

Activities in the three phases

Software Engineering Activities

SOFTWARE ENGINEERING ACTIVITIES

PROJECT MANAGEMENT PHASE

- Creating a Process
- Setting Standards
- Managing Risks
- Performing Estimations
- Allocating Resources
- Making Measurements
- Improving Process

SPECIFICATION PHASE

- Identifying Ideas or Needs
- Eliciting Requirements
- Expressing Requirements
- Prioritizing Requirements
- Analyzing Requirements
- Managing Requirements
- Formulating Potential Approaches

DESIGN & IMPLEMENTATION PHASE

- Designing Architecture
- Designing Databases
- Designing Interfaces
- Creating Executable Code
- Integrating Functionality
- Documenting

VERIFICATION & VALIDATION PHASE

- Developing Test Procedures
- Creating Tests
- Executing Tests
- Reporting Evaluation Results
- Reviewing & Auditing
- Client Demonstrations
- Conducting Retrospectives

Activities in the specification phase



Process

ideas/needs » requirements » ... » product

Specification phase

- initial phase
- the specification phase is revisited often, to update and improve the requirements for the product, for the rest of development.

Activities in the specification phase



The specification activities include:

1. identifying ideas or needs
2. Five requirement activities:
 - eliciting
 - expressing
 - analyzing
 - prioritizing
 - managing
3. formulating potential approaches

Quiz

Context

- You are a product manager working for a chain of coffee shops.
- Your client wants your development team to create
 - » an app that allows end users to pay for their coffees with the application.

You are working on the formulating potential approaches activity with your development team.

What would an input work product be for this activity?

- A. Estimations,
- B. Defined metrics,
- C. Internal documentation,
- D. Backlog of requirements.

Quiz

You are working on the formulating potential approaches activity with your development team.

What would an input work product be for this activity?

- A. Estimations,
- B. Defined metrics,
- C. Internal documentation,
- ✓ D. Backlog of requirements.

- Estimations are commonly used as inputs when creating schedules.
- Defined metrics are used as input work products when you are calculating and analyzing metrics.
- Internal documentation is used when developing executable code and tests.
- Backlog of requirements can be used to formulate potential approaches.

Activities in the Design & Implementation Phase

DESIGN & IMPLEMENTATION PHASE

Designing Architecture

Designing Databases

Designing Interfaces

Creating Executable Code

Integrating Functionality

Documenting

» It is more developer specific.

» A product manager help to track and monitor the work that occurs in this phase.

1. Designing the Architecture

2. Designing the Database

3. Designing Interfaces

4. Creating Executable Code

5. Integrating Functionality

[at regular intervals » to ensure that their code is compatible]

Activities in the Design & Implementation Phase

DESIGN & IMPLEMENTATION PHASE

Designing Architecture

Designing Databases

Designing Interfaces

Creating Executable Code

Integrating Functionality

Documenting

6. Documenting

- Internal Documentation
 - » Good documentation helps new developers to
 - join the team,
 - or work on parts of development that they're unfamiliar with.
- External Documentation: documentation for the end user to use.
 - instruction manuals
 - training materials

Quiz

Context

A product manager is responsible for helping to track and monitor the development process.

- Your team has just completed planning for this iteration.
 - And they have started writing code for the product.
 - Now that the planning is complete, you look around for something to do.
-
- You look on your desk, and see an instruction manual, for a feature created in the last iteration.
 - You look on the wall, and see a list of metrics your team decided to use.
 - You look at your email, and see an email from your boss, outlining the resources your team has been allocated.
 - And you look on your bookshelf and see the latest version of the risk plan.
 - You decide it's time to start monitoring the progress of development for this iteration.

Which of these work products do you think would help you track development?

- A. External documentation,
- B. Defined metrics,
- C. Allocated resources,
- D. Risk plan

Which of these work products do you think would help you track development?

- A. External documentation,
- ✓ B. Defined metrics,
- C. Allocated resources,
- D. Risk plan

Activities in the Verification and Validation Phase

VERIFICATION & VALIDATION PHASE

Developing Test
Procedures

Creating Tests

Executing Tests

Reporting
Evaluation Results

Reviewing & Auditing

Client Demonstrations

Conducting Retrospectives

constantly verifying and validating your product so that you know your development is on the right track.

Verification activities

Testing – a large part of the Verification and Validation Phase

» to verify that your product does what it is supposed to do.

- 1 Developing Test Procedures
- 2 Creating Tests
- 3 Executing Tests
- 4 Reporting Evaluation Results.

Activities in the Verification and Validation Phase 2/2

VERIFICATION & VALIDATION PHASE

Developing Test
Procedures

Creating Tests

Executing Tests

Reporting
Evaluation Results

Reviewing & Auditing

Client Demonstrations

Conducting Retrospectives

Validation Activities

» to validate that your product meets the needs of the clients and the end users.

» get feedback to improve your product.

1 Conducting Reviews and Audits

2 Demonstrating to Clients

3 Conducting Retrospectives [exercises done by development team]

- can reflect upon the product, and/or the development process.
- Retrospectives help identify areas to do better next time.
 - » [Both the product and the process can always be improved.]

Activities & Process

Use activities to create a process for your team

» By ordering and determining when and how often you revisit these activities,

Note

In agile development, these phases and activities are revisited over and over again, and are not always sequential.