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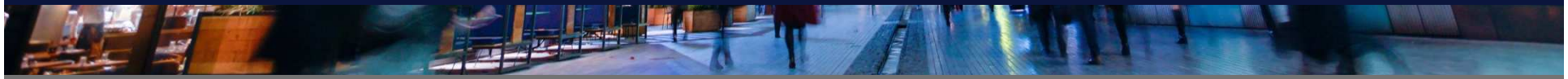

# Test our Coffee

## Test Automation: Building blocks

PSTQB
ASSOCIAÇÃO PORTUGUESA
DE TESTES DE SOFTWARE

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Hitachi Consulting
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# Agenda

- First things first
- Test automation 101
- Product architecture types patterns


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# First things first

- There are always three main axes in organizations:
  - People - allow delivery, evolution and critical thinking
  - Processes - allow a standard way of work
  - Tools - allow the above two axes to work with **less effort**
- Why should test activities be different?

Source: http://aecbusiness.com/wp-content/uploads/2014/09/PeopleProcessTechnology-01.png


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# Test automation basics

- Automated tests **do not** aim to find bugs
  - They aim to avoid repetitive manual execution

- Reduce test isolation:
  - Integrate automated tests into existing development delivery cycle
  - If a test fails, fail the build
- Reuse
  - Do not reinvent the wheel (unless the wheel is square)


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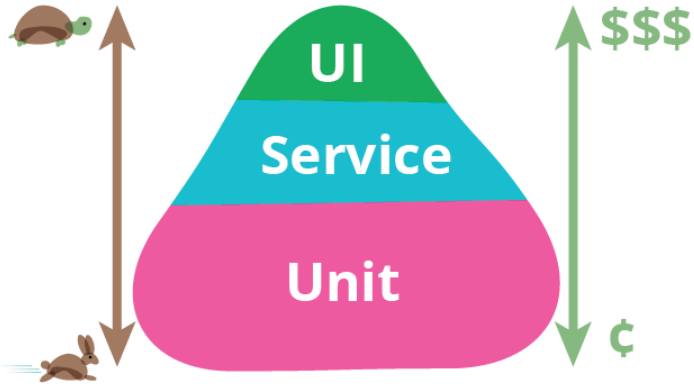
# Test automation basics

- Remember the test pyramid:
  - Code coverage may not be translated in good unit tests
  - API – the basis of testing
  - UI for user flow
- Learn a programming language




Source: https://martinfowler.com/bliki/images/testPyramid/test-pyramid.png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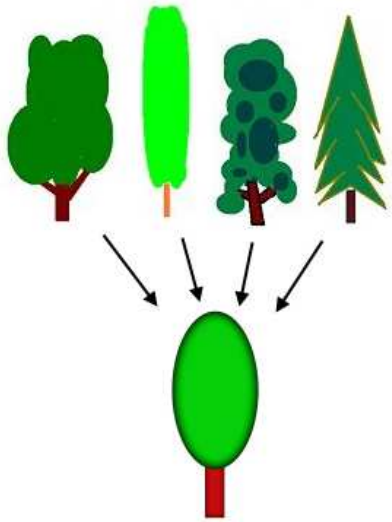
# Spoiler alert

- Generalization
  - "...a fallacy of defective induction is a conclusion that has been made on the basis of weak premises"

https://en.wikipedia.org/wiki/Faulty_generalization



Source:https://commons.wikimedia.org/wiki/File:Generalization_process_using_trees_PNG_version.png#/media/File:Generalization_process_using_trees_PNG_version.png

- Perceptions
  - "I'm not crazy. My reality is just different than yours." - Lewis Carroll



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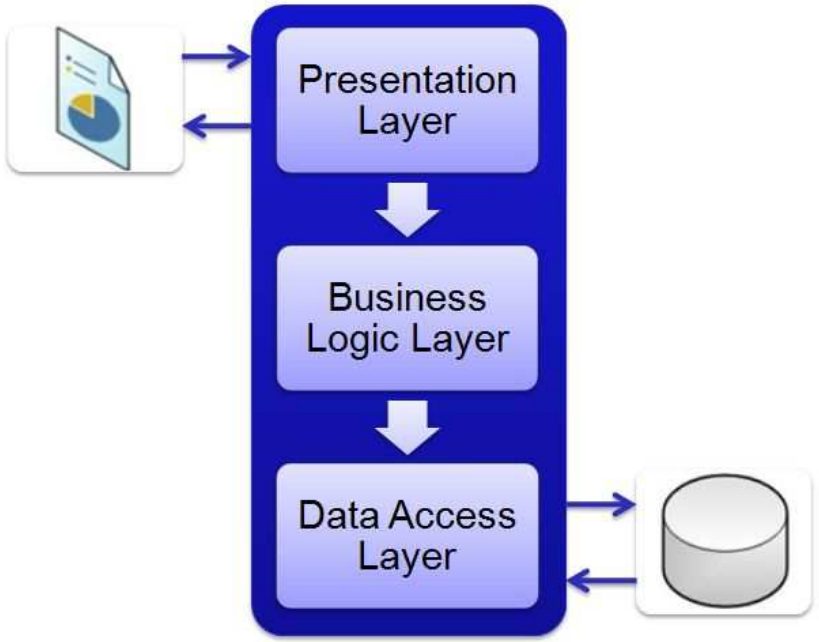
# Product architecture types patterns

- Client
  - Thin client (Web, Mobile)
  - Thick client (Desktop, Mobile)
- Server
  - Web Services (REST,SOAP)
  - BackOffice (TCP, UDP,FTP)
- Database
  - Text (CSV,XML),SQL,NoSQL




Source: https://www.codeproject.com/KB/cs/Three_Layer_Architecture/3lyrs2.jpg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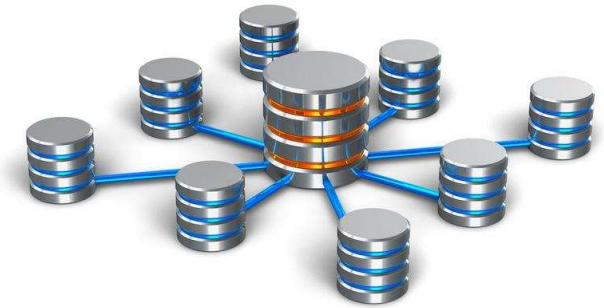
# Database
## What to consider for test automation

- Avoid data structure duplication
- Manage test data directly
  - Avoid dependency with existing system
- Use direct DB connectors
  - There is an adaptor for that
- Tools
  - Dapper (C#)
  - MassiveJS (Javascript)



Source: https://socialads.guru/wp-content/uploads/2016/09/db14.jpg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# Server – WebServer
## What to consider for test automation

- Confirm API stores correct data
  - Transformations
- Check input validation, security, performance
- Avoid low level scripting
  - Create / reuse tools to have an abstraction on the network level.
- Tools
  - RestSharp (C#)
  - Chakram (Javascript)
  - Rest-Assured (Java)


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# Server – BackOffice
## What to consider for test automation

- There's no easy way to test it
  - Option 1 - Test each component separately
  - Option 2 - Test entry-point component (only when proper logging is set)
- Strong communication is required
- Tools
  - Custom made only?


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# Client - Generic Validations
## What to consider for test automation

- Check actions and flow
- Check UI data validation
- Confirm correct data is being sent to the server
- Check layout responsiveness to different screen sizes
- Different devices, browsers and OS


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# Client - Specific Validations
## What to consider for test automation

- Thin Client
  - UI performance
    - Time to load, number of request made, resources size, …
  - Tools
    - Selenium, Protractor, Lean UFT, Appium
    - Applitools (Visual Validation)
- Thick Client
  - Tools
    - UFT, Lean UFT, Appium


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# How to start test automation

- Study
  - Read what do others say
- Set you goals
- Have sponsorship from your team
  - All around you, above and below
- Plan automation project
- Select the tools

Source: https://www.digitalcombatsimulator.com/upload/iblock/670/CheckList.png



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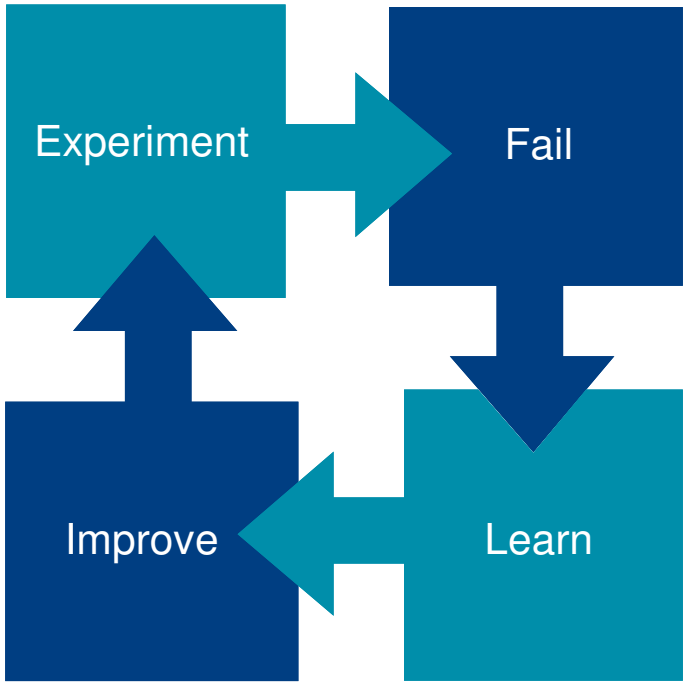
# How to evolve test automation



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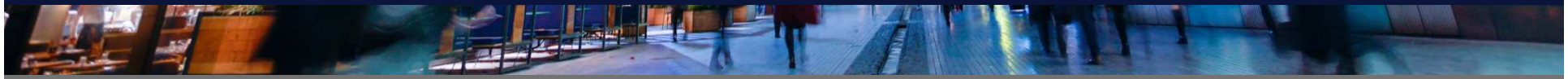

# Thank You



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