Semester 2

IT Project

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Problem Statement:

- To make a **Question bank system** which does two tasks:
    1. Stores the questions for different classes and subjects using File Handling.
    2. To generate a question paper using the stored questions.

Our Approach to the problem:

- We have made two classes '**sQue**' and '**mQue**' to handle both subjective and objective questions.

A user is given options to do the following:

1. Input a question.
2. Display all questions.
3. Display a specific question.
4. Delete a question.
5. Change answer to a question.
6. Change weightage of a question.

7. Edit option to an objective question

- The question number is assigned by the program itself.
  To do that, it opens the given file moves the file pointer to the end of the file, the position it is at tells the number of bytes stored in the file and then we divide this with size of any one of the classes mentioned above and return +1 of it to be assigned as a question number.

- Also, to generate a paper a user is given to options:
  1. To include a user provided question number.
     The program then searches for these question numbers in the created Hash table and includes them in the generated paper.
  2. To randomly include the given number of questions.
     For this program generates a random number between 1 and given number of questions away from the total number of questions in the file and then includes specified number of consecutive questions from there in the generated paper.

- While generating a paper, the program reads all the questions from file and creates a hash table to store

those questions using *position= (question number)%(total number of questions)* to make question easily searchable.

Things we learned during the entire project:

- During the making of this project, we went over the concepts of:
    1. Object-Oriented Programming (Data Encapsulation, Data Protection, Friend Functions, etc.)
    2. Data Structures (Hash Table)
    3. Functions like rand().
    4. We also realised different approaches to solve a problem and selecting the best one, like the one where we randomly generate a question paper, we tried several approaches like randomly generating a question number each time until total number of questions is reached but then settled on a better method and still keeping the process random.

This helped us strengthened our concepts in these topics, by applying them in lab assignments and in this project.
We also got to learn about file handling in C++, things like how to read and write objects to a file, how to

delete some information, update it, renaming files and removing a file.

The Limitations of our project:

- The project does not handle multiple correct type questions.

- Also, the user cannot insert the following to the questions:
    1. Complex mathematical equations.
    2. add images.

- Right now, there is no provision to add questions for classes and subjects other than given by the program.

- Also, the numbering or sequence of the questions selected by the program cannot be adjusted by the user (it will be adjusted by program itself).

- There is also no provision to make any changes in the question text itself without deleting it.

- The program does not handle solutions to these questions.