From A process to Tasks

Process

[recall] Process

A process organizes the development of a software product into distinct **phases** or **stages**.

[Attention]

The process of software development is not like following a recipe **from beginning to end**.

Refinements & changes of a software [during its life]

-> further development and testing [process involved]

Processes vs Software life cycle

Life cycle processes

Many of the processes are life cycle processes,

-> which organize the entire life of the software,

-> from the initial conception of the idea,

-> to the eventual retirement of the product.

Sub-process within a life cycle process

-> processes do not have to represent the entire life of a product.

e.g., a sub-process for finding and fixing bugs within a product.

Process structure

The **structure** is the **same**, regardless of wether it's a **life cycle process** or a **sub-process**.

Process Structure – Process Model

Structure of a life cycle process – models

- Processes are organized into **phases** or **stages**.
- For a life cycle process, depending on the process models, these phases can be known by different names.
- These phases may be organized to run **in sequence iteratively** or **in parallel**.

[recall] Examples of phases for a life cycle process:

Process Structure – Process Model

Structure of a life cycle process – models

- Processes are organized into **phases** or **stages**.
- For a life cycle process, depending on the process models, these phases can be known by different names.
- These phases may be organized to run **in sequence iteratively** or **in parallel**.

[recall] Examples of phases for a life cycle process:

- specification:
  -> The specification phase is where the idea for the product is conceived. It is also where requirements are elicited and expressed.
- design and implementation:
  -> The design and implementation phase is where the design of a product and the development occurs.
- verification and validation:
  -> The verification and validation phase is where the product is assessed to make sure that it works the way it should and that it meets the client's needs.

Quiz

Quiz – context

- You and your development team have been commissioned to work on a database for a major bank.
- For obvious reasons, your client is very concerned with security.
- You and your team come up with many security features that could be implemented into the product.

In what phase of a software life cycle process would this task occur?

- A. Specification,
- B. Design and Implementation or
- C. Verification and Validation? Defining the features that will be implemented into the product is part of the specification phase.

Quiz

In what phase of a software life cycle process would this task occur?

- ✓ A. Specification
- B. Design and Implementation
- C. Verification and Validation?

-> The specification phase is where the idea for the product is conceived. It is also where requirements are elicited and expressed.

Bricks of a process 1/4

A process » Phases » Activities » Tasks

- Phases are composed of activities
- An activity is a group of related tasks

Example of activity: "creating tests"

All tasks that are related to creating tests, and could include

- writing test framework code
- designing and writing tests
- ...

Bricks of a process – tasks 2/4

Tasks

Tasks: small manageable steps of the project.

- Tasks are where the real work gets done.
- Tasks are the building blocks for completing an activity » entire phase of a process.

Examples of tasks:

- writing a piece of source code
- designing a feature
- writing documentation
- installing a library
- testing a feature

Bricks of a process – task dependencies 3/4

Task dependencies – Tasks may have dependencies on other tasks

A task that depends on another task, must wait for that task to be completed.

Task ordering: Dependencies imply a necessary order upon tasks.

Example of task dependencies

For example,

- you cannot take your dog for a walk, unless your dog is wearing a leash.
- And you cannot attach a leash, unless your dog is wearing a collar.

Therefore,

- Walking your dog depends on you attaching a leash
- and attaching a leash, depends on you attaching a collar.

Bricks of a process – task dependencies 4/4

Task dependencies

In the context of software development,

- you cannot **pass** a test for a feature until the source code is written.
- And you cannot write the source code until the feature has been designed.
- Therefore, passing a test for a feature depends on source code being written, which depends on designing the feature.