**1-3 Journal: The Role of Testing in the Software Development Life Cycle**

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CS-320: Software Test Automation & QA

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February 27, 2023

**What occurs during the testing stage of the SDLC?**

In the SDLC, testing begins after programming is completed and components are readily available for testing. The software is thoroughly tested during this step, and any defects are flagged for engineers to fix. Until the software meets customer requirements, it is subjected to additional testing and bug fixing. Furthermore, testers refer to the software requirements specification to ensure that the software complies with the client's criteria.

Included within SDLC testing are five phases:

* **Static**testing helps detect errors in code and software components before application execution.
* **Unit**testing refers to the testing of each component or unit of a software application.Unit testing is intended to validate the performance of unit components.
* **System Integration** testing evaluates compliance with a system's specified requirement by verifying the system's behavior in an integrated hardware and software environment.
* **Quality assurance (QA)**testing involves testing the product to ensure it's user-friendly.
* **User acceptance**testing ensures that a product meets the company's requirements by having users test it.

**Why is the testing stage vital to a successful SDLC?**

Testing is a fundamental part of the software development process. Software development teams use this testing stage to verify project requirements and functional and non-functional features. The functionality of previously implemented features can be affected by new features. Testing will allow you to identify these issues before they affect the final product. Your final product will be superior to your competitors after testing eliminates the software's most critical bugs. Furthermore, testing maintains client satisfaction by delivering what they need.

**Are there any exceptions in which the testing stage would occur earlier or later than it typically does in the SDLC? Explain.**

Early tests are typically more suitable for waterfall models instead for Agile/Scrum models. Identifying critical bugs early in the testing and release cycles can help improve product quality. Further, it assists the Development Team in stabilizing code early on to minimize the collateral damage caused by bug fixes. When defects are identified later in the SDLC, they are more expensive to resolve than those found earlier. For this reason, early testing is vital to prevent defects from being introduced at the earliest possible stage. The testing phase may occur later in the project, in which case revisions to the program may be necessary. For instance, there may be problems with the software or the client changes requirements, and modifications need to be made before testing can begin.