Software Development Life Cycle (SDLC)

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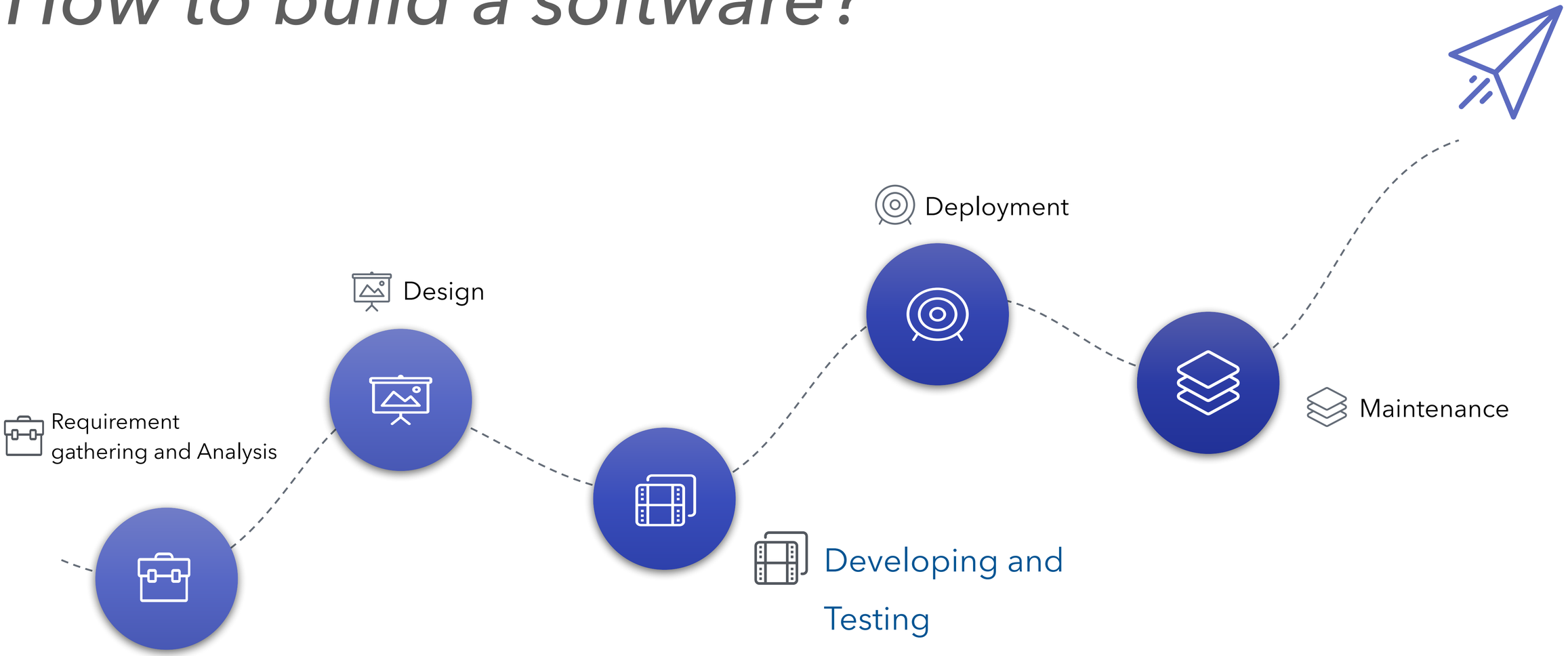
What is a software/application?

- ***A set of instructions, data or programs***
- ***Operate Computers***
- ***Execute Specific tasks***

How to build a software?



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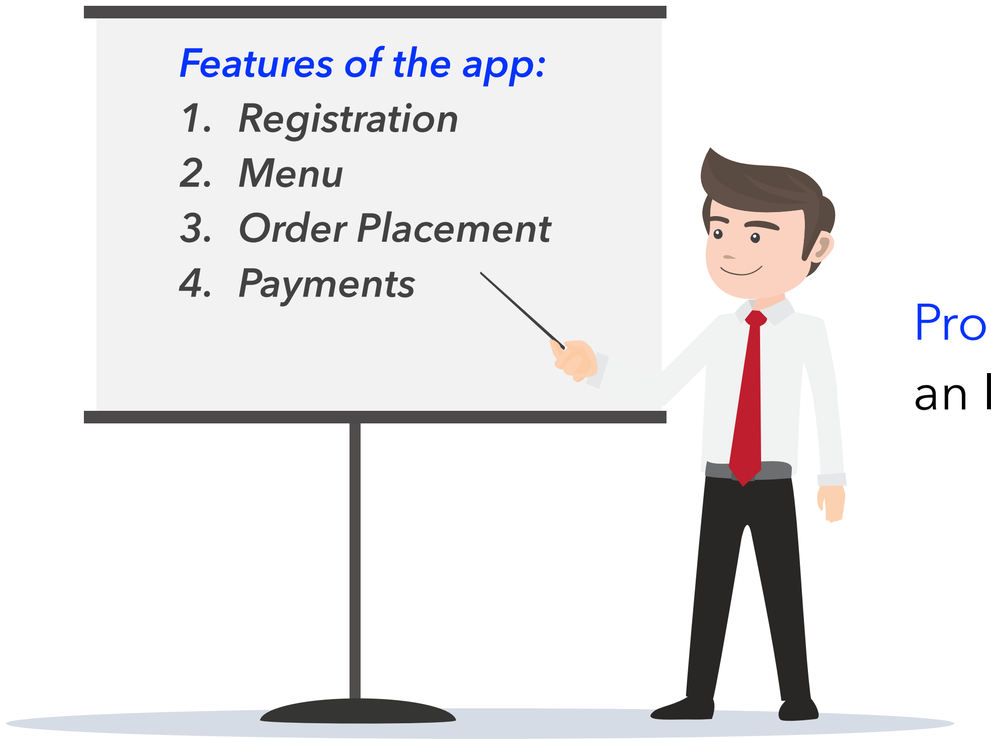
Requirement Gathering

I want digital menu, online food ordering features

Costumer



Product Owner in an IT company

Requirement Gathering

Requirement :

The software requirements are description of features and functionalities of the target system.

Functionality of an application:

Is the ability of the system to do the work for which it was intended.

Requirement Gathering

Source of Requirements:

- *Customers*
- *Business Partners*
- *End-Users*
- *Domain Experts*
- *Industry Analysts*

Requirement Gathering

Product owner (PO) documents(writes) the requirements:

- *Business Requirements (BR)*
- ***System Requirement Specification (SRS)***
- *Market Requirements (MR)*
- *Functional Requirements (FR)*
- *Non-Functional Requirements (NFR)*

Semple of SRS: *https://docs.google.com/document/d/10BTqN8lWGDvBnMguJW_s3WrdgIdsv93XQT5QotWUanE/edit*

Requirement Gathering

Requirements should be SMART:

Specific

Measurable

Attainable

Realistic

Testable

Specific Requirement

Not specific requirement :

I want all users can see all the foods.

After improve:

I want managers, chefs and waiters are able to see the foods menu in the top right corner of the homepage.
The foods are: burger, pizza, salad

Measurable Requirement

Not measurable requirement :

The application shall function quickly.

After improve:

The application shall have response times of 4 seconds or less of every functionalities.

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Attainable Requirement

Not attainable requirement :

The users can smell the foods by looking at the menu.

After improve:

The costumers of the restaurant shall be able to see the pictures of the all the foods and drinks.

Realistic Requirement

Not realistic requirement :

The users get discounts whenever the user want.

After improve:

The users shall get 5% discounts if a user purchase more or equal to $100.

Testable Requirement

Not testable requirement :

I want application homepage look modern.

After improve:

The application's homepage shall be green background, and Menu, Today's special, login modules on the center to the page.

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Software Development Life Cycle (SDLC)

Summary of the first step:

Requirement Gathering

Name of the step	Requirement Gathering
Role	Product Owner (PO)
Input	Costumer's requirement
Output	Several documents

Design

PO

Architecture

Design

Programming Language
Java,C++

Layout
Mobile support

Layout
Mobile support

Color Scheme
Green/white

DataBase
Oracle

Risk Analysis

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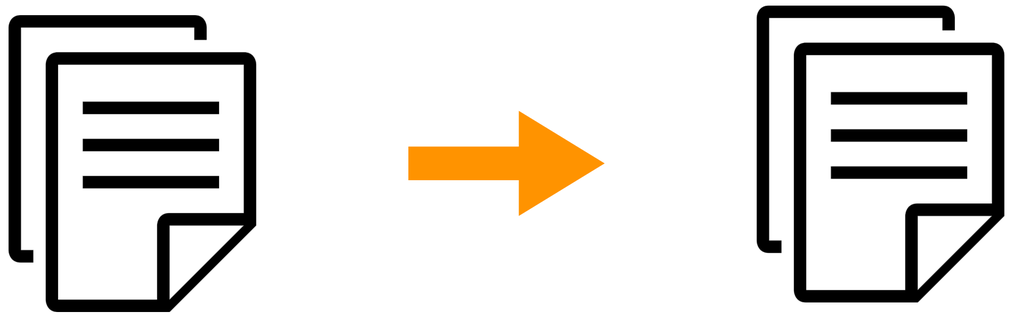
Design

The purpose of the Design Phase is to transform the requirements in to complete and detailed system design specification(SDS).



SRS ***SDS***

Software Development Life Cycle (SDLC)

Summary of the second step:

Design

Name of the step	Design
Role	Architecture/Designer
Input	SRS document
Output	Design documents + Risk analysis

Developing/coding

- *Write codes to build the application*
- *Follow certain predefined coding guidelines*
- *Divide the tasks into small unites*

Developers

Software Development Life Cycle (SDLC)

Summary of the Third step:

Coding

Name of the step	Coding/Developing
Role	Developers
Input	SRS document
Output	The application/software

Testing

- *Write test documents*
- *Manual vs Automation*
- *Log defat*
- *Ensure the application meets the consumers expectation*

Testers

Software Development Life Cycle (SDLC)

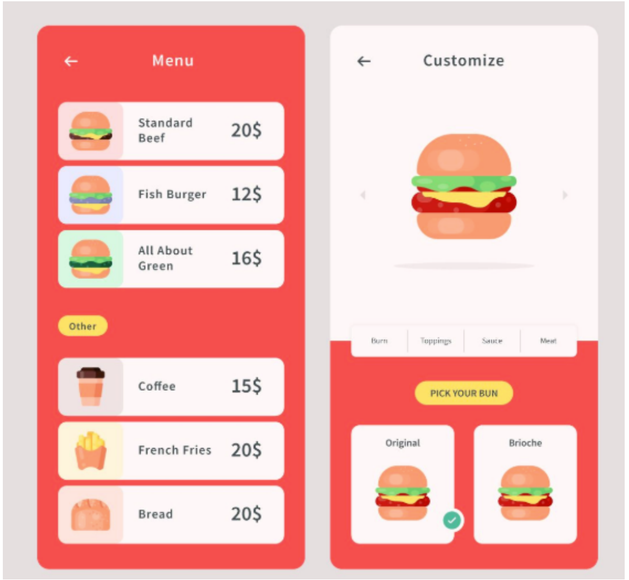
Summary of the fourth step:

Testing

Name of the step	Testing
Role	Testers/QA Engineers
Input	The software + SRS document
Output	Bug free application

Deploying/Production

- ***Release the application to Production***
- ***Installing the Application to users machine***



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Summary of the fifth step:

Production

Name of the step	Production/Deploying
Role	Developers + testers
Input	Bug free application
Output	End user use the application

Maintenance

- *Project support*
- *Update & improve software*
- *Challenge from hidden bugs*

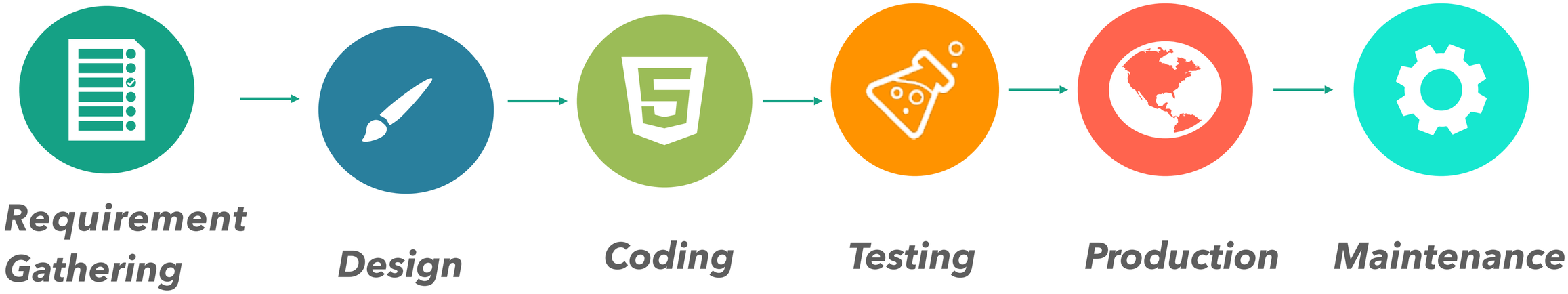
Software Development Life Cycle (SDLC)

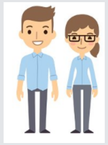
Summary of the sixth step:

Maintenance

Name of the step	Maintenance
Role	PO+ Developers + testers
Input	Any new requirement Any hidden bug which found by end user
Output	New version of the application

Software Development Life Cycle (SDLC)



SDLC Steps	Input	Involved roles	Output
Requirement gathering	Costumer's requirement	Costumer & PO	SRS, BRS,FR,NFR
Design	Requirement Documents	Architecture/Designer	Design Documents
Coding/developing	PO & Designer's documents	Developers	Code → to build software
Testing	SRS & the Software	 Testers	Code → to test the software
Production/Deploying	The tested/bug free software		End user use the application
Maintenance	Client updates Hidden bugs Undefined problems		Deploy a new version of the application by repeating the SDLC