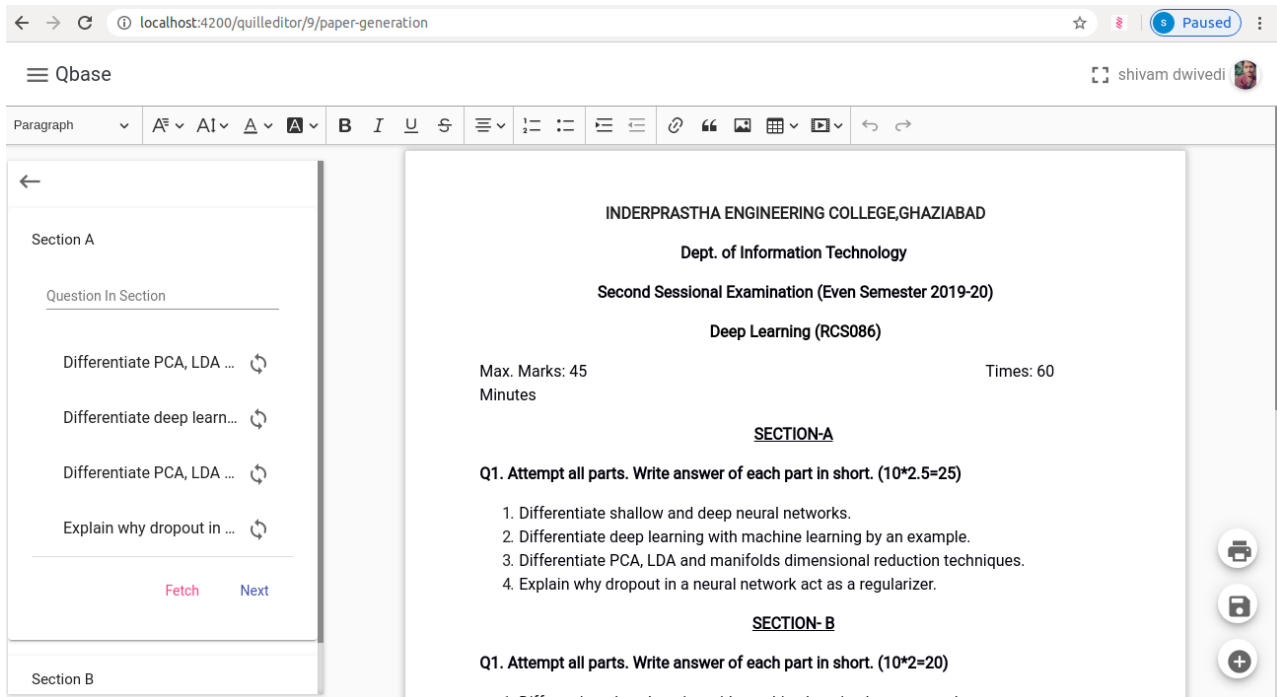


Fig-4.1.3: Arrangement of Questions in Section

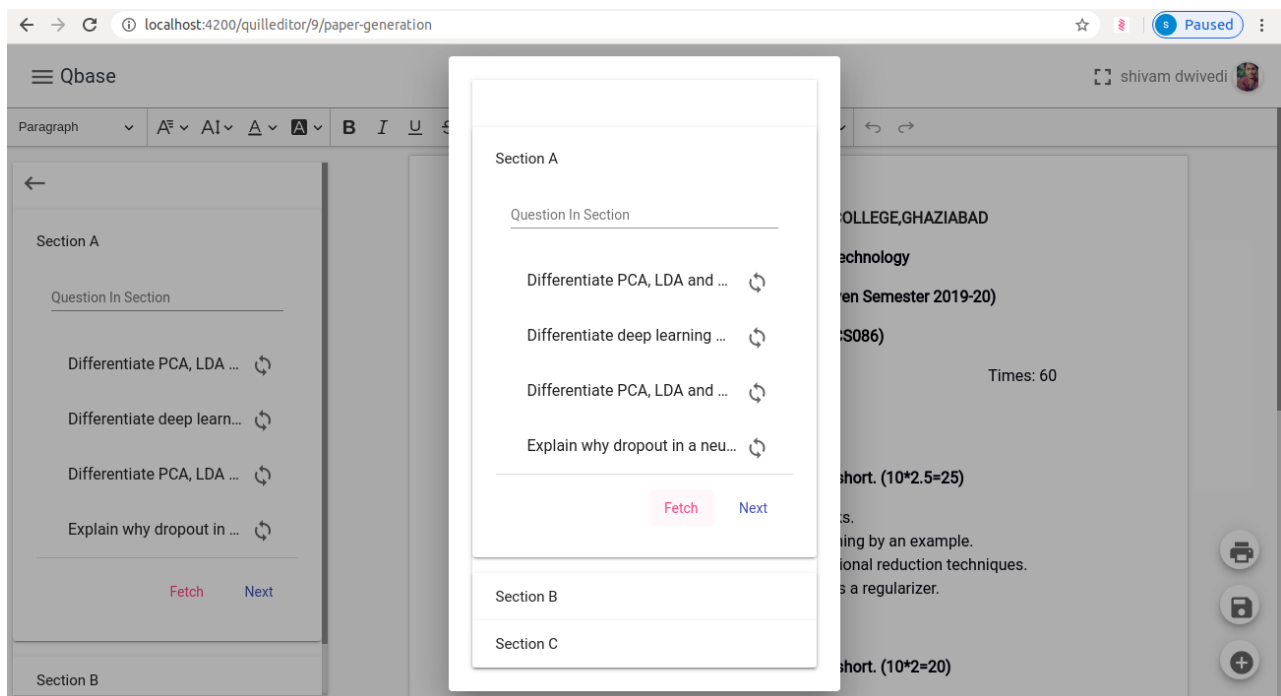


Fig-4.1.4: Replacing the questions if needed

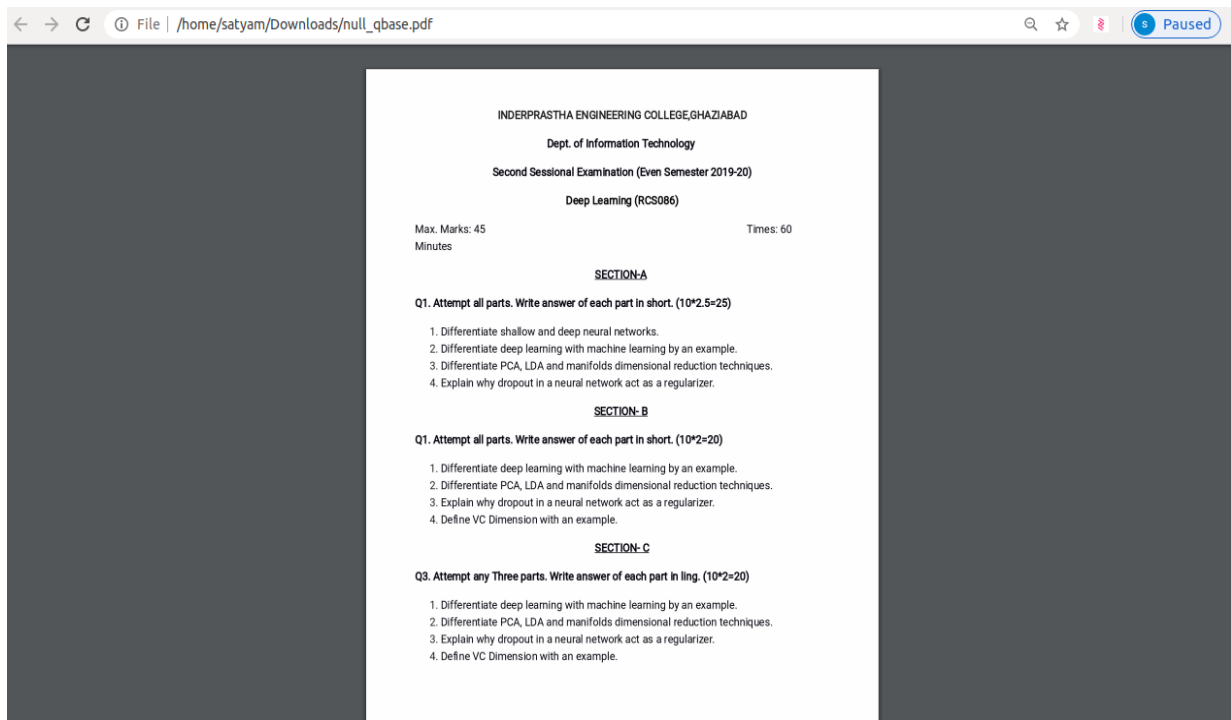


Fig-4.1.5: Final Question Paper Obtained

5. CONCLUSION

Our software is able to satisfy the needs of institutions in order to generate question papers in pdf or doc file. Text parsing methods are used to process the Layout of question paper to identify section categorisation. Most of work is done in English language and generating Theoretical type questions. Automatic question generation system is an open area where still there is a scope of research is there for proposing methodologies by identifying complexities and types of question like one word answer and True or False need to generate.

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