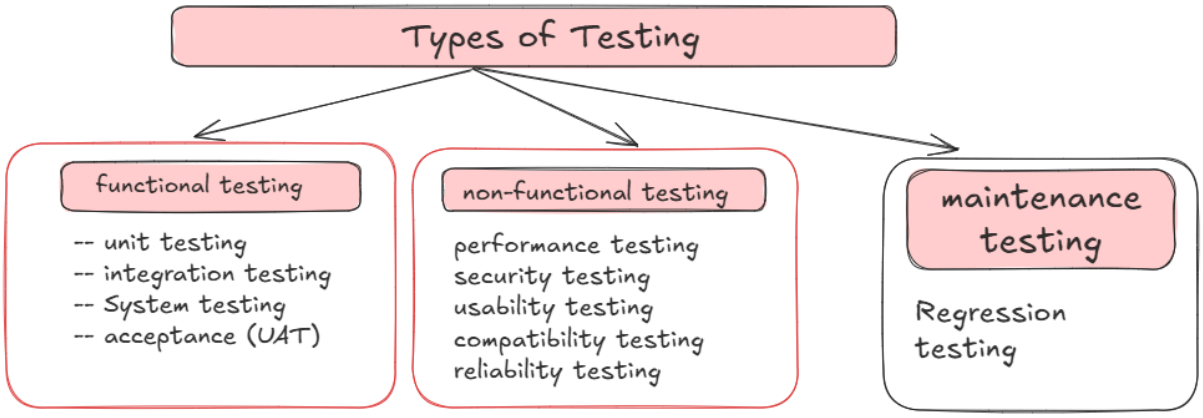
Types of Testing



Relationship between Testing and Devops

CI/CD

Automated Testing

- In CI/CD every time when code change, it must test before deployment
- stages for testing (unit, integration, functional)
- if all good then proceed with deployment otherwise stop the process of deployment.

Shift-Left Testing

- Start the testing at very early stage
- it reduces the cost and time for bug fixing

Shift-right testing

- testing continues after the deployment
- check: performance, monitoring
- UAT (user acceptance testing)

Automation

- improve speed of development process
- frameworks: selenium, junit, Cypress, JEST

IaC Testing

- Terraform / Ansible

Testing Approach:

TDD (test driven development)

BDD (Behaviour Driven Development)

Setup Python Test Case
Create file calculator.py

```
def add(num1,num2):
return num1+num2

def sub(num1,num2):
return num1-num2

def mul(num1,num2):
return num1*num2
```

Create test_calc.py

```
from calculator import add, sub, mul

def test_add():
assert add(2,3) == 5
assert add(-1,1) == 0
assert add(0,0) == 0
def tes_sub():
assert sub(5,3) == 2
assert sub(0,4) == -4
assert sub(-1,1) == -2
# write test case for multiplication by your own
```

To run test case install pytest if not installed.

```
pip install pytest

#run below command
pytest
```

pytest command automatically detect your test cases means it will detect files starting with test keyword.

incase if pytest or pip command not found then you need to set path for python.

system setting --> advanced system settings --> environment variable --> path --> set python path
(C:\Users\NEW\AppData\Local\Programs\Python\Python313)

for executing other scripts this is the script path
set path = C:\Users\NEW\AppData\Local\Programs\Python\Python313\Scripts

incase if you are not able to set path then directly run commands

python -m pip --version
python -m pip install pytest
python -n pytest (this will run command as expected)