The advantages of build automation to software development projects include

1.A necessary pre-condition for continuous integration and continuous testing

2.To Improve product quality

3.Accelerate the compile and link processing

4.Eliminate redundant tasks

5.Minimize "bad builds"

6.Eliminate dependencies on key personnel

7.Have history of builds and releases in order to investigate issues

8.Save time and money - because of the reasons listed above.

Automation Based on the Type of Tests

>Unit Tests:

Unit Tests are the tests which are used to test the code of an application. They target the coding standards like how the methods and functions are written.

>Smoke Tests:

The smoke test is a famous test performed in the test life cycle. These are post-build tests, they are executed immediately after any build is given out of the application to ensure that the application is still functioning after the build is done.

>API tests:

In API testing, the testers validate the business layer of the application by checking the request-response combinations for the various API's on which the application is built. They can also be done as a part of integration testing.

Integration Tests:

It means testing the application by integrating all the modules and checking the functionality of the application.

UI tests:

These are used for testing the functionality or simply test the UI elements of an application.

Regression tests:

Regression, is the test that is done at the end of testing a new module to ensure that none of the existing modules have been affected by it.

It is repeated after each new iteration of testing and the main test cases stay fixed with usually a few new additions after a new iteration. As it is frequently run almost all the test teams try to automate this pack.

>Frontend testing tools:

JS testing tool:

1. Jasmine

It is a is a behavior-driven development framework to test JavaScript code. Th tool focuses more on the business value than on the technical details. It has a clean syntax which helps you to write tests easily. It does not depend on any other JavaScript frameworks. It is heavily influenced by unit testing frameworks, such as JSSpec, ScrewUnit, JSpec, and RSpec.

>Functional testing tool:

2. Selenium

Selenium is a frontend testing tool. It performs end to end testing across various browsers & platforms like Mac, Windows, Mac, and Linux. It allows you to write tests in different programming languages like Java, PHP, C#, etc. The tool offers record and playback features to write tests without a need to learn Selenium IDE.

>Cross-Browser Testing Tool:

3. LambdaTest

In this test, Users can perform automated web testing using its scalable, secure, and reliable cloud based Selenium grid on a combination of 2000+ real browsers and browser versions to maximize your test coverage.

>CSS tool:

4. Needle

The needle is a Front testing tool for testing CSS. It checks that visuals elements like font/CSS/images render correctly by taking screenshots of certain portions of your website. After that, the tool compares with some known good screenshots. It also allows testers to calculated CSS values and the position of HTML elements.