PGPI

Tools

Práctica 9

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Tool selection

Version Control Tools

Tool Name	**Git**
URL	https://git-scm.com/
Cost	0
Featured Characteristics	• Provides strong support for non-linear development. • Distributed repository model. • Compatible with existing systems and protocols like HTTP, FTP, ssh. • Capable of efficiently handling small to large sized projects. • Cryptographic authentication of history. • Pluggable merge strategies. • Toolkit-based design. • Periodic explicit object packing. • Garbage accumulates until collected.
Limitations	• Not recommended to be used when handling big amounts of data or constantly changing binaries. • Cannot be used to manage multiple branches.

Tool Name	**CVS (Concurrent Versioning System)**
URL	https://savannah.nongnu.org/projects/cvs
Cost	0
Featured Characteristics	• Client-server repository model. • Multiple developers might work on the same project parallelly. • CVS client will keep the working copy of the file up-to-date and requires manual intervention only when an edit conflict occurs • Keeps a historical snapshot of the project. • Anonymous read access. • 'Update' command to keep local copies up to date. • Can uphold different branches of a project. • Excludes symbolic links to avoid a security risk. • Uses delta compression technique for efficient storage.
Limitations	• No integrity checking of source code • Commits are not atomic • Poor support for distributed source control. • Mainly oriented towards text files only.

Tool Name	**Monotone**
URL	https://github.com/graydon/monotone

Cost	0
Featured Characteristics	• Provides good support for internationalization and localization. • Focuses on integrity over performance. • Intended for distributed operations. • Employs cryptographic primitives to track file revisions and authentications. • Can import CVS projects. • Uses a very efficient and robust custom protocol called netsync.
Limitations	• Unable to check out from behind proxies • Performance issues • Not as popular as other choices • Lacks visual interfaces

Compilation tools

Tool Name	**Microsoft Build Engine**
URL	https://docs.microsoft.com/es-es/visualstudio/msbuild/msbuild?view=vs-2019
Cost	0
Featured Characteristics	• Useful tool in automation • Easily accessible • Shares build system with Visual Studio
Limitations	• Long documentation needed to get started • Uses XML syntax, which might not be too intuitive

Tool Name	**Apache Ant**
URL	https://ant.apache.org/
Cost	0
Featured Characteristics	• Highly portable • Flexible • Extensible, and with multitude plugins
Limitations	• Complex XML syntax • Limited fault handling rules • Lazy property evaluation not supported

Tool Name	**Maven**
URL	https://maven.apache.org/
Cost	0
Featured Characteristics	• Comfortable to use • Multitude of plugins to incorporate • Focused on automation • Integration of testing in it

Limitations	• Slow • Can be unreliable • Can't depend on the newest version of something • Mainly focused on Java development

Test Automation Tools

Tool Name	**TestingWhiz**
URL	https://www.testing-whiz.com/
Cost	$149.00/month/user
Featured Characteristics	• Automation • Can be used to schedule jobs • Risk-based testing included • Mobile testing support • Keyword-driven, data-driven testing, and distributed testing • Browser Extension Testing
Limitations	• False sense of quality due to automation • Slow feedback • Requires maintenance time

Tool Name	**HPE Unified Functional Testing (HP – UFT formerly QTP)**
URL	https://www.microfocus.com/es-es/products/uft-one/overview
Cost	$3,200 anual
Featured Characteristics	• Integration with Mercury Business Process Testing and Mercury Quality Center • Unique Smart Object Recognition • Error handling mechanism • Creation of parameters for objects, checkpoints, and data-driven tables • Automated documentation
Limitations	• Funky behaviour may happen • Not supported for certain browsers • Any web-based environment like SAP, .NET WebForms ext.. is not supported

Tool Name	**TestComplete**
URL	https://smartbear.com/product/testcomplete/overview/
Cost	€2,135 per user
Featured Characteristics	• GUI testing • Scripting Language Support – JavaScript, Python, VBScript, JScript, DelphiScript, C++Script & C#Script

	• Test visualizer • Scripted testing • Test recording and playback
Limitations	• Limited browser support • Continuous integration only with AQtrace and AQtime integration. • Provides results in a single pane instead of a summary or report

Continuous integration tools

Tool Name	**Travis CI**
URL	https://travis-ci.com/plans
Cost	$228 USD per month
Featured Characteristics	• Automatic integration with GitHub. • Repository access to build pull requests. • Support for 21 languages like Android, C, C#, C++, Java, JavaScript • Pre-installed build & test tools.
Limitations	• Hard to configure sometimes • Not many customization options, inflexible • Cannot be integrated with other 3rd party tools

Tool Name	**Bamboo**
URL	https://www.atlassian.com/software/bamboo
Cost	Free for open source / $10 for up to 10 users annually or $1270 for unlimited users annually
Featured Characteristics	• Built in git branching • Built in integration with other Atlassian tools, ej Jira • Built in failure analysis system • Can be used to import data from Jenkins
Limitations	• Alien nomenclature • No passing of properties • No concept of inherited project structure

Tool Name	**Jenkins**
URL	https://jenkins.io/
Cost	0
Featured Characteristics	• Constant community support • Easy to install • Portable • Multitude of plugins to incorporate • Flexible
Limitations	• No visibility to the analytics

	• Problems tracking the accountability of changes made in the code • Doesn't allow the viewing of changes made by other team members • Requires multiple plugins to solve various issues

Bug Tracking Tools

Tool Name	**JIRA**
URL	https://www.atlassian.com/es/software/jira
Cost	$100 annually
Featured Characteristics	• Highly configurable • Very flexible • Can easily be modified via interfaces • Can be used to track time in tasks
Limitations	• Can handle up to 40000 issues only • JQL search and JIRA-based saved filters are not supported • Custom filed types are not supported • Can be hard to set up and use initially

Tool Name	**Backlog**
URL	https://backlog.com/
Cost	$100 monthly
Featured Characteristics	• Easy to use • Jira and Redmine support • IP address control
Limitations	• Lacks customization • Depending on project might require more storage space • No internal document creation

Tool Name	**Bugzilla**
URL	https://www.bugzilla.org/
Cost	0
Featured Characteristics	• Easy to use and handle • Easy to integrate in test management instruments • Automates documentation
Limitations	• Hard to manage logged in errors • Might have code defects • Can handle real time release tracking

Comparison Table

Version Control Tools

Criteria	Weight	Git	CVS	Monotone
Price	10%	5	5	5
Usability	30%	5	2	3
Project Suitability	60%	5	3	1
Total	100%	15	10	9

Compilation tools

Criteria	Weight	Microsoft build	Apache Ant	Maven
Price	10%	5	5	5
Suitability	40%	5	4	2
Learning complexity	50%	3	3	2
Total	100%	13	12	9

Test Automation Tools

Criteria	Weight	TestingWhiz	HPE	TestComplete
Price	10%	3	3	4
Report generation	20%	4	5	4
Project Suitability	50%	5	4	5
Integration	30%	5	5	5
Total	100%	17	17	18

Continuous integration tools

Criteria	Weight	Travis CI	Bamboo	Jenkins
Price	10%	3	4	5
Flexibility	20%	4	5	5
Setup Requirements	10%	3	4	2
Integration	40%	2	4	3
Total	100%	12	17	15

Bug Tracking Tools

Criteria	Weight	Jira	Backlog	Bugzilla
Price	10%	4	3	5
Ease of Use	30%	4	5	5
Futureproof	30%	5	4	2
Configurable	30%	5	2	3
Total	100%	18	14	15

Tools Chosen

Tool Type	Tool	Justification
Version Control Tools	Git	It's free and very easy to use
Compilation tools	MSBuild	Easily accessible Useful tool in automation
Test Automation Tools	Travis IC	Automatic integration with GitHub. Support for 21 languages
Continuous integration tools	Bamboo	Built in integration with other Atlassian tools, ej Jira Built in git branching
Bug Tracking Tools	Jira	Very flexible Highly configurable Can easily be modified via interfaces