CyberLogitec

VIETNAM

Software Development Life Cycle & Testing

Quality Control Training Programs

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eusu:

Overview

Mindset

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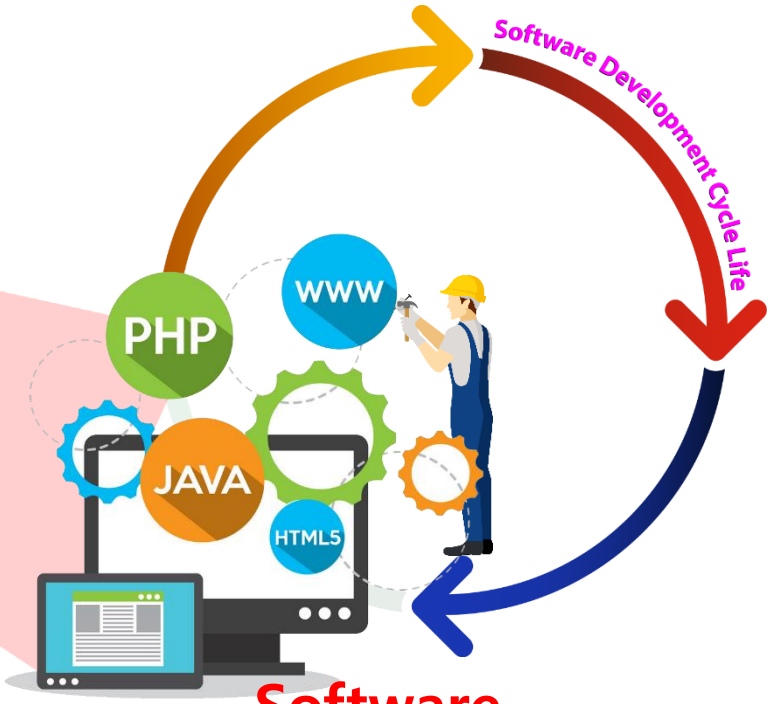
Tester

Business Domain

Technical Skill

Testing Knowledge

- Test Principles
- Test Process
- Test Levels
- Test Types
- Test Requirement
- Test Case Design
- Test Techniques
- Software Errors (bugs)
- Test Management



Software

Outline

Lession 01

1.1 What is Software

1.2 Sofware Development Life Cycle (SDLC)

1.3 SDLC Models

1.4 Some Definitions

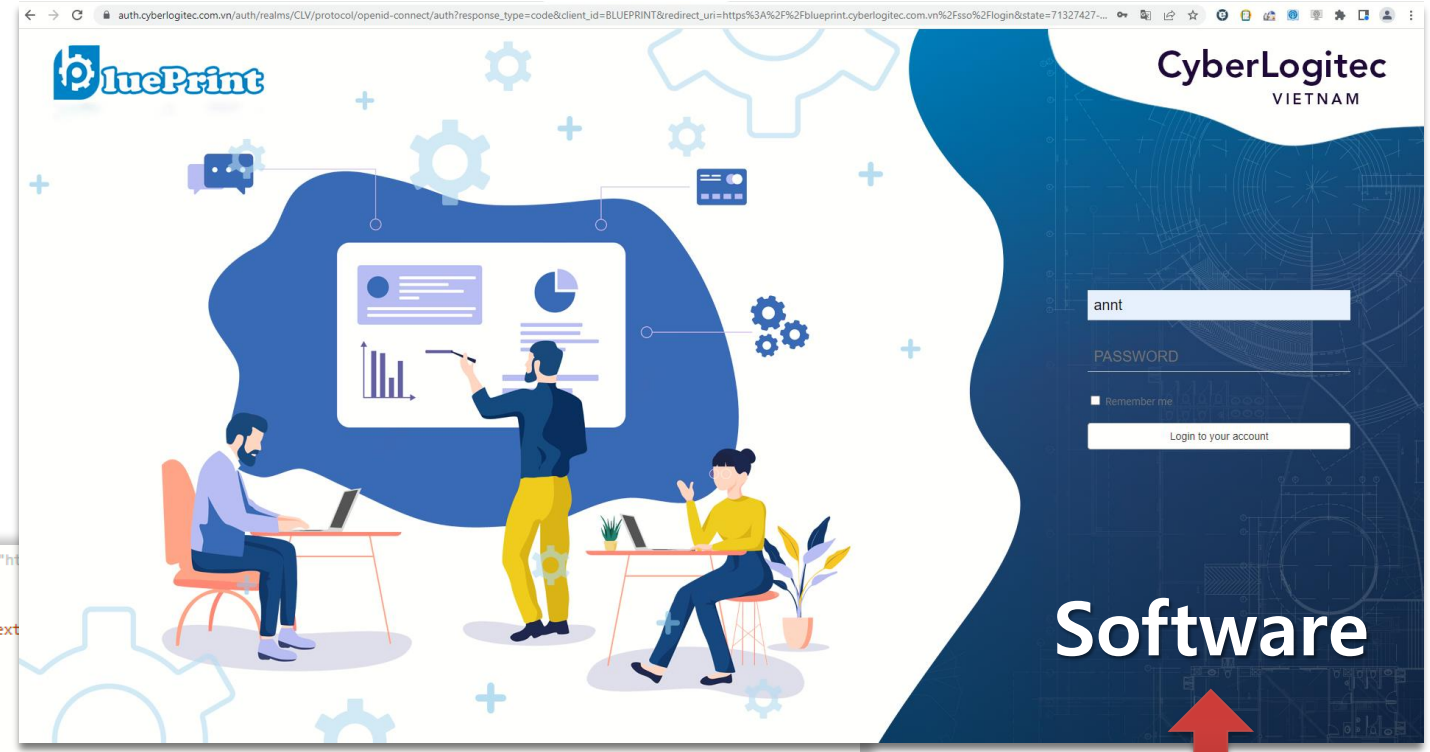
What is Software

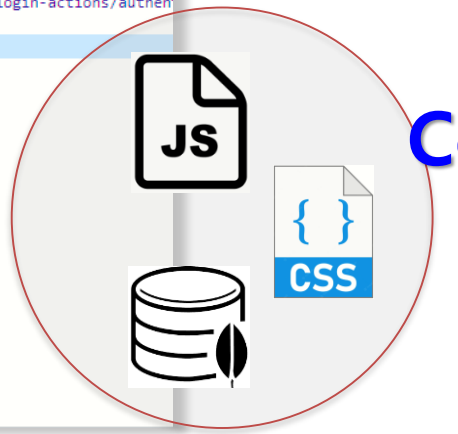
- **Software** is a set of files, data or programs used to operate computers and execute specific tasks.
- Software is a generic term used to refer to applications, scripts and programs that run on a device.
- It is the opposite of **Hardware**, which describes the physical aspects of a computer.

Software

Hardware

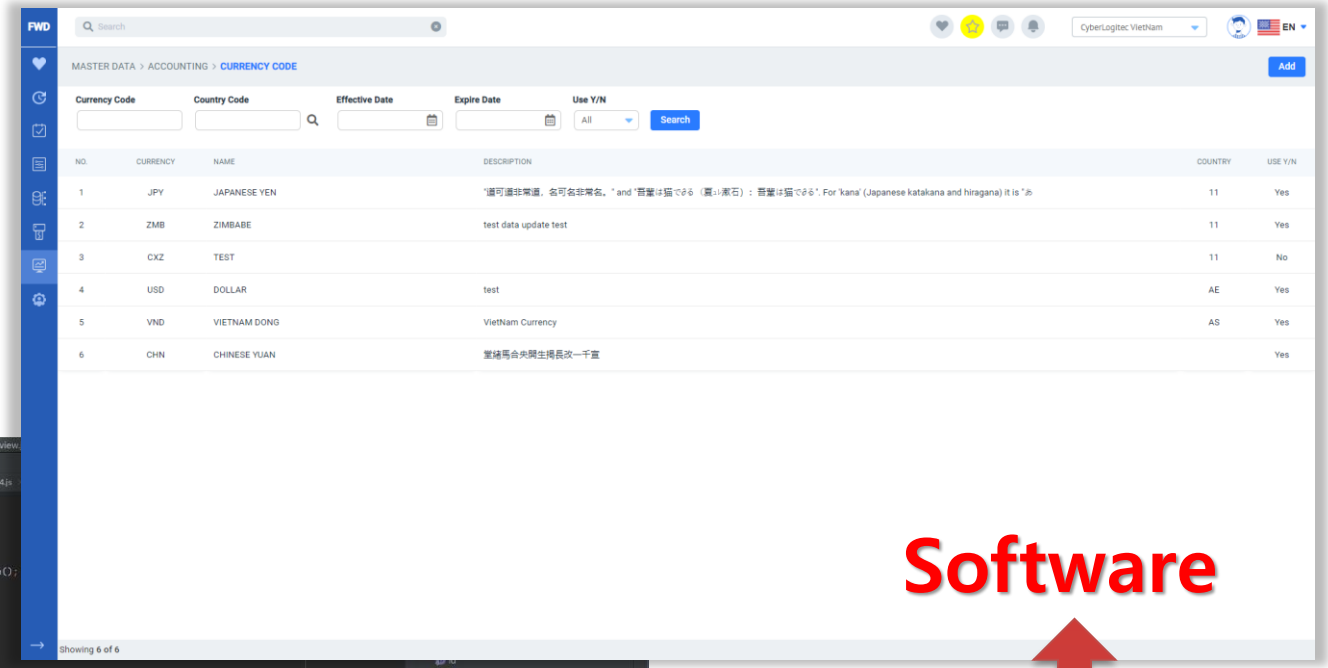
What is Software

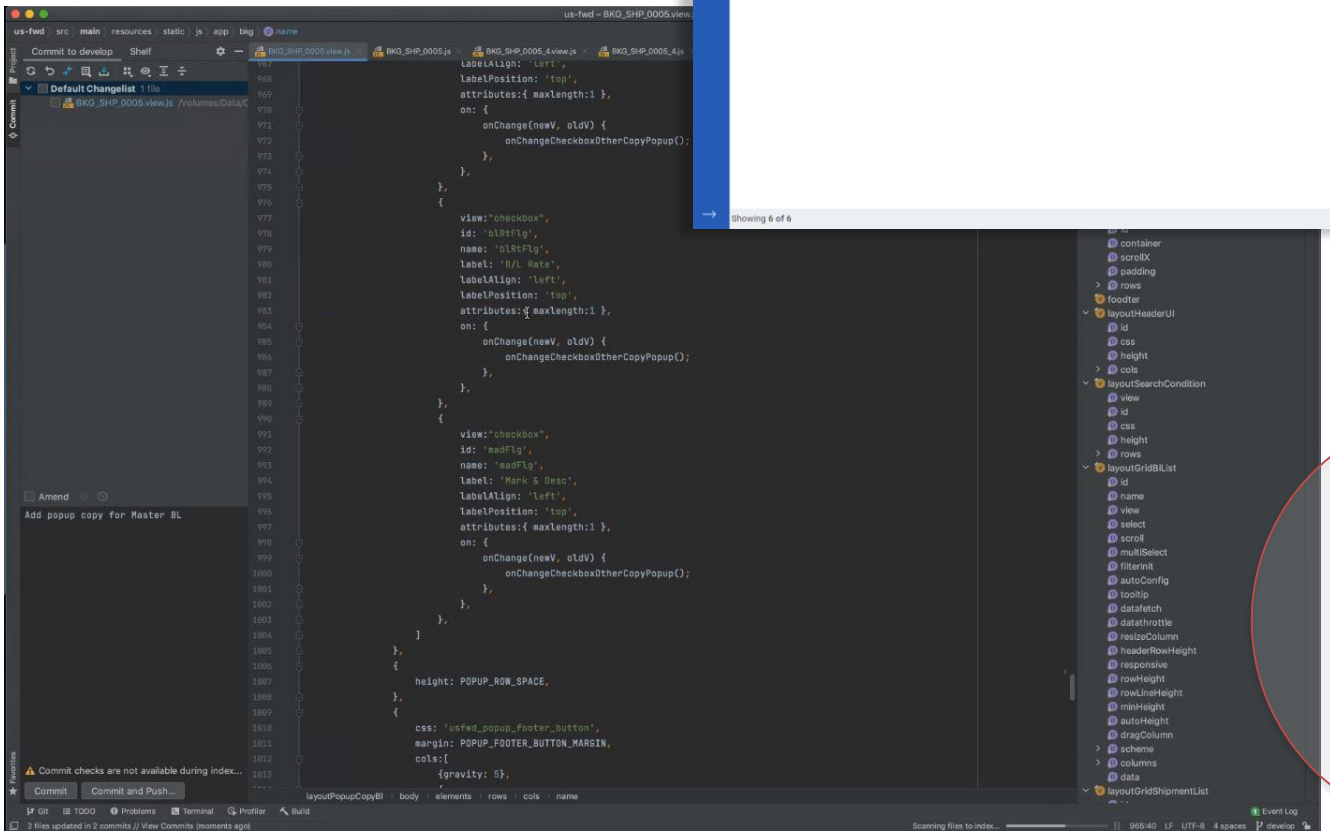




Coding

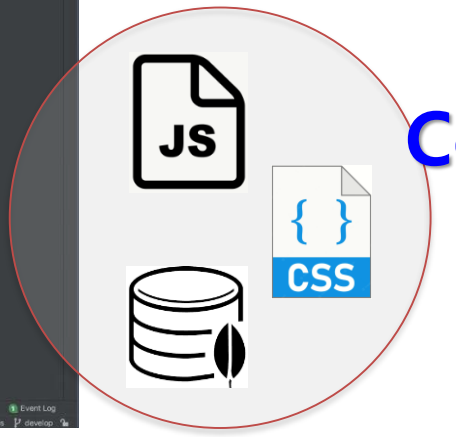
What is Software





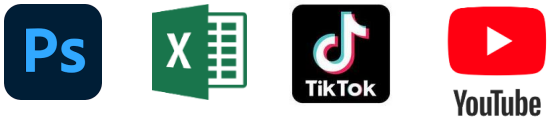
Software

Coding



What is Software

- The 2 main categories of software:
  - An **Application** is software that fulfills a specific need or performs tasks.
    - Desktop Application
    - Web Application
    - Mobile Application
  - **System software** is designed to run a computer's hardware and provides a platform for applications to run on top of.
- Other types of software: programming software, middleware, etc.



Application Software

System Software

What is Software

- Software Development Team includes
  - Project Manager (PM)
  - Business Analyst (BA)
  - Designer (Architect, UI/UX)
  - Developer team (Dev)
  - **Tester team** (QA/QC)

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Software Development Life Cycle

- **SDLC** is the application standard business practice to build software applications.
- It is typically broken down into 7 steps:
  - Planning
  - Requirements
  - Design
  - Development
  - Testing
  - Deployment
  - Operations and Maintenance

Software Development Life Cycle

- **Planning:**

The purpose of this first phase is to find out the scope of the software.
Resources, costs, time, benefits, and other items should be considered here.

- **Requirements Analysis:**

The second phase is where teams consider the functional requirements of the project or solution.

It is also where system analysis takes place or analyzing the needs of the end-users to ensure the system can meet their expectations.

You can proceed forward to creating an **SRS** document **(Software Requirements Specification)**. In this document, you are going to describe all the product's features.

Software Development Life Cycle

- **Design:**

The Design phase models the way a software application will work.
Some aspects of the design include:

  - Architecture
  - User Interface (UI/UX)
  - Platforms
  - Programming
  - …

- **Development:**

This is the actual writing of the program.

In this phase, developers will work on creating a product.

This phase typically takes the longest period of time as it involves the actual development of the product.

Software Development Life Cycle

- **Testing:**

It's critical to test an application before making it available to end-users.

This phase is normally carried out by a Tester Team to determine if the proposed design meets the initial set of the goals.

- **Deployment:**

In the deployment phase, the application is made available to users.

Many companies prefer to automate the deployment phase.

This can be as simple as a payment portal and download link on the company website. It could also be downloading an application on a smartphone.

Software Development Life Cycle

- **Operations and Maintenance:**

At this point, the development cycle is almost finished.
The application is done and being used.

The Operation and Maintenance phase is still important.

In this phase, users discover bugs that weren't found during testing.
These errors need to be resolved, which can spawn new development cycles.

In addition to bug fixes, models like Iterative development plan additional features in future releases.
For each new release, a new Development Cycle can be launched.

Software Development Life Cycle

1. Planning

2. Requirements

3. Design

4. Development

5. Testing

6. Deloyment

7. Operation
& Maintenance

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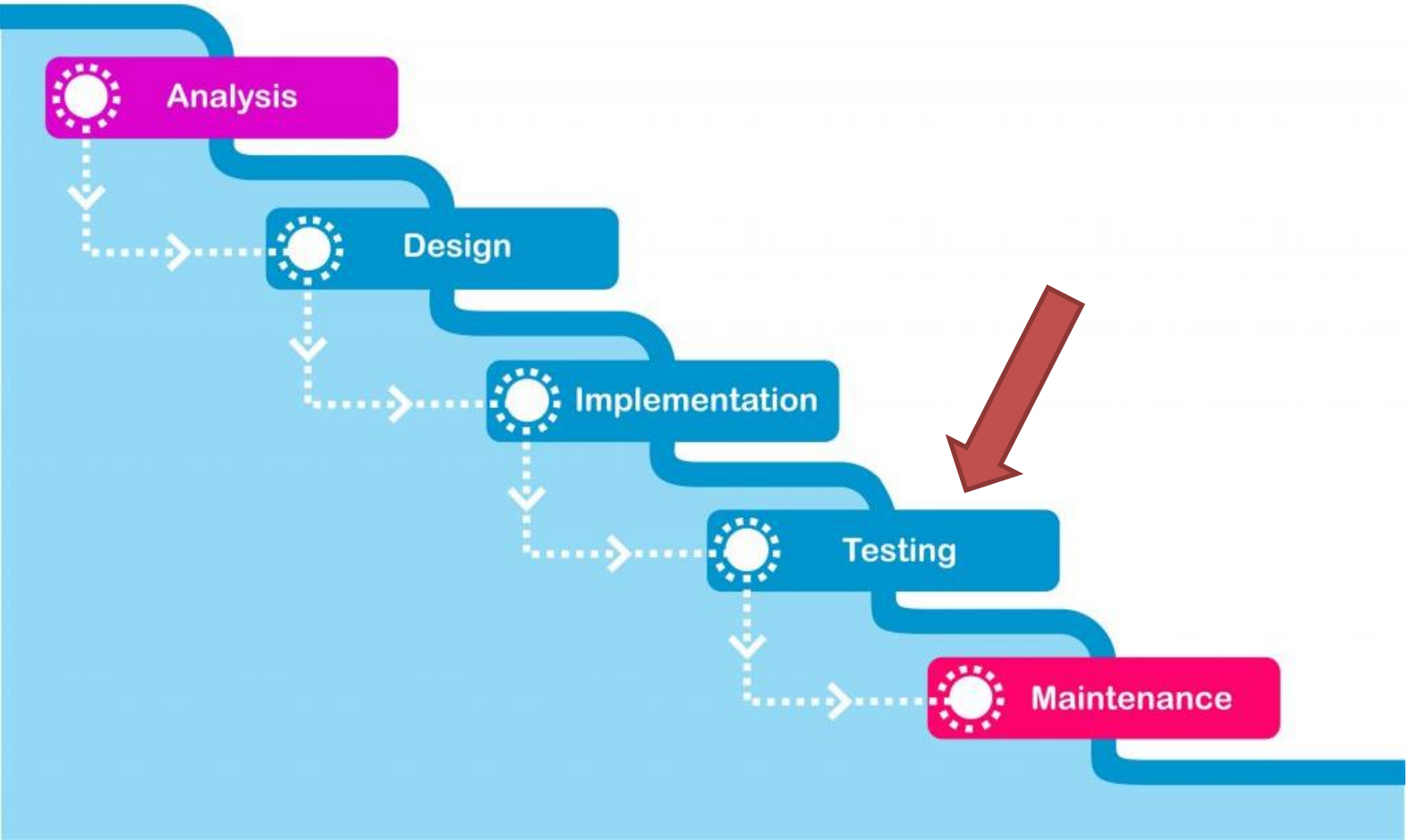
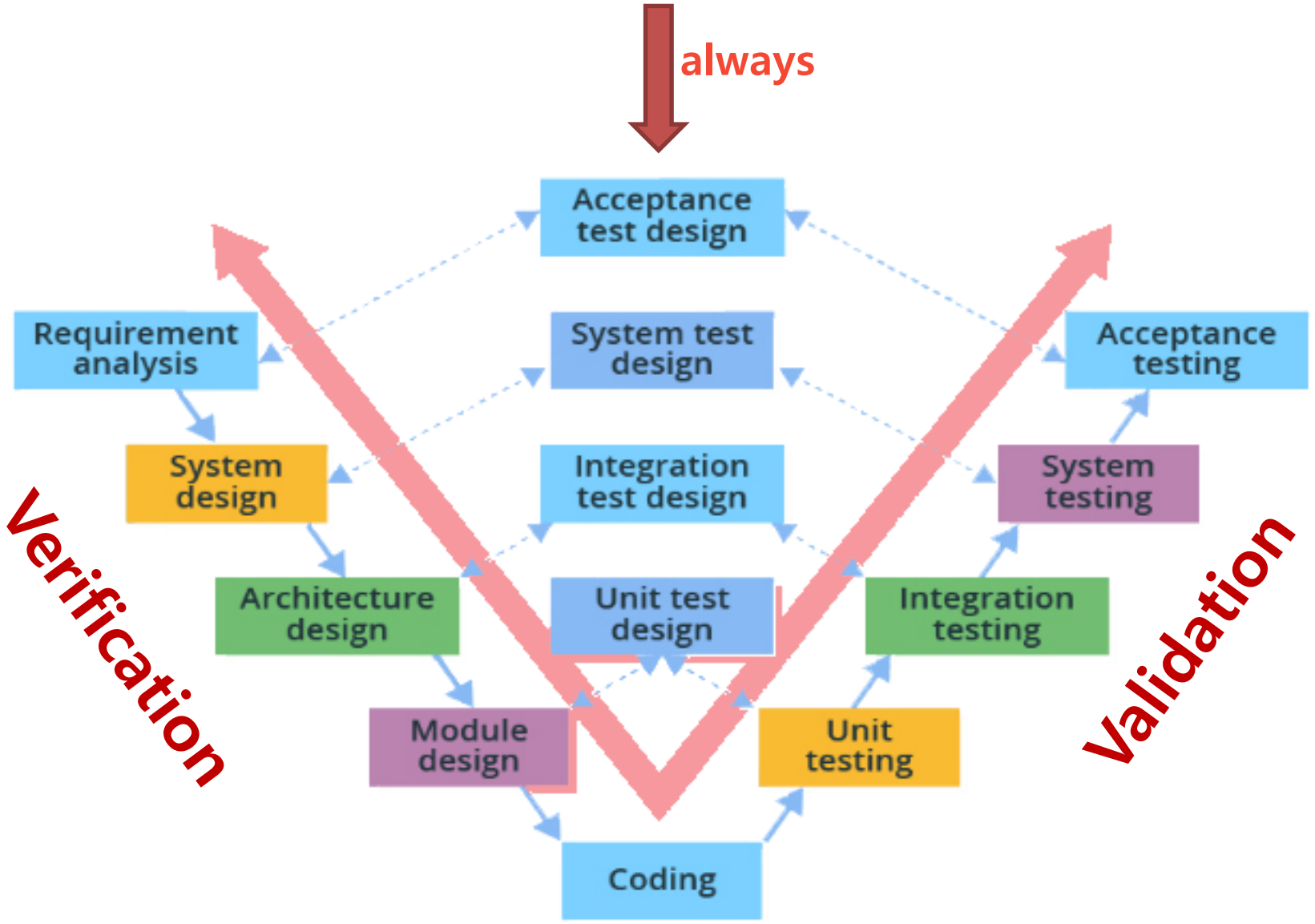
Waterfall Model

- The Waterfall model is a sequential software development model.
- Testing is not inherent to every phase of the model.
- **Testing phase:** only after coding phase, software testing begins.



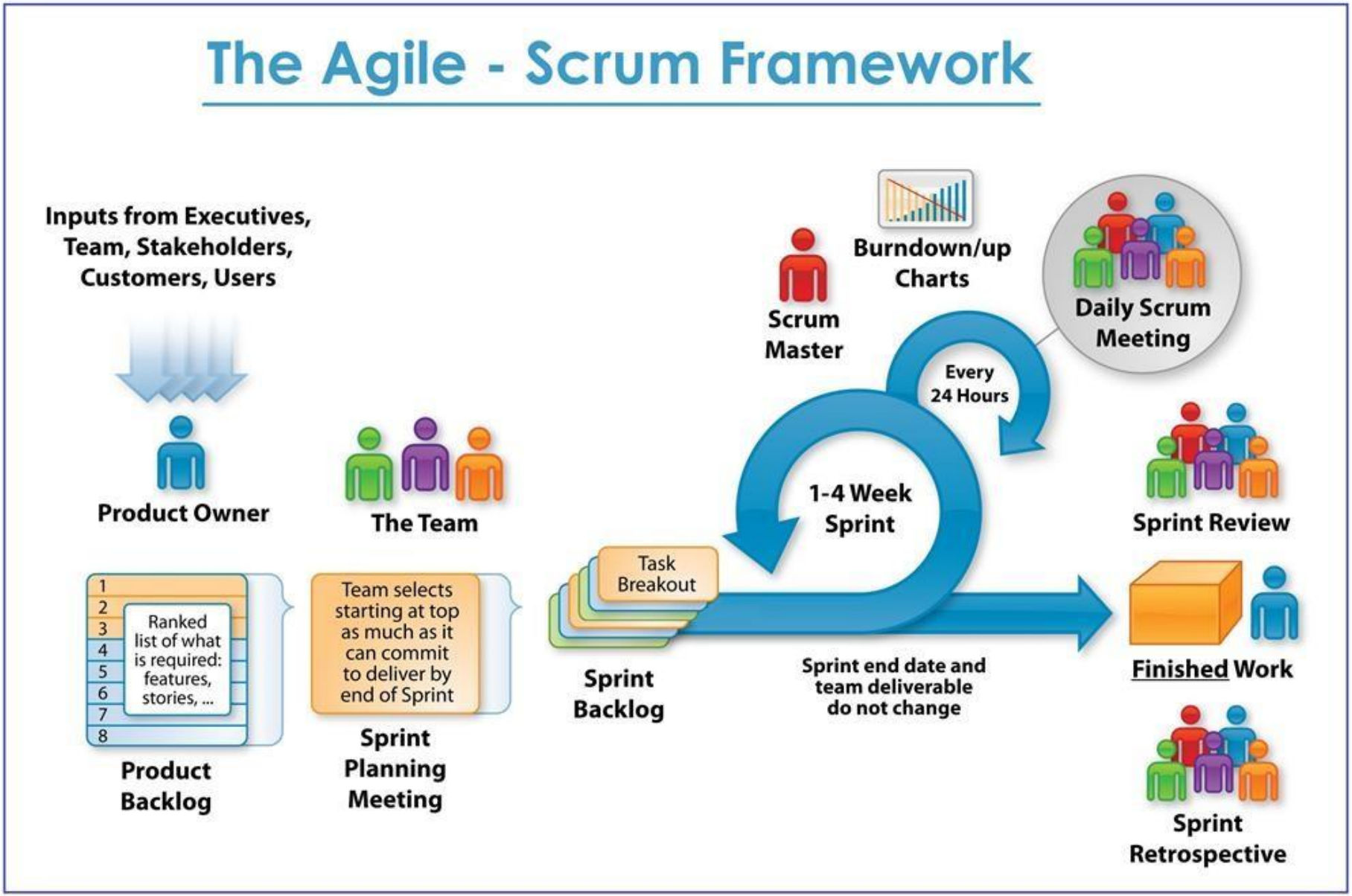
V Model


always
Acceptance test design
Requirement analysis
System test design
Acceptance testing
System design
Integration test design
System testing
Architecture design
Unit test design
Integration testing
Module design
Unit testing
Coding
Verification
Validation

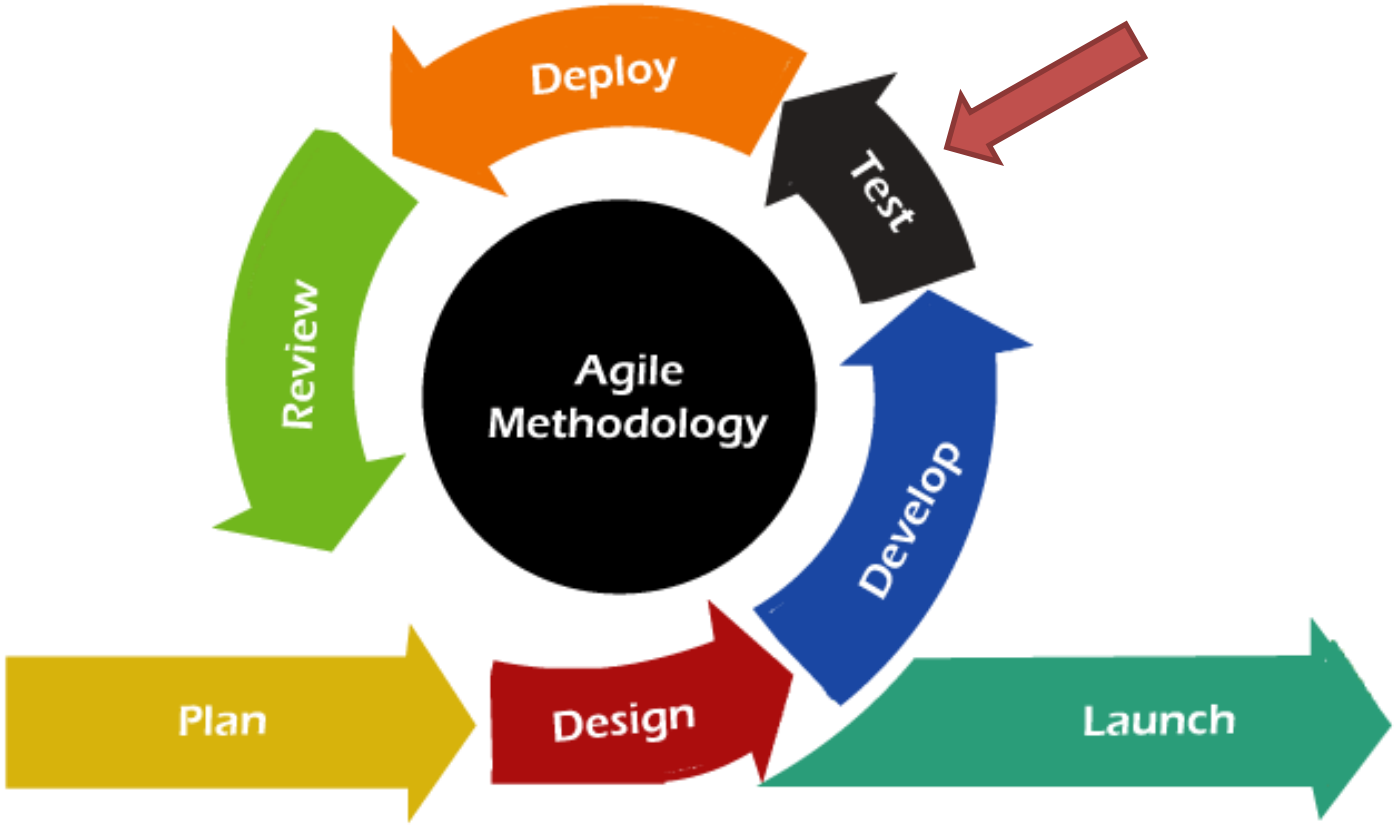
V Model

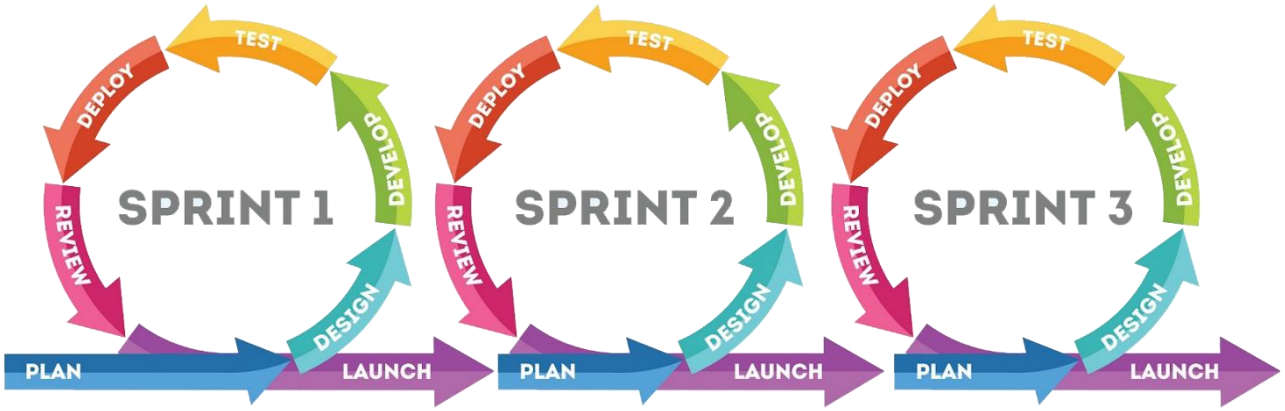
VERIFICATION	VALIDATION
Verification means **Are we building the software right?**	**Validation** means **Are we building the right software?**
Verification is the static testing. It does not include the execution of the code	Validation is the dynamic testing. It does not include the execution of the code
Methods used in verification are reviews, walkthroughs, inspections and desk-checking.	Methods used in validation are Black Box / White Box testing and non-functional testing.
It checks whether the software conforms to specifications or not	It checks whether the software meets the requirements and expectations of customers or not
It comes before validation	It comes after verification

Agile Methodology

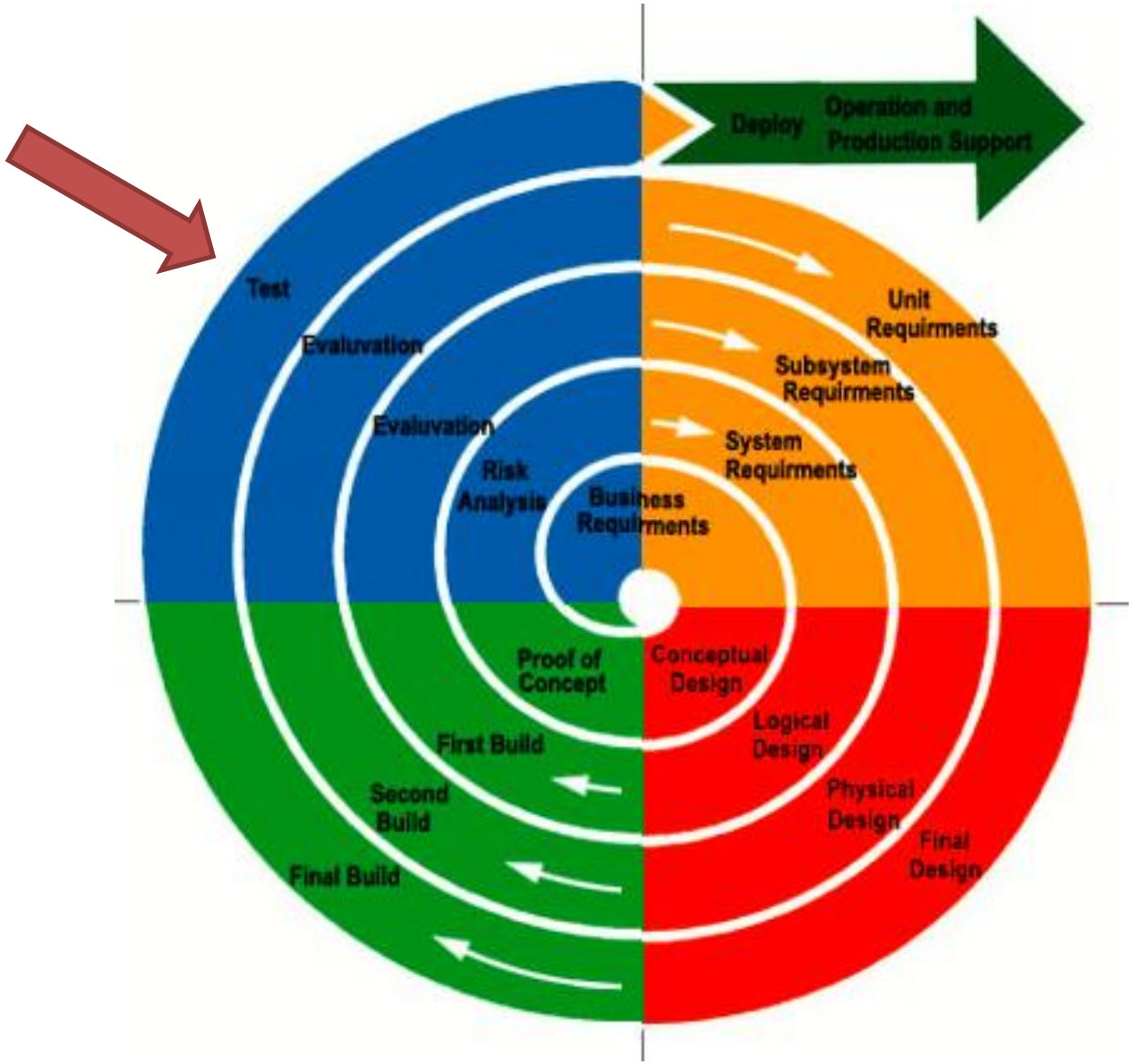


Agile Methodology





Spiral Model



Question

When does the software reach the End of Life?

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Some Definitions

Phase:

A time block within SDLC.
There are a number of activities that have to be done in this time block.

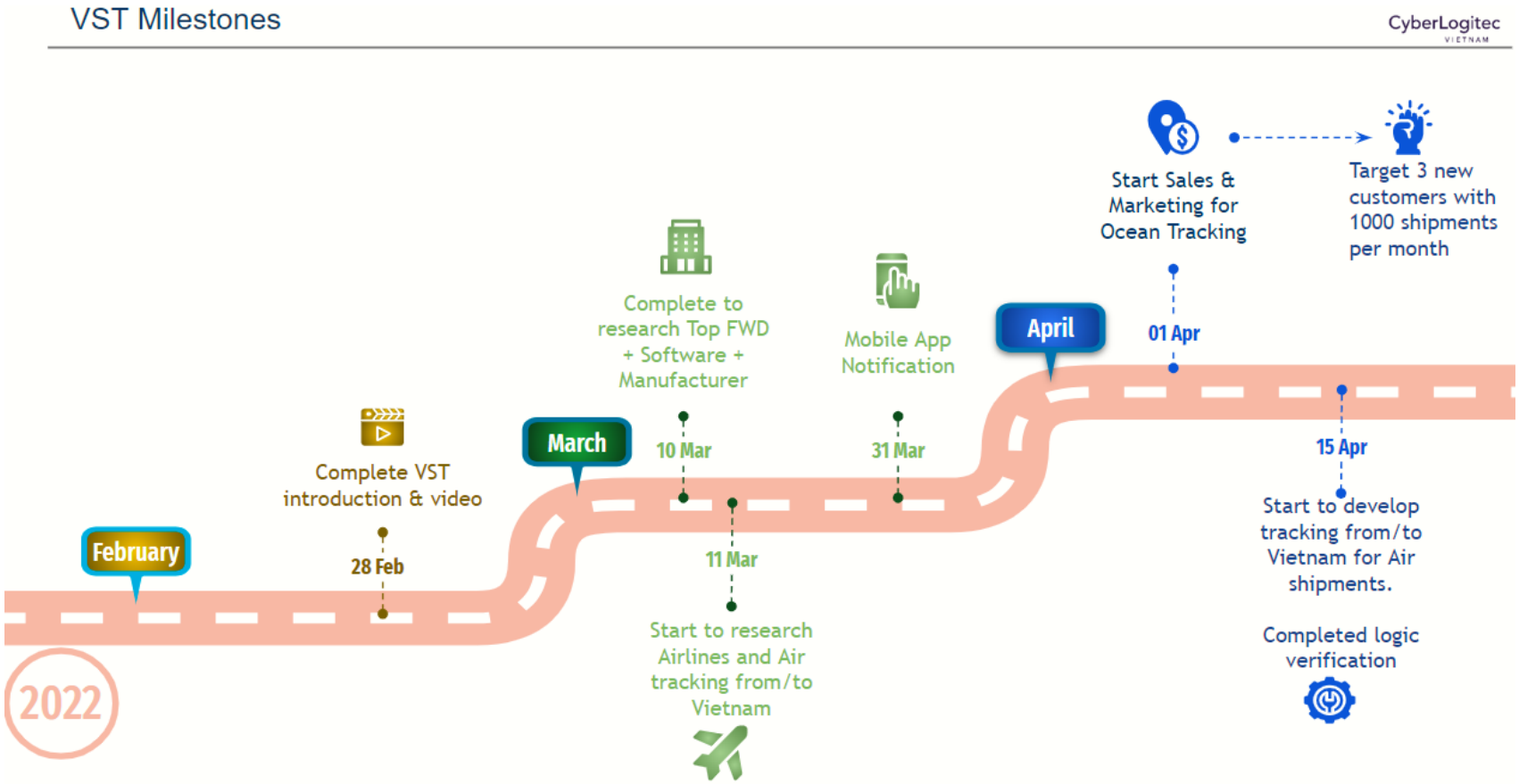
Example:

- Development phase
- Testing phase
- ……

Some Definitions

Milestones:

- A significant event in the software developing process in which, the software moves from one phase to another.
- The milestone let us know where the applications is in SDLC.



Some Definitions

Criteria:

Built or created from the standard of the project.

Example:

- The requirement document should be available.
- The Test Plan Document should be ready.
- Test Cases should be written and reviewed.
- Test Data should be identified and ready.
- Test automation script should be ready if applicable.

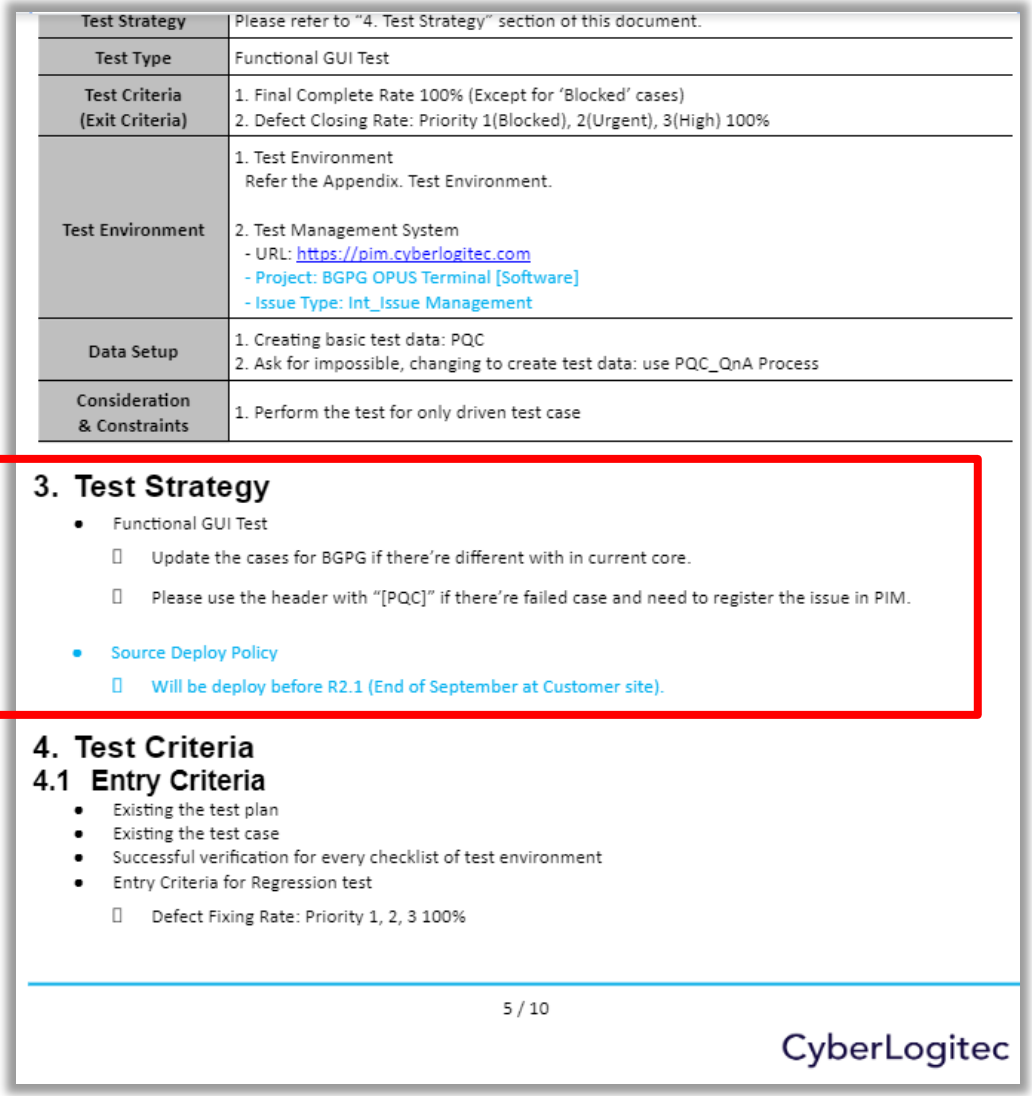
Some Definitions

Test Approach:

A testing philosophy or style that drives the selection of certain test design methods.

Test Strategy:

Test Strategy describes the way testing is carried out.



Test Strategy	Please refer to "4. Test Strategy" section of this document.
Test Type	Functional GUI Test
Test Criteria (Exit Criteria)	1. Final Complete Rate 100% (Except for 'Blocked' cases) 2. Defect Closing Rate: Priority 1(Blocked), 2(Urgent), 3(High) 100%
Test Environment	1. Test Environment Refer the Appendix. Test Environment. 2. Test Management System - URL: https://pim.cyberlogitec.com - Project: BGPG OPUS Terminal [Software] - Issue Type: Int_Issue Management
Data Setup	1. Creating basic test data: PQC 2. Ask for impossible, changing to create test data: use PQC_QnA Process
Consideration & Constraints	1. Perform the test for only driven test case

3. Test Strategy

- Functional GUI Test
  - Update the cases for BGPG if there're different with in current core.
  - Please use the header with "[PQC]" if there're failed case and need to register the issue in PIM.
- Source Deploy Policy
  - Will be deploy before R2.1 (End of September at Customer site).

4. Test Criteria

4.1 Entry Criteria

- Existing the test plan
- Existing the test case
- Successful verification for every checklist of test environment
- Entry Criteria for Regression test
  - Defect Fixing Rate: Priority 1, 2, 3 100%

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Summary

- **Software**
  - Application Software
  - System Software
- **SDLC**
  - WaterFall Model
  - V Model
    - Verification
    - Validation
  - Agile
  - ……
- **Phase, Milestone, Criteria**
- **Test Approach, Test Strategy**

Practices

Find and list all software that you know.

(Name, Execute specific tasks, logo,……)

After that, please filter them.

<Exercise01_FullName>.xls/xlsx

Thank You

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