**2-2 Journal: Dynamic and Static Testing**

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**What is Static Testing**

Static testing is a technique used to test software without executing the code. Static testing includes using requirements or specification documents that need to be reviewed to remove any errors and ambiguities within the document to prevent defects in the code. Once complete, a static analysis analyzes the structural flaws or systematic programming weaknesses that can lead to a fault. Static testing uses verification to check if the software agrees with the specifications.

**What is Dynamic Testing**

Dynamic testing is a technique used to test the software by executing the code, the final software, or the hardware product. Dynamic testing validates software applications to ensure the software functions under different environments, such as during and after installation and has a stable and consistent application with minor flaws. Dynamic checks determine whether the software meets the customer’s expectations and requirements.

**Differences Between Static and Dynamic Testing**

Some differences between static and dynamic testing include how it is tested, its purpose, and the cost of defects. The main difference between static and dynamic testing is how the software is tested. Static code is only carried out against work products without executing the code, while dynamic testing must run the code, the final software, or hardware product to test. Static testing's purpose is to help improve the consistency and quality of work products, whereas dynamic testing focuses on external behaviors. Since static testing is performed during the verification stage, finding and fixing defects is cheaper than dynamic testing. Dynamic testing is committed towards the end of the cycle during the validation stage. Since the validation stage is later than the verification stage, finding and fixing defects is much more expensive.

**Importance of Static and Dynamic Testing**

Understanding the importance of static and dynamic testing because both techniques are essential in helping identify and fix defects at various stages of the software development lifecycle. Static and Dynamic testing aims to find defects as soon as possible to reduce release defects in the software. Awareness of the roles in static and dynamic testing will ensure the software's quality is delivered while minimizing any costs regarding fixing the defects later in the development.