**Python Mid Term Assignment**

**What you need to submit**:

Create a public github repository upload your code there and Provide its public link as assignment submission

| **Task** | **Details** | **Marks** |
| --- | --- | --- |
| **1. Create the Library class** | Define a class named Library with one class attribute named book\_list. Initially, it should be an empty list. Create a class method entry\_book() to insert an object of the Book class into book\_list. | 5 |
| **2. Create the Book class** | Define a class Book with the following instance attributes:  - book\_id: Unique identifier for the book.  - title: Title of the book.  - author: Author of the book.  - availability: A boolean indicating if the book is available for borrowing or not. | 10 |
| **3. Initialize Book Object** | In the constructor of the Book class, initialize the attributes. Insert the Book object into book\_list using the method entry\_book(). This part will be done manually, i.e., no need for a menu option. | 10 |
| **4. Implement borrow\_book() method** | Add a method borrow\_book() in the Book class that checks if the book is available for borrowing (i.e., the book’s availability is True). If so, change the availability to False. | 10 |
| **5. Implement return\_book() method** | Add a method return\_book() in the Book class that changes the availability of the book back to True when a book is returned. | 10 |
| **6. Implement view\_book\_info() method** | Add a method view\_book\_info() in the Book class to display the details of the book, including its book\_id, title, author, and availability status. | 5 |
| **7. Menu System** | Create a menu-driven system with the following options:  1. View All Books  2. Borrow Book  3. Return Book  4. Exit.  Handle the user’s choice using input prompts. | 15 |
| **8. Error Handling** | Implement error handling for:  - Invalid book ID when borrowing or returning a book.  - Trying to borrow a book that is already borrowed.  - Trying to return a book that is not borrowed. | 10 |
| **9. Data Privacy** | Make the attributes (such as book\_id, title, author, availability) as **protected/private** as possible using Python’s class mechanisms. This will ensure that these attributes cannot be accessed directly outside the class. | 5 |