**Software Verification & Validation**

PROJECT PROPOSAL

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**Abstract :**

In this document, a web-based library application is suggested. In accordance with the criteria for verification and validation, we will use this application for all testing-related assignments. Users borrow book from this application and return book to the library. We want to develop this application based on below-discussed features during this course. We will unit test each individual feature in accordance with the expectations and final implementation.

**1. Main Features:**

* 1. **User Authentication**

A key component of library software systems is user authentication, which makes sure that only persons with permission may access the resources, services, and user-specific data in the library. The most important features of user authentication in library software systems are as follows:

* **Username and Password:** During the registration process, users normally create special login credentials, which include a username and a password. When logging into the system, these credentials are used to confirm their identity.
* **Profile/My Account:** Within the library software system, users can create and administer their profiles. Profiles typically include personal data, contact details, and preference information.
  1. **Catalog Management**

Cataloging and categorization are key components of library software systems. With the use of this function, librarians can categorize and organize the library's holdings, making it simpler for users to find certain items. It entails making bibliographic records with details on the author, title, subject, and other pertinent information. Another crucial component of this feature is the capability to assign classification codes.

* **Book Catalog**: Manage a record of books involving details like the title, author, ISBN, and status of availability.
* **Search and filter**: Users can look for books and filter the results using a wide range of parameters like Author, Tile, Title Keyword, Subject, ISBN, and All fields.
* **Confirm**: Users can confirm book they want to borrow from library.
  1. **Circulation Management**

Another crucial element of library software systems is circulation control. It simplifies the process of checking out and checking in library resources, making it easier for librarians to keep track of due dates and item availability.

* **Check Out**: In processing check-outs, librarians can keep track of the products that customers have borrowed as well as their due dates. During this process the user’s history is checked. Based on the allotted number of books and their due dates.
* **Check In**: The system is updated by librarians when users return items, marking the items as returned and ready for the subsequent user.

**2.Tools :**

* 1. **Programming language**

**Frontend and Backend Development and testing:**

**Tools:** JUnit, TestNG , Java Selenium

**Prog language** : Java, python

**UI/UX Development:**

**Tools:** HTML, CSS, JavaScript: For improving user experience and interactive site features.

**Process of testing:**

1. **Requirement Analysis:** Create a test plan and test cases based on these requirements.
2. **Setting up test environment :** including the hardware, software, browsers, and any third-party tools or frameworks required for testing.
3. **Test case :** Creating test cases that cover various scenarios, including positive and negative test cases, it also addresses functional, usability, security, performance, and compatibility aspects.
4. **Testing :** includes, functional, usability, security, compatibility, etc.,