



TESTING 101

A crash course by Nikki Naidoo

ABOUT ME



Nikki Naidoo

Software Engineer by profession
Girl Guide by passion

nikki.naidoo@entelect.co.za



i

My name is Nikki Naidoo. I am a Software Engineer at Entelect.

I lead the Ladies that Code initiative so you can get hold of me via MeetUp or email.

ABOUT ME



I enjoy traveling to meet Girl Guides and Scouts around the world. Next year is India!

ABOUT ME



iii

I love ticking things off my bucketlist.

Recently
flew a plane
went sky diving
abseiled of Table mountain
went canoeing with penguins and seals

TABLE OF CONTENTS

What is Software Testing?	----- 01 - 02
Why is testing important?	----- 03 - 05
Who is responsible for testing?	----- 06 - 07
What are the types of testing?	----- 08 - 20
Functional vs non-functional testing	----- 21 - 24
Quiz: Types of testing	----- 25



TABLE OF CONTENTS

What is the testing lifecycle?	----- 26 - 34
How to write user stories?	----- 35 - 36
Activity: Writing user stories	----- 37
How can I get certified?	----- 38 - 39
Resources	----- 40 - 41
Final Q&A	----- 42



v

Feel free to ask questions throughout by raising your hand or typing it in the chat



01

WHAT IS SOFTWARE TESTING?

WHAT?

What is software testing to you?

WHAT IS SOFTWARE TESTING?

Software testing is a process of identifying the correctness of software by considering its all attributes and evaluating the execution of software components to find the software bugs, errors or defects

Attributes of Software

- Reliability
- Scalability
- Portability
- Reusability
- Usability





WHY IS TESTING IMPORTANT?

WHY IS TESTING IMPORTANT?

Save money

Security

Customer Satisfaction

Product Quality

Easy to add new features

Determines performance
of the software



04

The main intent of testing is to detect failures of the application so that failures can be discovered and corrected.

Business value:

- save money
- product quality
- safe from attack

Developer value:

- Testing gives surety of fitness of the software
- Easy to add new things without everything breaking

WHY IS TESTING IMPORTANT?



05

Let us keep this in mind, regardless of our profession!

WHO IS RESPONSIBLE FOR TESTING?



WHO IS RESPONSIBLE FOR TESTING?

**When I Avoid
responsibilities**



Ideally:

Test engineers,
Quality Assurance testers,
Quality Control testers

But actually:

The whole team



07

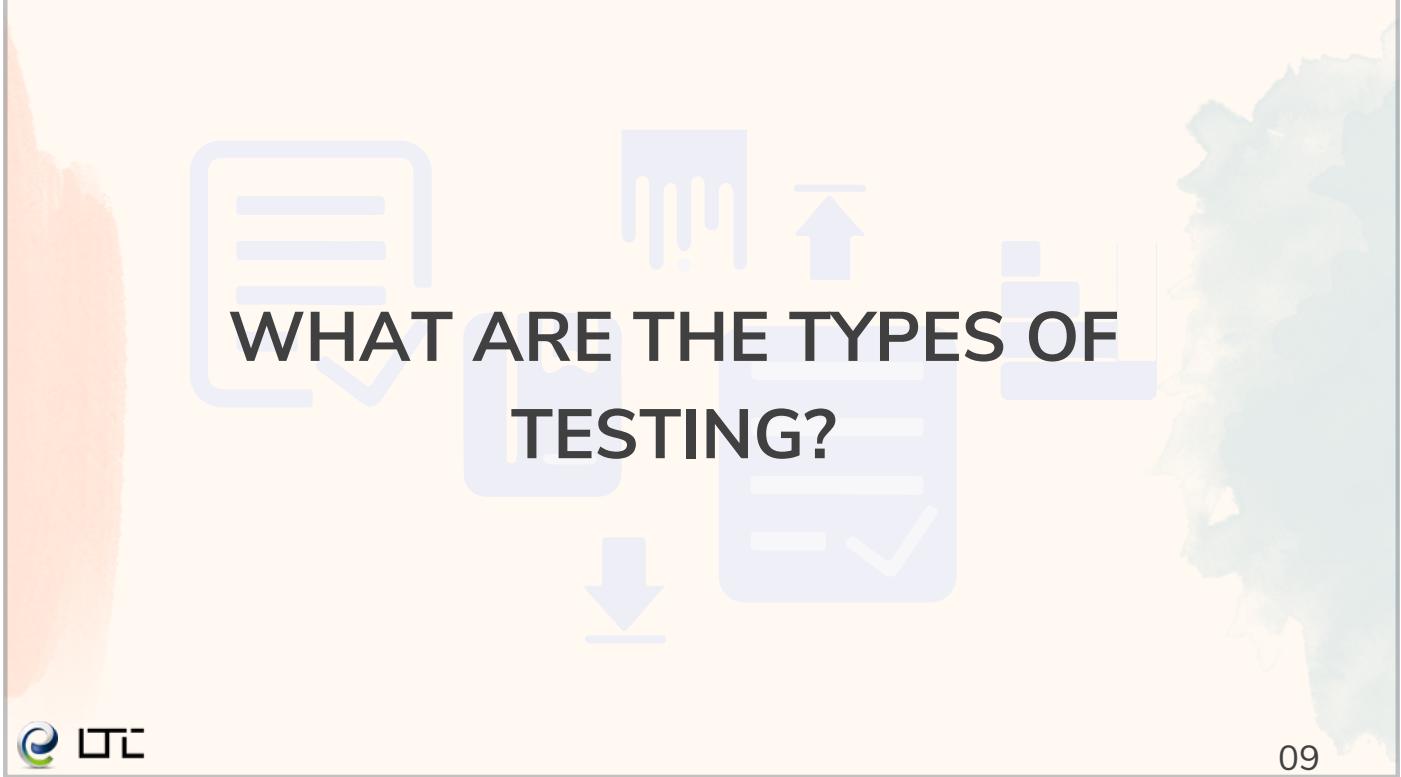
Each person is responsible for the quality of their own work. That leads to a high quality final product.

THEORY TIME!
EASY QUIZ COMING UP...



08

Pay attention!



WHAT ARE THE TYPES OF TESTING?

WHAT ARE THE TYPES OF TESTING?

Manual Testing

(performed by a human)

Automated Testing

(performed by a tool)



10

Manual:

We do not require any precise knowledge of any testing tool to execute the manual test cases. We can easily prepare the test document while performing manual testing on any application.

Automated:

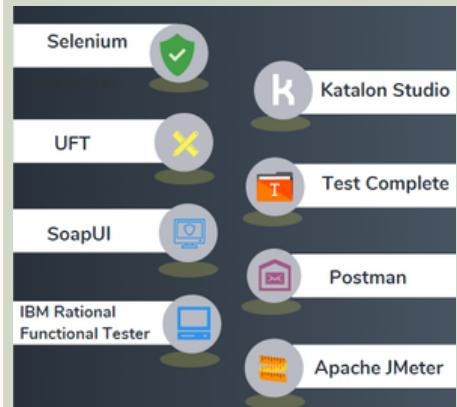
Run thousands of tests without you intervening

WHAT ARE THE TYPES OF TESTING?

Manual Testing Tools



Automated Testing Tools



11

Manual testing tools can help make your testing easier

Description of tools are out of scope since this is only a crash course

WHAT ARE THE TYPES OF TESTING?

Smoke Testing

Sanity Testing

Regression Testing

User Acceptance Testing

Exploratory Testing

Adhoc Testing

Security Testing

Globalisation Testing



WHAT ARE THE TYPES OF TESTING?

Smoke Testing

Sanity Testing

Tests an application's basic and critical features before doing one round of deep and rigorous testing.

Security Testing

Globalisation Testing



13

AKA Confidence Testing

WHAT ARE THE TYPES OF TESTING?

Smoke Testing

Sanity Testing

Used to ensure that all the bugs have been fixed and no added issues come into existence due to these changes.

Security Testing

Globalisation Testing



WHAT ARE THE TYPES OF TESTING?

Smoke Testing

Sanity Testing

Regression Testing

User Acceptance Testing

Re-test unaffected parts of an application after a code change.



15

Regression testing is the most commonly used type of software testing

WHAT ARE THE TYPES OF TESTING?

Smoke Testing

Sanity Testing

Regression Testing

User Acceptance Testing

Done by the individual team known as domain expert/customer or the client before accepting the final product.



16

User acceptance testing (UAT) in the UAT environment

WHAT ARE THE TYPES OF TESTING?

Whenever the requirement is missing; go through the application in all possible ways, make a test document, understand the flow of the application, and then test the application.

Exploratory Testing

Adhoc Testing

Security Testing

Globalisation Testing



WHAT ARE THE TYPES OF TESTING?

Check the application in contradiction of the client's requirements

Exploratory Testing

Adhoc Testing

Security Testing

Globalisation Testing



18

AKA Monkey testing, Gorilla testing, Negative testing

WHAT ARE THE TYPES OF TESTING?

Smoke Testing

Sanity Testing

Ensures that the data will be safe and the application is secure in the case of a nasty attack from outsiders.

Security Testing

Globalisation Testing



WHAT ARE THE TYPES OF TESTING?

Smoke Testing

Sanity Testing

Ensure that the application will support multiple languages and multiple features.

Security Testing

Globalisation Testing



20

Features like Time zones

FUNCTIONAL VS NON-FUNCTIONAL TESTING



21

Any questions so far?

FUNCTIONAL VS NON-FUNCTIONAL TESTING

Functional Testing

checks all the components systematically against requirement specifications

Non-Functional Testing

provides detailed information on software product performance and used technologies



22

Functional testing ensures the software works.

Non-functional testing will help us minimize the risk of production and related costs of the software.

It is therefore important to do Functional Testing FIRST, then non-functional testing

FUNCTIONAL TESTING

Unit Testing

A unit is defined as a single testable function of a software or an application

Integration Testing

Test the data flow between dependent modules or interface between two features

System Testing

End-to-end test to see if feature works according to the business requirement



23

In this order:

1. Unit
2. Integration
3. System

NON-FUNCTIONAL TESTING

Performance Testing

Focus on response time, load, scalability, and stability

Usability Testing

Focus on user experience - easy to understand and good look and feel

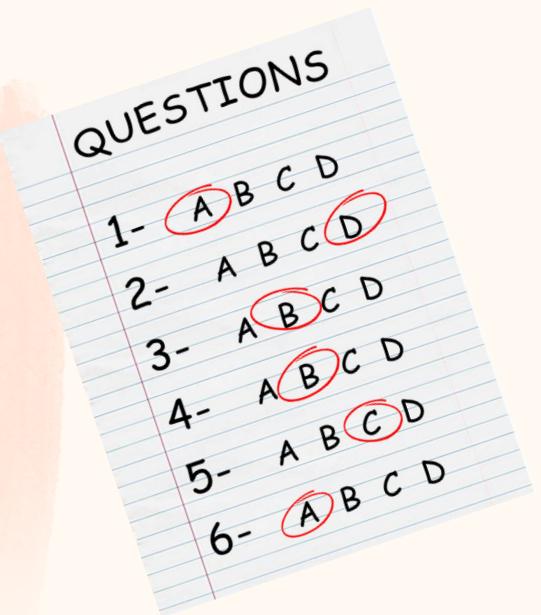
Compatibility Testing

Test on different operating systems, browsers, and hardware sizes



24

Reminder that Functional before non-functional



QUIZ: TESTING TYPES

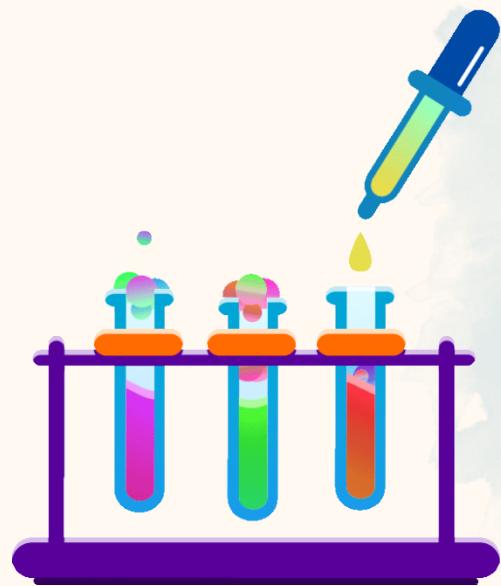
JOIN AT WWW.KAHOOT.IT



25

Link in the meeting chat

SO YOU WANT TO BE A TESTER?



26

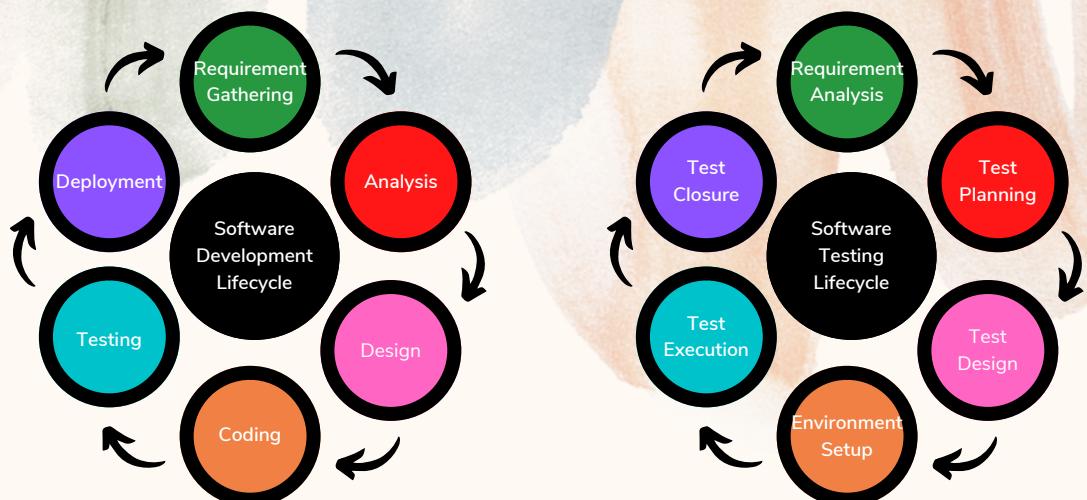
Well done on the quiz. Lots of potential!

Let's look at the work that a tester actually does.



WHAT IS THE TESTING LIFECYCLE?

WHAT IS THE TESTING LIFECYCLE?



28

Quite similar in that there is an investigation conducted, designs happen, then work begins. Once it concludes, the cycle starts again.

WHAT IS THE TESTING LIFECYCLE?

REQUIREMENTS ANALYSIS



- Identify types of tests to be performed.
- Gather details about testing priorities and focus.
- Prepare Requirement Traceability Matrix (RTM).
- Identify test environment details where testing is supposed to be carried out.
- Automation feasibility analysis (if required).



29

This step checks the business requirements and from that:

- Identifies tests to be conducted
- Identifies test environment details

WHAT IS THE TESTING LIFECYCLE?

TEST PLANNING



- Preparation of test plan/strategy document for various types of testing
- Test tool selection
- Test effort estimation
- Resource planning and determining roles and responsibilities.
- Training requirement

- Create a test plan
- Figure out what methods of testing are to be used
- what responsibilities are involved

WHAT IS THE TESTING LIFECYCLE?

TEST DESIGN



- Create test cases, automation scripts (if applicable)
- Review and baseline test cases and scripts
- Create test data (if test environment is available)



31

Structuring test cases and getting test data.

We will learn how to write user stories soon!

WHAT IS THE TESTING LIFECYCLE?

ENVIRONMENT SETUP



- Understand the required architecture, environment set-up and prepare hardware and software requirement list for the test environment.
- Setup test environment and test data
- Perform smoke test on the build



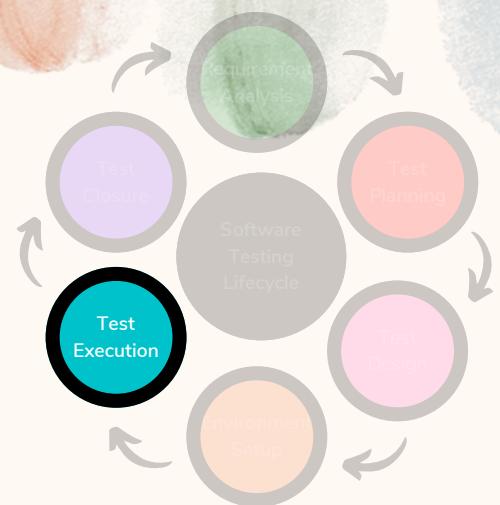
32

-Prepare the list of software and hardware by analyzing requirement specification.

-After the setup of the test environment, execute the smoke test cases to check the readiness of the test environment.

WHAT IS THE TESTING LIFECYCLE?

TEST EXECUTION



- Execute tests as per plan
- Document test results, and log defects for failed cases
- Map defects to test cases in RTM
- Retest the defect fixes
- Track the defects to closure



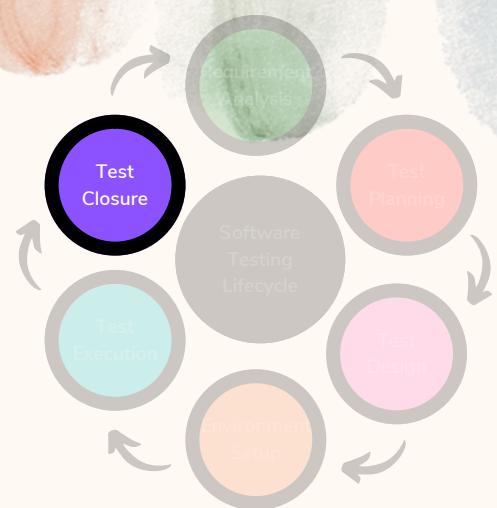
33

-Execution of test cases.

- Log the defects/bugs.

WHAT IS THE TESTING LIFECYCLE?

TEST CLOSURE

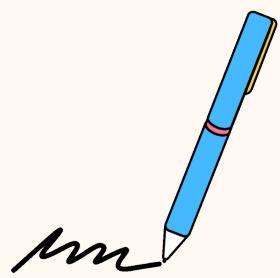


- Evaluate cycle completion criteria based on Time, Test coverage, Cost, Software, Critical Business Objectives, Quality
- Prepare test metrics based on the above parameters.
- Document the learning out of the project
- Prepare Test closure report
- Qualitative and quantitative reporting of quality of the work product to the customer.
- Test result analysis to find out the defect distribution by type and severity.



34

Evaluation, reporting, documentation



HOW TO WRITE USER STORIES?

HOW TO WRITE USER STORIES?

The Given-When-Then formula is a template intended to guide the writing of acceptance tests for a user story:

- (Given) some context
- (When) some action is carried out
- (Then) a particular set of observable consequences should obtain



For example:

Given a hungry cat.
When I attempt to feed the cat.
Then the cat should no longer be hungry.





ACTIVITY: HOW TO WRITE USER STORIES?

JOIN THE JAMBOARD



37

[https://jamboard.google.com/d/1xMSfsciqrJU6MtUHugQD0oy8sNnagUZulQsAuXmAeWA/
edit?usp=sharing](https://jamboard.google.com/d/1xMSfsciqrJU6MtUHugQD0oy8sNnagUZulQsAuXmAeWA/edit?usp=sharing)

HOW CAN I GET CERTIFIED?



If you are serious about being a tester, or you want to ramp up on your testing skills, it is great to be certified!

HOW CAN I GET CERTIFIED?



- Degree in engineering, math, or computer science
- Certified by national organizations ->



Southern African Software Testing Qualifications Board

39

Certifications can make you more employable (as long as it is a reputable and recognised certification)

TMI?

HERE'S RESOURCES
YOU CAN USE IN YOUR
OWN TIME



40

Information overload?

Here are links to all the things that I have discussed

RESOURCES

Software Testing Lifecycle

<https://www.guru99.com/software-testing-life-cycle.html>

Testing Tutorial

<https://www.javatpoint.com/software-testing-tutorial>

Testing Manifesto

<https://www.growingagile.co.za/2015/04/the-testing-manifesto/>

Given When Then

<https://www.agilealliance.org/glossary/gwt/>

Testing Certification

<https://sastqb.org.za/>

Testing Tools

<https://www.educba.com/manual-testing-tools/>



41

The testing tutorial is really helpful and goes quite in depth!

Don't forget to check out the testing tools to see which works well for your project.



QUESTIONS?

