Assignment No 5.

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Q1 Explain Various tools ?-

→ Here is an overview of various software testing tools commonly in different type of testing. These tools helps automate, manage and simplify the testing process across different testing levels & categories.

a) Automation Testing Tools:-

Automation testing tools are used to automate repetative tasks, execute test cases, and generate reports without human intervention.

example: Selenium:- Open-source tools for automating web applications. supports multiple browsers language & operating system.

b) Performance Testing Tools:-

Performance testing tools assess the performance, scalability and stability of sw under carrying workload.

example:-

Jmeter:- Opene-Source performance testing tools. Simulate heavy load on servers, networks, or application, supports different protocol.

c) Test Management Tools:-

Test management tools help organize execut and tracke testing altivities.

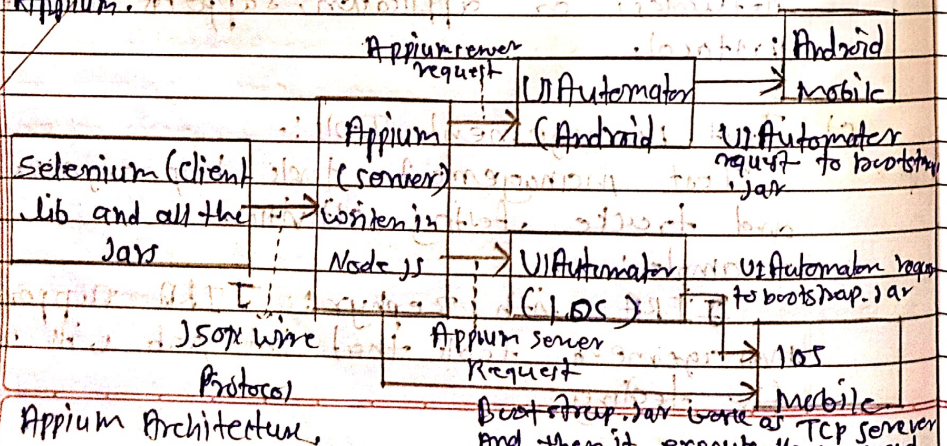
example:-

JIRA with zephyr:- JIRA support management tools that integrate with zephyer for testing.

d) Defect Tracking tools :-
These tools are used to log, manage and track defects found during the testing process.
example :-
Bugzilla :- A web based bug-tracking tools from mozilla that helps developers and testers track issues throughout the project lifecycle.

Q2. Write Appium Architecture, How it works?
→ Appium Architecture :-
Appium is an open source automation testing tool used for testing mobile appl^n (android, ios,) as well as desktop and hybrid apps.
Appium follows a client - server architecture ~~with~~ which allow it to support cross platform mobile testing making it versatile and flexible.

How does Appium work :-
Let's have a look at the working of Appium framework with respect to webdrivers protocols client-server communication, Appium sessions & JSON wire protocol. Below are the some working parts of Appium.



Appium Architecture.

a) WebDriver :- The WebDriver protocol is used to enable automation of tasks similar to those performance by a human user. The protocol offers a range of various command that similarly comman interactions with an application such as navigation clicking or retrieving.

b) Client-server communication :-
The client could be an automation engineer who has written scripts in Java, Ruby, python or C#. The role of server is played by Appium itself. Appium server acts as a bridge both the client and the mobile device or emulators.

c) Appium session :- Upon receiving the HTTP request the Appium server interprets the command & execute it on the connected mobile device or emulators. The execution involves interacting with the mobile application user interface.

d) JSON Wire Protocol :-
JSON wire protocol is a wire protocol used WebDriver for communication both the client and the server. It specifies the format of the message exchanged b/w them.
Appium using a WebDriver implementation adheres to the JSON wire protocol.
This means that commands sent from the client are formated as JSON objects.

Q3. Write Jmeter feature & how it works?

→ Apache Jmeter is an Opensource performance testing tools designed to load test applⁿ and measure their performance under varying conditions. It is highly versatile and widely used for testing web appn database, FTP server web services and more.

* Key features :-

i) Open source & free :-
Jmeter is entirely free & open-source, making it accessible to anyone without licensing cost.

ii) Cross - platform capatability :-
Built in Java. Jmeter runs on various platform.

iii) Supports multiple protocols :-
Jmeters support various protocols for testing.

iv) GUI & command line mode :-
Jmeter provides an intuitive and user-friendly GUI for configuration test.

v) Flexible :-
you can create complex test plans with multiple thread group, loops, condition and assertions.

* How JMeter work :-
Jmeter simulate multiple user interacting with web application or system to test its performance under load.

a) Creating Test plan :-
The Test plan in Jmeter define the overall structure of your load testing including the thread groups, sampler, and listeners.

b) Adding thread Group :-
Thread group define the number of virtual user that Jmeter will simulate.

c) Adding sampler :-
Sampler test Jmeter which request to send to the server. Some of the most common samplers include - HTTP request, FTP request, JDBC Request sampler.

d) Configuration HTTP Request Defaults :-
To avoid specifying the same details for every request, you can configure HTTP request Default.

Q4. Write short Note on TestNG?

→ TestNG is popular testing framework inspired by JUnit and NUnit, designed for automating unit, functional, end-to-end, and integration test. It is widely used for testing Java appⁿ and provides powerful features to simplify the testing process.

The "NG" in Testing TestNG stands for "Next Generation", highlighting its advanced capabilities beyond other testing frameworks

* Key feature :-

a) Annotation :-

TestNG uses annotations like @Test, @BeforeMethod, @AfterMethod, @BeforeClass and @AfterClass to define test methods & setup.

b) Test configuration :-

TestNG allows for grouping, prioritizing and parameterizing test easily. It supports the configuration of test suits.

c) Parallel Execution :-

It Supports running test methods or classes in parallel, enabling faster execution, specially usefull for larger test sutest.

d) Test Case Dependency :-

Test cases can be dependent on each other using the depends on methods and depends on Groups attributes.

e) Reporting :-

It generates detailed HTML reports by default and can be integrated with other reporting tools.

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16/10/24