

## **Book Questions**

### **Chapters 8**

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8.2 Explain why testing can only detect the presence of errors, not their absence.

Ans: Every system should go through a detailed and methodical testing procedure before the software system is delivered. Even if this is case, there might still be the possibility of errors which might not have been detected. This is because most test cases only check whether the code executes. If there is a problem in the program output, but the code executes, the program output issue will not be detected. If there are other programs or components within the system which depend upon the output of the tested program, it can cause several issues downstream.

8.5 What is regression testing? Explain how the use of automated tests and a testing framework such as JUnit simplifies regression testing.

Ans: Regression testing, as the name implies tries to ensure that a system can perform the task(s) it was originally created to do using newly installed or updated system components. It strives to ensure that the new system components sync with the original system setup and can provide updated functionality.

Automated tests and testing frameworks such as Junit simplify regression testing by reducing both testing time and cost. Automated tests usually constitute of previously constructed test checks. Unnecessary manual testing may be avoided and will hence reduce costs. Also, they can be programmed to run automatic tests each time a change or modification is made to a system component.

8.8 What do you understand by the term stress testing? Suggest how you might stress-test the Mentcare system.

Ans: Stress testing refers to determining the threshold of a given system's design load upper limit. This form of testing aims to find the point at which the system just begins to degrade so that measures can be taken to avoid the degradation or provide a model of systematic degradation as opposed to an uncontrolled degradation.

Stress testing for the Mentcare system can be done by testing the following parameters:

1. Client records addition: During the specifications and requirements gathering process, the design team will determine the upper limit to how many client records can be uploaded to the system at a given team. Simulation testing will be carried out to

determine whether threshold limit matches that of the approximation made the requirements gathering process.

2. Client record access: A test scenario will be simulated where-in several client records information will be accessed at the same time to test the point of degradation. Procedures to remediate the degradation will also be ascertained.
3. Client records download: A test scenario will be simulated where-in several client records will be downloaded at the same time to test the bandwidth stability of the Mentcare system server.