6.TestTools–20minutes

Keywords

testautomation

LearningObjectivesforChapter6:

6.1 ToolSupportforTesting

FL-6.1.1 (K2)Explainhowdifferenttypesoftesttoolssupporttesting

6.2 BenefitsandRisksofTestAutomation

FL-6.2.1 (K1)Recallthebenefitsandrisksoftestautomation

6.1. ToolSupportforTesting

Testtoolssupportandfacilitatemanytestactivities.Examplesinclude,but arenotlimited to:

- Managementtools–increasethetestprocessefficiencybyfacilitatingmanagementof theSDLC, requirements, tests, defects, configuration
- Statictestingtools–supportthetesterinperformingreviewsandstaticanalysis
- Testdesignandimplementationtools–facilitategenerationoftestcases,testdataandtest procedures
- Testexecutionandcoveragetools –facilitateautomatedtestexecutionandcoverage measurement
- Non-functionaltestingtools–allowthetesterto perform non-functionaltestingthatisdifficult or impossible to perform manually
- DevOpstools–supporttheDevOps delivery pipeline,workflowtracking,automatedbuild process(es), CI/CD
- Collaborationtools–facilitatecommunication
- Toolssupportingscalabilityanddeploymentstandardization(e.g.,virtualmachines, containerization tools)
- Anyothertoolthatassistsintesting(e.g.,aspreadsheetisatesttoolinthecontextoftesting)

6.2. BenefitsandRisksofTestAutomation

Simplyacquiring atooldoes notguaranteesuccess.Eachnewtoolwillrequireefforttoachieve real and lasting benefits (e.g., for tool introduction, maintenance and training). There are also some risks, which need analysis and mitigation.

Potentialbenefitsofusingtestautomationinclude:

- Timesavedby reducingrepetitivemanualwork(e.g.,executeregressiontests,re-enterthesame test data, compare expected results vs actual results, and check against coding standards)
- Prevention of simple human errors through greater consistency and repeatability (e.g., tests are consistentlyderivedfromrequirements,testdataiscreatedinasystematic manner,andtests are executed by a tool in the same order with the same frequency)
- Moreobjectiveassessment(e.g.,coverage)andprovidingmeasuresthataretoo complicatedfor humans to derive
- Easieraccesstoinformationabouttestingtosupporttestmanagement and testreporting(e.g., statistics, graphs, and aggregated data about test progress, defect rates, and test execution duration)
- Reducedtestexecutiontimestoprovideearlierdefectdetection,fasterfeedback andfastertime to market
- Moretimefortestersto design new,deeper andmoreeffectivetests

Potentialrisksof usingtestautomationinclude:

- Unrealisticexpectationsaboutthebenefitsofatool(includingfunctionalityandeaseofuse).
- Inaccurateestimations oftime, costs,effortrequiredtointroduceatool, maintaintestscriptsand change the existing manual test process.
- Usingatesttoolwhenmanualtestingismoreappropriate.
- Relyingonatooltoomuch,e.g.,ignoringtheneedofhumancriticalthinking.
- Thedependencyonthe toolvendorwhichmay gooutof business,retirethetool,sellthetooltoa different vendor or provide poor support (e.g., responses to queries, upgrades, and defect fixes).
- Usinganopen-sourcesoftwarewhichmaybe abandoned,meaningthat nofurtherupdates are available, or its internal components may require quite frequent updates as a further development.
- Theautomationtoolisnotcompatiblewiththedevelopmentplatform.
- Choosinganunsuitabletoolthatdidnotcomplywiththeregulatoryrequirementsand/orsafet y standards.