



### **Short Essay: Purpose and Activities of Each SDLC Stage**

The Software Development Life Cycle (SDLC) is a structured framework used to plan, develop, and manage software systems. It involves several stages, each serving a distinct purpose to ensure high-quality software development. Below is an overview of the purpose and key activities of each stage.

#### **1. Planning**

The Planning stage lays the groundwork for the project. The purpose is to define the overall scope, objectives, and feasibility of the software project. Activities include budget estimation, scheduling, risk analysis, and determining resource allocation. This stage ensures that the project is viable and aligned with business goals.

#### **2. Requirements Gathering**

The goal of this stage is to collect detailed information about what the software should achieve. Stakeholders, such as customers, users, and project managers, collaborate to specify functional and non-functional requirements. Activities include interviews, surveys, and creating documentation to understand user needs. This stage is crucial for establishing a clear project vision and minimizing future changes.

#### **3. Design**

In the Design phase, the system's architecture is mapped out. The focus is on designing the software's interface, databases, and system interactions. The design may include both high-level architecture (e.g., system structure) and low-level design (e.g., specific modules and interfaces). The purpose is to create a blueprint that guides developers during coding.

#### **4. Development**

The Development stage involves writing the actual code for the software. Developers follow the design specifications to create the program using programming languages and tools. This is where the core functionalities are built. Proper adherence to the design in this stage ensures that the final software meets the requirements.

#### **5. Testing**

Once development is complete, the software is tested to ensure it functions correctly. The goal of the Testing stage is to identify and resolve bugs, vulnerabilities, and performance issues. Different testing methods such as unit testing, integration testing, and user acceptance testing (UAT) are used to validate the software's functionality.

## **6. Deployment**

The Deployment stage is where the software is released to users. It involves installing the software on servers or distributing it to end-users. This stage may include activities like setting up infrastructure, migrating data, or configuring the system. A smooth deployment is essential to ensure the system is operational in the live environment.

## **7. Maintenance**

After deployment, the software enters the Maintenance stage, where developers fix issues, make updates, and add new features as needed. Maintenance ensures the software remains functional and secure over time. This stage is ongoing and critical to keeping the software relevant and efficient as user needs evolve.