EXALT

Excellence in Software Development

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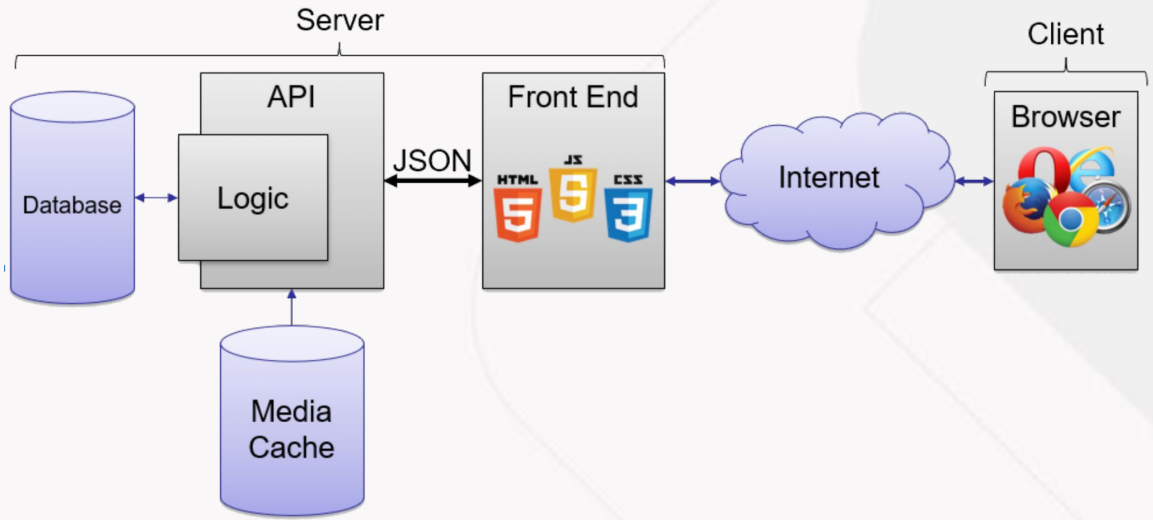
Front-End

Frontend Development Introduction

Core Components of Web Applications.

- Front End (DOM, Framework).
- Request Layer (Web API).
- Back End (Database, Logic).



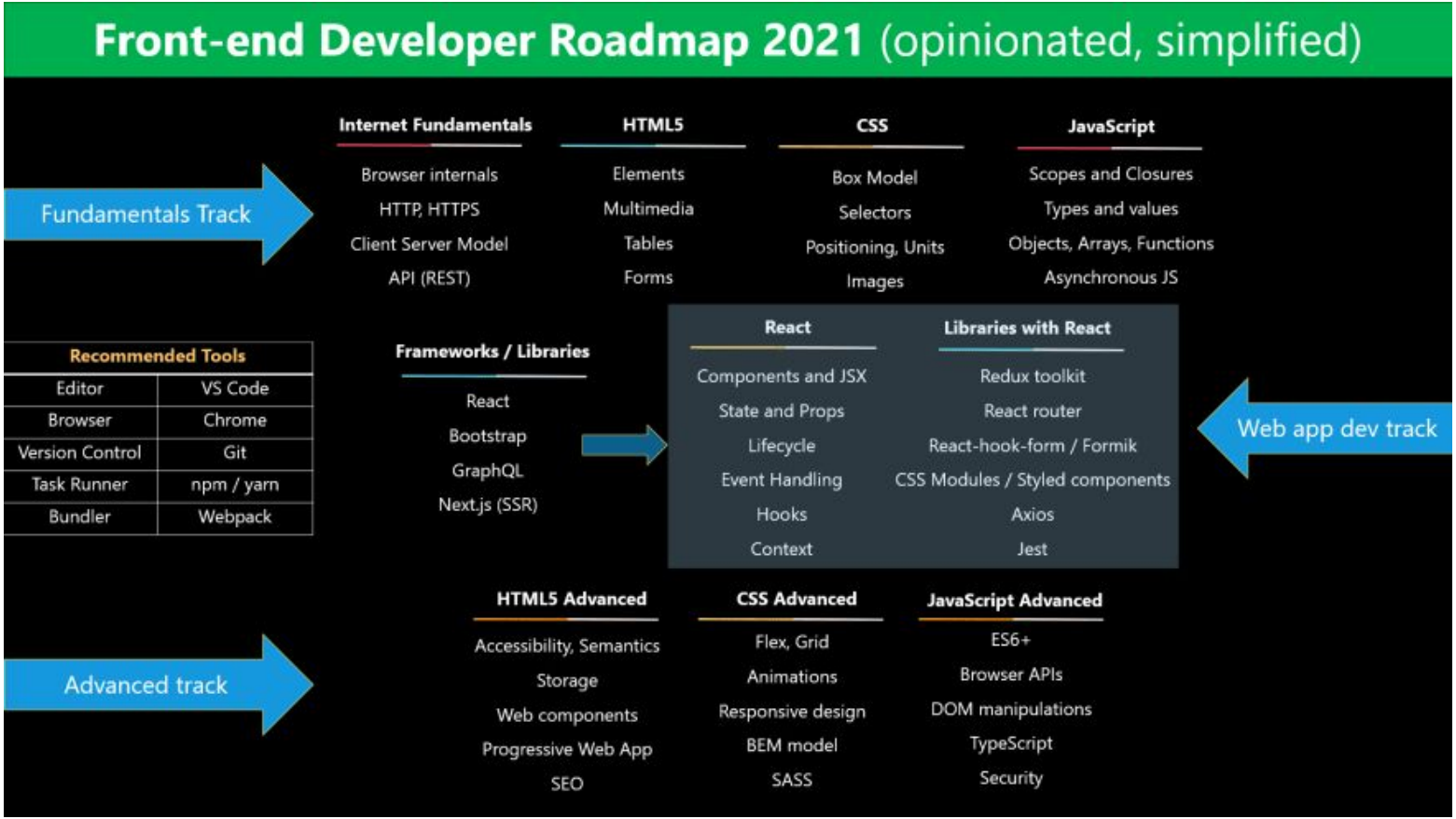
Front-End Development

Front-end web development, also known as client-side development is the practice of producing HTML, CSS and JavaScript for a website or Web Application so that a user can see and interact with them directly. The challenge associated with front end development is that the tools and techniques used to create the front end of a website change constantly and so the developer needs to constantly be aware of how the field is developing.

Web Development Frameworks

Front-End Software Frameworks are designed to reduce overhead in web development.

Front-end Developer Roadmap 2021 (opinionated, simplified)



Back-End

Backend Development

Basic Backend Knowledge:

- Http, header, request, request methods, response.
- Object oriented.
- Design pattern: singleton, factory, dependency injection, etc.
- Threads and concurrency
- API: REST, JSON, XML, etc.

Programing Languages And frameworks

- Java: Spring framework.
- Python: Django.
- PHP: Laravel.
- Javascript: NodeJs.

Databases:

- Relational databases: Mysql, Postgres, etc.
- NoSql databases: Mongo, Redis, etc.

Backend Development

Testing
- Unit testing
- Integration test

Message Broker
- RabbitMq
- Kafka

Authentication vs Authorization
- Session based authentication
- Basic Authentication
- Token authentication
- JWT token
- OAuth

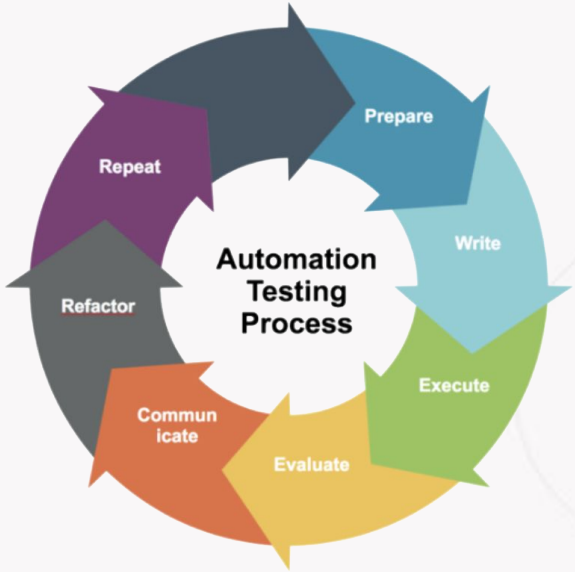
Architectural Patterns
- Monolithic
- Microservices

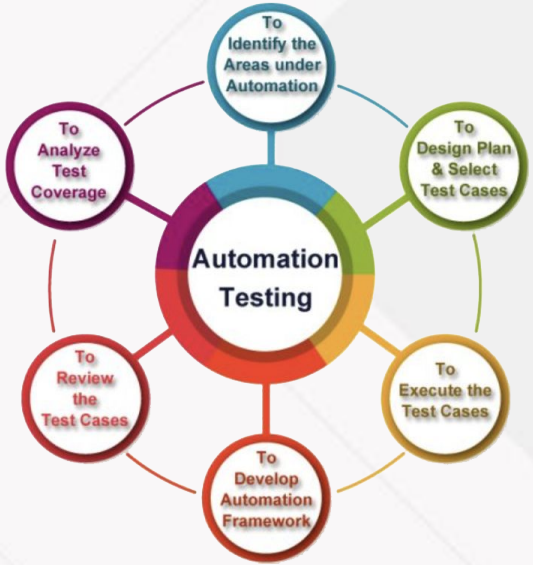
Other Topics
- Containerization
- WebSocket
- Code Analysis Tools: SonarQube, Jacoco, etc.

Quality Assurance

Automation Testing

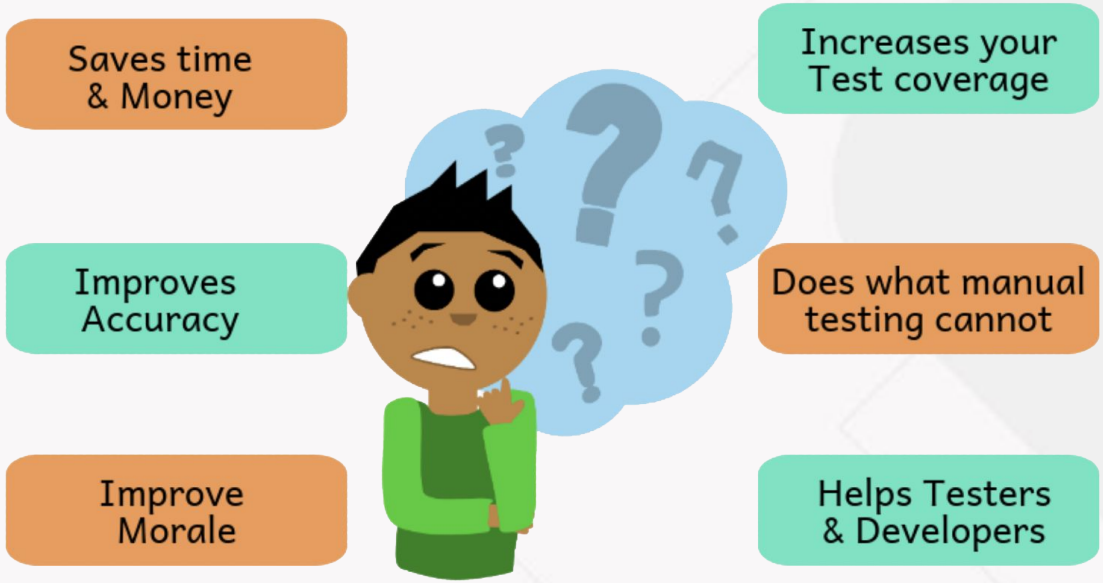
It is a type of software testing used to execute the test case and compare the output results with the expected results in an automatic way.





Automation Testing

Why Automation Testing?



Automation Testing

Automation Testing Types

01

Unit Testing

02

Smoke Testing

03

Black box Testing

04

Integration Testing

05

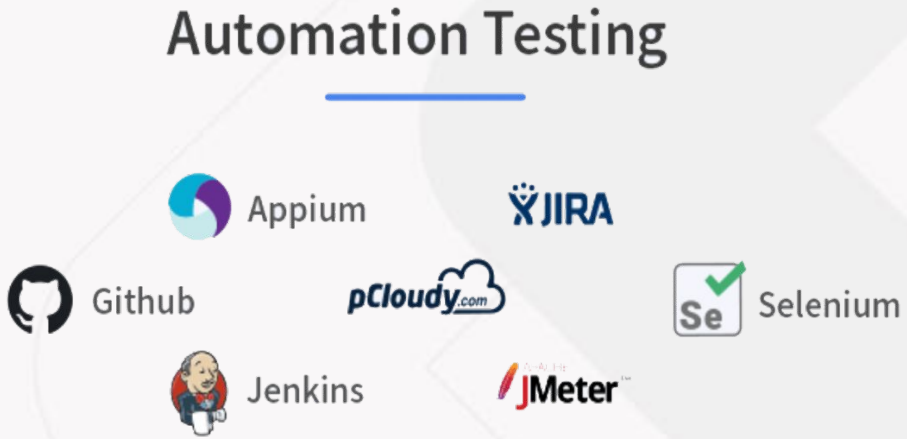
Functional Testing

06

Regression Testing

Automation Testing

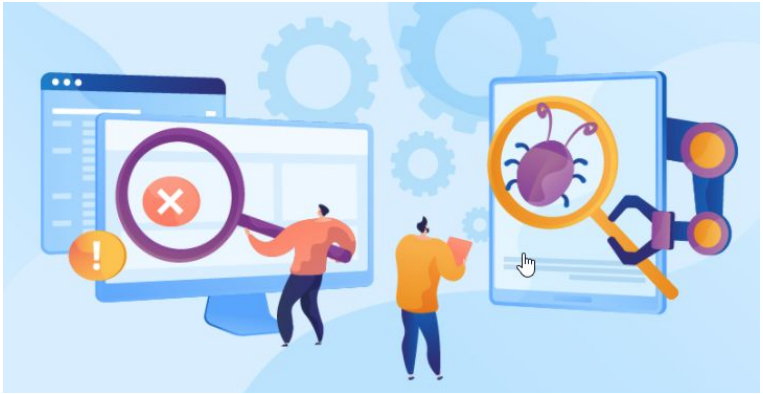
Automation Testing Tools and Frameworks



Manual Quality Assurance

Quality Assurance
Process of determining whether a product or service meets specified requirements and in best quality (bug free).

- **Manual QA:** Manual process
- **Automation QA:** Automated process



Qualifications

- BA degree in Computer Science or Computer Systems Engineering.
- Software engineering course or similar one.
- Database (SQL) knowledge.

Responsibilities

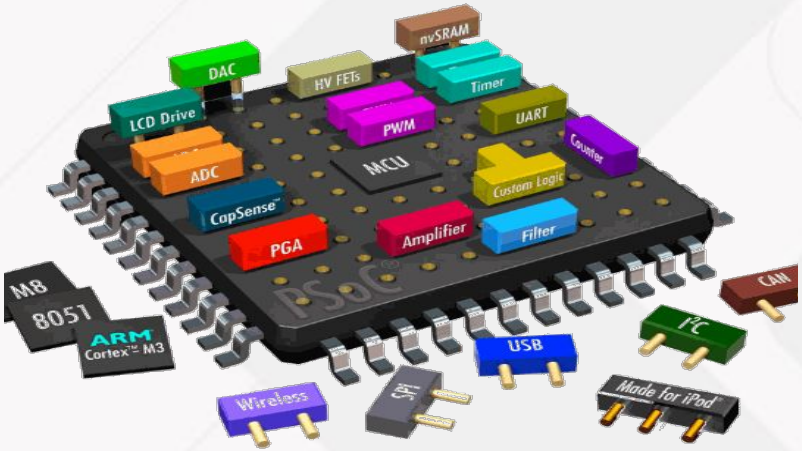
- Analysis of requirements, specifications and technical design document, prepared a query list on those requirements.
- Create detailed, comprehensive and well structured test plans and test cases.
- Verification of multi-device and cross platform (software works on different devices and browsers).
- Ability to describe bugs clearly and accurately.
- Creating reports.

Software testing life cycle

Design Verification

Design Verification Introduction

- Work with the logical representation of the designs written in HDL before manufacturing.
- Build a testing environment and test scenarios to ensure that all of the design functionalities are implemented correctly.
- Functional verification is very critical and saves a lot of bugs costs after manufacturing.
- Our field combines software programming skills, OOP concepts, data structure concepts, and hardware designs implementation understanding.



Design Verification Engineer Responsibilities

- Building test plan documents based on the specification to specify what are the functionalities that you will test and how you will test them to ensure that the design is working correctly.
- Building verification environment that will wrap the design, start sending stimulus to the design and verify the functionalities.
- Working closely with the hardware designers to discuss your observations.

Training Program

- Learning related OOP and data structure concepts.
- Reviewing digital design and implementing designs.
- Learning Verilog HDL from scratch then build designs and testbenches using it to learn verification concepts.
- Learning system verilog language HVL that was developed for verification usage it is similar to many programming languages and implement training projects.
- Learning UVM, it is a group of libraries built on SV that is used to build the verification testbenches and implement training projects.

Mobile Development

Mobile development

Technologies and Languages

Native development:

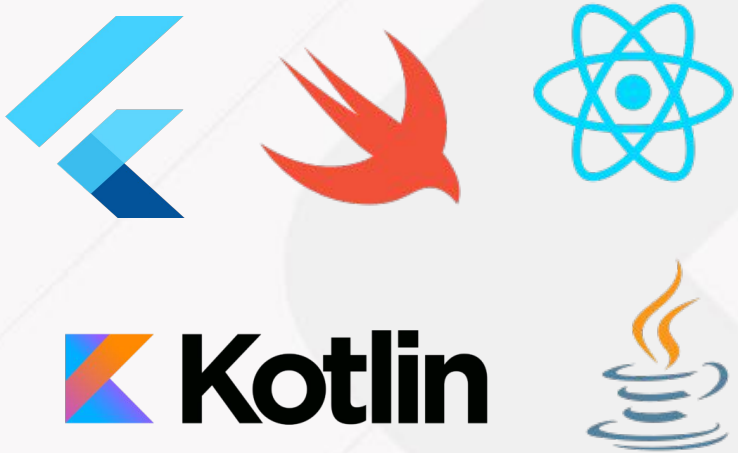
- Android SDK: JAVA, Koltin.
- iOS SDK: Swift, Objective-C.

Cross Platform:

- React Native: Typescript, Javascript.
- Flutter: Dart.

PWA (Progressive Web Apps):

- ReactJS, AngularJS, Ionic, etc.



Mobile Developer Responsibilities

- Support the entire application lifecycle (concept, design, test, release and support).
- Produce fully functional mobile applications writing clean code.
- Gather specific requirements and suggest solutions.
- Write unit and UI tests to identify malfunctions.
- Troubleshoot and debug to optimize performance.
- Design interfaces to improve user experience.
- Research and suggest new mobile SDKs and integrations.
- Stay up-to-date with new technology trends.

DevOps

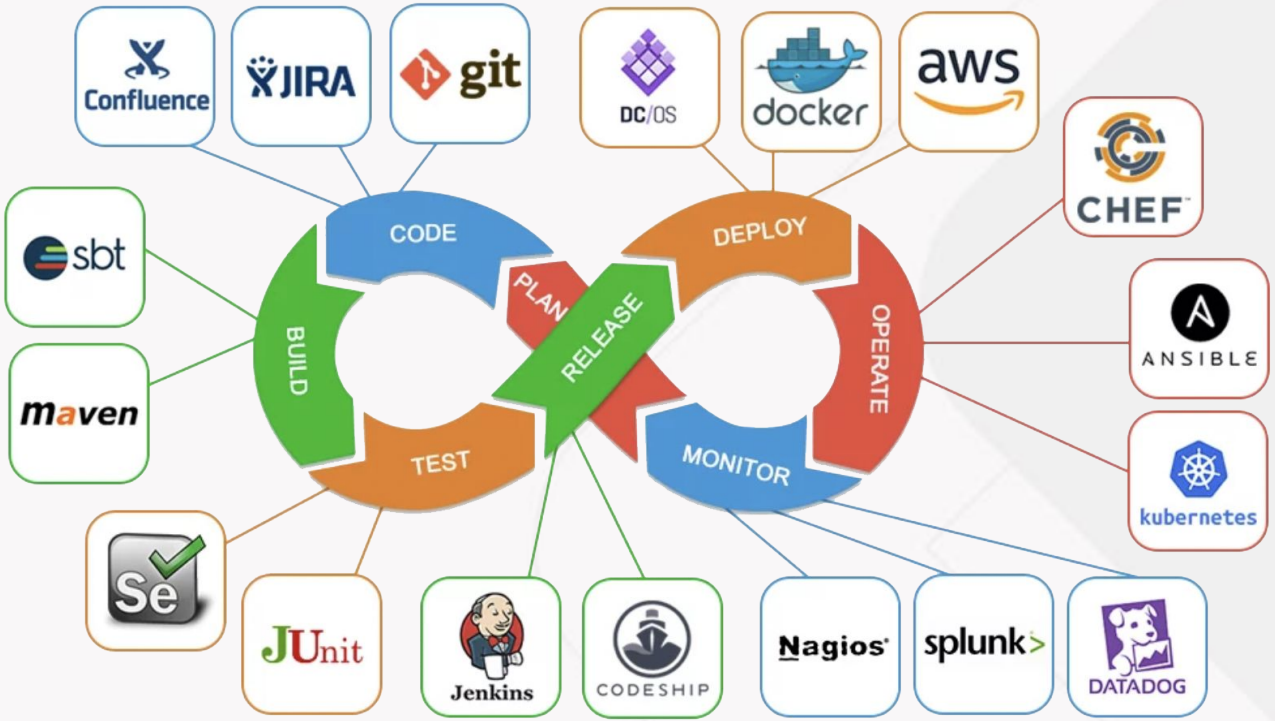
What is DevOps

DevOps is a combination of development and operations. It is a software development method that stresses the communication, collaboration and interaction between software developers and information technology professionals.

Benefits:

- Enable rapid evolution of products and services
- Reduce risk, improve quality, and reduce costs.

What is DevOps



CI/CD

Continuous integration

- Improve Developer Productivity.
- Find and Address bugs Quicket.
- Deliver updates faster.
  Every commit that is merged triggers an automated build and test.

Continuous Delivery

- Automate the Software release process.
- Improve Developer Productivity.
- Find and Address bugs Quicker.
- Deliver updates faster.

THANK YOU

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