**Assignment 1**

1. **Models used for developing Library Management Systems:  
     
   1.1 Predictive Model:** Predictive Model is a traditional software development approach that involves planning and executing software projects based on a set of predefined steps. The model follows a sequential or linear approach, where each phase of the development process is completed before moving on to the next phase. It aims to predict the time and cost required to complete each phase of the project. It assumes that the requirements of the project are known in advance and can be accurately defined, so that the design, coding, testing, and deployment phases can be executed accordingly. This model is often used for projects that are well-defined and have clear objectives.  
     
   **1.1.1 Waterfall Model:** The Waterfall Model is a traditional software development approach that follows a sequential, linear process for software development. It is a structured and systematic approach to software development, where each phase of the development process must be completed before moving on to the next phase.   
     
   One of the key advantages of the Waterfall Model is its predictability, as each phase is planned and executed in a predictable manner. And for developing the library management system we are clear with the final draft, so as this is a small project with clear requirements we can choose Waterfall model for developing this system.   
     
   **1.1.2 V Model:** V Model is a structured approach that emphasizes testing and verification at each stage of the development process. Each phase of the development process is completed before moving on to the next phase, and testing is performed at each stage to verify that the software meets the requirements and performs as expected.  
    **1.2 Adaptive Model:** Adaptive Model emphasizes collaboration and communication among team members, as well as with stakeholders, to ensure that the software meets their needs and expectations. It allows for changes to be made throughout the development process, while still providing a structured framework for development. This model is particularly useful for projects with evolving requirements or where the requirements are not well-defined. One of the key advantages of Adaptive Model is its flexibility and adaptability, as it allows for changes to be made through the development process.   
     
   **1.2.1 Spiral Model:** This is best suit, if the requirements are not clear and risk involvement is more. In every sprint product quality was checked to reduce risk and increase in cost effectiveness.  **1.2.2 Iterative Model:** This model will be suitable if we are not clear with the requirements and in each iteration customers feedbacks are taken and add the required functionalities it the next iteration. Here we can have better visibility on the build and parallel development is achievable in this model.
2. **Risk Analysis:**   
     
   In Library Management System if any of the feature need to be added or modified in between is difficult means we need to add feature in the required phase as it is sequential process. This was the drawback in linear models. But in Iterative and Spiral Model this can be avoided, for each build we can collect feedbacks and add features according to the customer requirements.
3. **SDLC approach to develop Food Ordering Application:  
     
   3.1 Scope:**The Food Ordering Mobile Application will be a platform for users to easily browse and order food from different shops. The application will include the Shop category, Place Order, ETD, Payment Gateway, Confirmation Receipt, notify when order is ready functionalities.  
     
    **3.2 Design:** Shop and Items category needed.  
    Payment Gateway need to be integrated.  
    **3.3 Build:** Develop application according to the requirements.  **3.4 Test:** Verify that the application displays different shops based on their category.  
    Verify that the user can select a shop from the available categories.  
    Verify that the selected shop's menu is displayed to the user.  
    Verify that the user can provide the necessary payment details.  
    Verify that the application provides a secure payment gateway for users to make payments. **3.5 Deploy:** Deploying the build to production environment.
4. **Merits of waterfall model:  
     
   \*** Quality of the product will be good.  
   \* Since Requirement changes are not allowed , chances of finding bugs will be less.  
   \* Initial investment is less since the testers are hired at the later stages.  
   \* Preferred for small projects where requirements are feezed.