Software quality and testing

2nd course

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Environment and tools

- Visual Studio Code preferred
- Git cmdlet
- Gradle toolchain

Git in a nutshell

- Generally works from cmd, powershell
- Cloning a repository: git clone <repo>
- Getting status of current cloned repo: git status
- Adding untracked/new and changed files to commit: git add <file>
- Commiting changes to local repo: git commit -m "Commit msg"
- Upload changes to remote: git push
- Getting changes from remote: git pull (automerges by defaults)
- Merging branch to current: git merge <branch_name>

Best source to learn git: https://learngitbranching.js.org/

Example .gitconfig file

```
[alias]
graph = log --graph --abbrev-commit --decorate --format=format:'%C(bold blue)%h
%C(reset) - %C(bold green)(%ar)%C(reset) %C(white)%s%C(reset) %C(dim white)-
%an%C(reset)%C(bold yellow)%d%C(reset)' --all
graph1 = log --graph --abbrev-commit --decorate --format=format:'%C(bold blue)%h
%C(reset) - %C(bold cyan)%aD%C(reset) %C(bold green)(%ar)%C(reset)%C(bold
yellow)%d%C(reset)%n''          %C(white)%s%C(reset) %C(dim white)- %an%C(reset)'
--all
lg = !"git lg1"
[user]
        email = email address
        name = username
[core]
        editor = 'C:/Program Files/Notepad++/notepad++.exe' -multiInst -nosession
        compression = 1
[merge]
        tool = winmerge
[mergetool "winmerge"]
        cmd = \"C:\\Program Files (x86)\\WinMerge\\WinMergeU.exe\" -e -u -dl \"Base\" -
dr \"Mine\" \"\" \"\" \"\"
[mergetool]
        prompt = false
[diff]
    tool = winmerge
[difftool "winmerge"]
    cmd = "'C:/Program Files (x86)/WinMerge/WinMergeU.exe'" -e "$LOCAL"
"$REMOTE"
```

Git in a nutshell

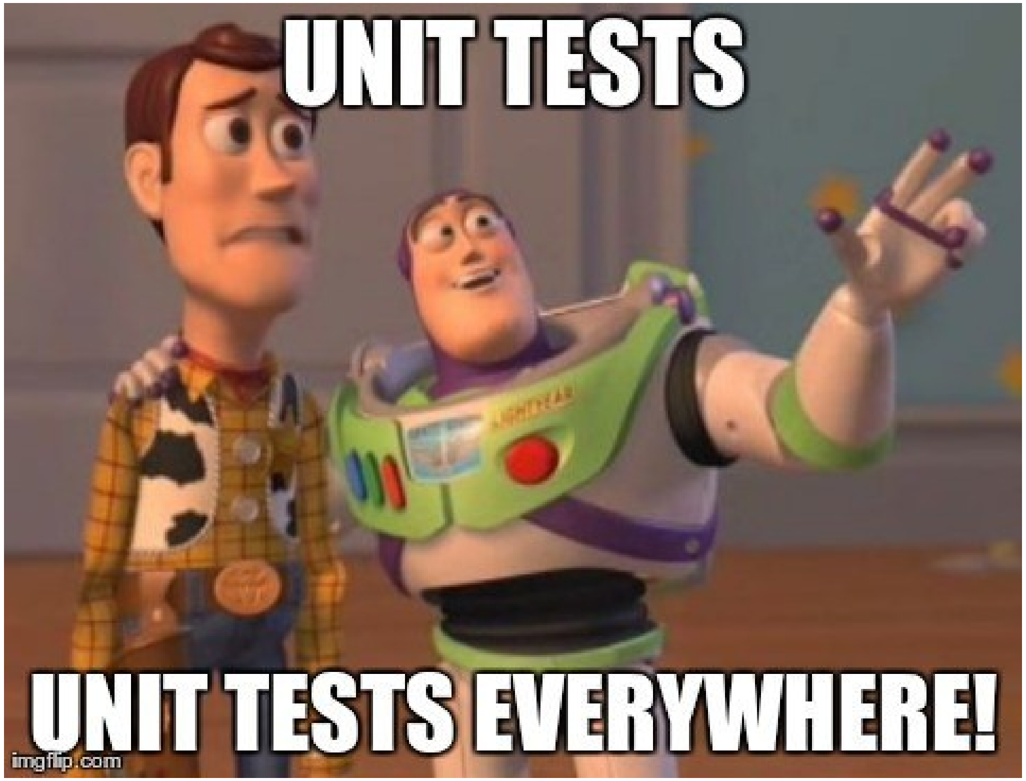
- Generally works from cmd, powershell
- Initializing new project:gradle init

This applies to powershell env:

- Compling/building cloned project: ./gradlew.bat build
- Building and running tests: ./gradlew.bat test
- Checking report: build/reports/tests/test/index.html

Unit testing frameworks

- **Junit**

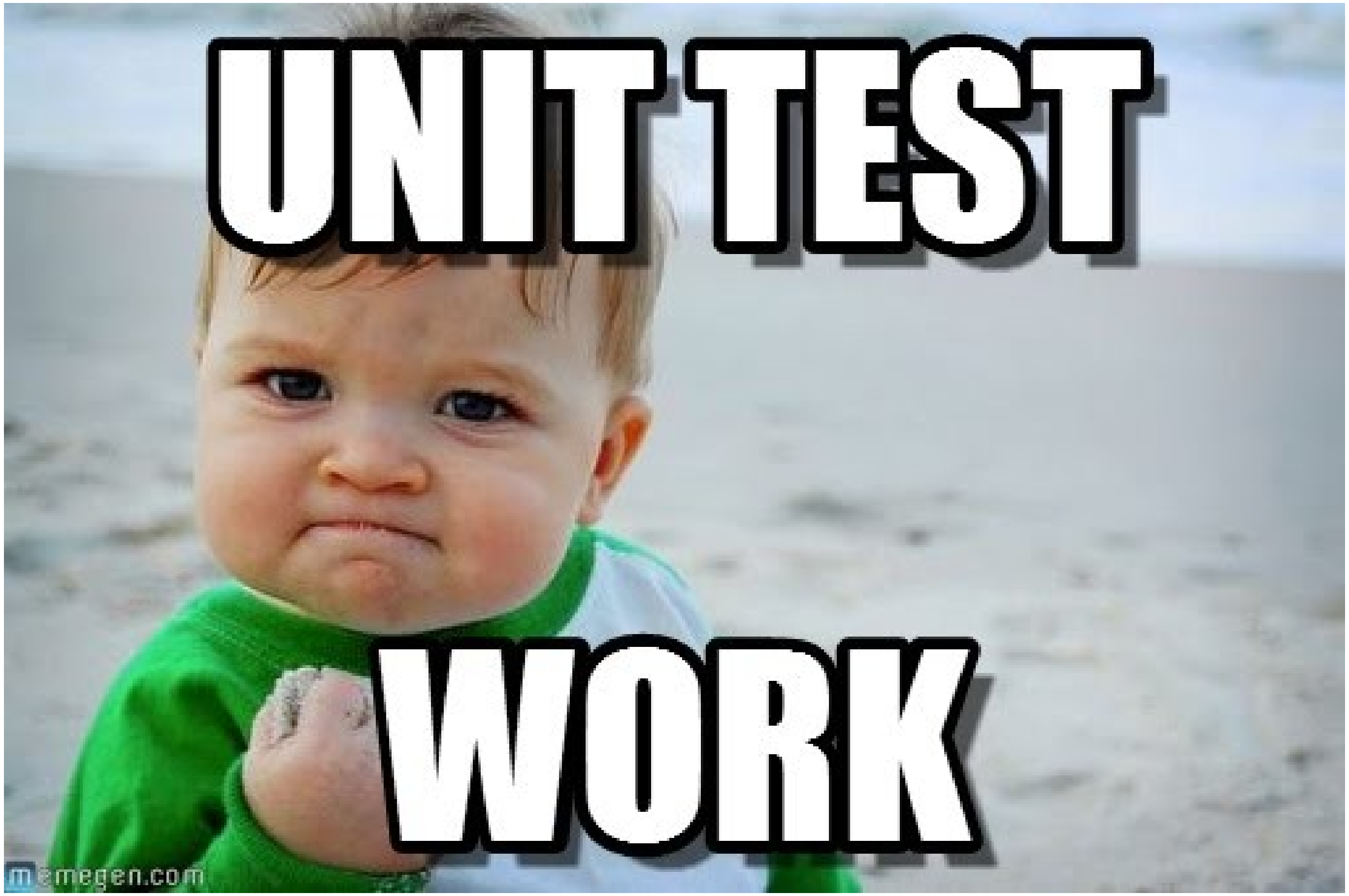


Coverage metrics and tools

Coverage criteria

- Function coverage
- Statement coverage
- Branch coverage
- Condition coverage
  - If a and b then
  - Does not imply branch coverage
  - Modified condition/decision coverage
  - Multiple condition coverage
- Parameter value coverage

The most important



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