**Mini Projects**

* + - 1. **Automatic Quiz Test Generator**

**Brief Description:**

The students are required to develop a tool that will enable to randomly generate a quiz test questionnaire containing the specified number of questions from the question bank. The question bank could be a file or database. If it is a file, the system should ensure that the file exits and the path is specified. Or else a file is created with the specified name and stored in default location. Appropriate exception handling mechanism should be taken care of wherever required in the application. There should be options for separate question bank for separate subjects. The user should have the option of selecting the subject for which the question bank is to be made or the questionnaire is to be generated.

**Functionalities:**

***Insert:*** The user should be able to insert a new question. There has to be an option to select the type of question that the user wants to insert. If the type is multiple choice question, then the system should ask the user to write the question and the options in separate spaces. There should be an option to enter the answer for that question. A submit button will enter the question into the question bank. If it is a fill in the blanks question, then there should be only two spaces one for the question and the other for the answer.

***Modify:*** This functionality will let the user to modify the question, its options, and/or its answer.

***Delete:*** This functionality will let the user delete any particular question.

***View:*** This functionality will let the user to view either the questions set or the solution set. This functionality will ask the user to enter the number of questions to view. Supposing the user enters 10, then 10 questions should be randomly generated and displayed on the screen. It should also let the user export the questions in txt/word format. While generating the questions randomly the system should ensure that the same question is not repeated. The same should happen if the user wants to generate the solution set for the specified number of questions.

***Export:*** This functionality will enable to export the questionnaire in txt/word format containing a specified number of questions.

The students are free to design the GUI for the above project as per their creativity. Appropriate links should be provided to transit from one option to another. The project should be deployable.

* + - 1. **Library Automation**

The Library of BITS-PILANI needs a new electronics rental system that integrates the libraries of its three campuses Hyderabad and Pilani, and it is upon you to build it.

1. Each library has many books to rent (assume total 10 books in each library). Customers can ***print*** the list of books available (should print all the required information about the books available (including # of copies available) in all the libraries irrespective of the campuses), ***borrow*** (this should ***check***, if the book is available in any of the campuses, if the book is available in any campus then it is allotted to the customer. If the book is not available in any campus, then it should ***print*** an error message), ***return\_book*** (should check to which campus the book belongs to and then should return the book to its respective campus library from where it was issued. The return should be *acknowledged by a message* to the customer. The book should be added to its respective library and information should be displayed, the ***check\_status*** of a book should display the no. of copies available and whether it can be borrowed or not).

Note: you can make your own assumptions about other details required to complete the assignment.

1. The Library of BITS-Pilani also needs to have a module in its library to ***calculate*** how much to pay to its 10 TAs who work in the library on hourly basis. The administration wants that any TA who works above 10 hours a week to be paid 1.5 times per hour of his base pay. BITS-Pilani requires that hourly employees be paid at least Rs. 100.00 an hour and the maximum amount payable to the TA is limited to Rs.2000 per week.

A TA gets paid = (hours worked) × (base pay), for each hour up to 10 hours. For every hour over 10, they get overtime = (base pay) × 1.5. If the total payable amount for a TA is greater than 2000 per week, print an error message.

Note: Make your own assumptions for the other missing details to complete this assignment.