SDLC-Phases-and-Models

Part 1 - Summary

Use this space to summarize your thoughts on the lesson

Part 2 - Responses

Slide 1

Use this space to take notes:

Slide 2	Your Response
Able to finish the SDLC pre-class activity? Yes No	You Chose ● **Yes** Other Choices ● No

Use this space to take notes:

Slide 3

Table of Contents

▶ What is SDLC ?
▶ Phases of SDLC
▶ SDLC Models
▶ Waterfall Model

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Use this space to take notes:

Slide 4	Your Response

1 What is SDLC ?

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▶ What is SDLC

- **SDLC - Software Development Lifecycle.**
- Systematic process to be followed for a software project.
- Structured way to create and develop software.
- The main purpose of why corporations implement SDLC is to produce software with the **highest quality** and **lowest cost** in the shortest time.
- There are various phases within SDLC.
- Each phase has its own different process and activity.
- This helps the development team to **design, create and deliver a high-quality product.**

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What is the phases of SDLC ?

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2 Phases of SDLC

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Phases of SDLC

- Every phase in a life cycle of software development needs to be deliverable from the **previous** phase.
- Requirements are converted into design, design into development and development into testing, after testing it is given to the client.

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Slide 9	Your Response
What is the high priority phase?	

Use this space to take notes:

Slide 10	Your Response

Use this space to take notes:

Slide 11	Your Response

What is the name of the document that consists of all necessary requirements to be designed?

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Slide 12	Your Response

At what phase we focus on the investigation?
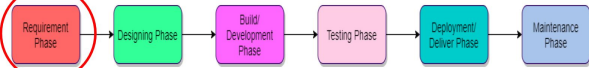
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Requirement Phase

- The client specifies requirements, specifications, expectations and any other special requirement related to the product or software.
- All the information gathered from this phase is crucial to developing the product as per the customer requirements.
- Continuous communication with customers to gather all requirements.

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Requirement Phase

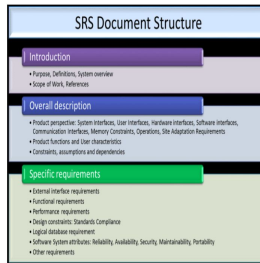- Once all the information gathered, the next step is to clearly define and document the product requirements and get them approved by the customer or the market analysts.
- This is done through an **SRS (Software Requirement Specification)** document.
- SRS consists of all the necessary requirements to be designed and developed during the project life cycle.
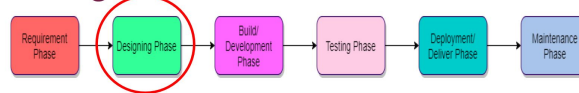
SRS Document Structure

Introduction
- Purpose, Definitions, System overview
- Scope of Work, References

Overall description
- Product perspective: System Interfaces, User Interfaces, Hardware Interfaces, Software Interfaces, Communication Interfaces, Memory Constraints, Operations, Site Adaptation Requirements
- Product functions and User characteristics
- Constraints, assumptions and dependencies

Specific requirements
- External interface requirements
- Functional requirements
- Performance requirements
- Design constraints: Standards Compliance
- Logical database requirement
- Software System attributes: Reliability, Availability, Security, Maintainability, Portability
- Other requirements

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Design Phase

Requirement Phase → Designing Phase → Build/ Development Phase → Testing Phase → Deployment/ Deliver Phase → Maintenance Phase

- The **logical designing** of the system is converted into **physical designing.**
- The output of the requirement phase is a list of things that are required and the design phase gives the way to accomplish these requirements.
- Tools and techniques used for describing system design, such as **Flowchart, Data flow diagram (DFD), Data dictionary, Structured English, Decision table, and Decision tree.**
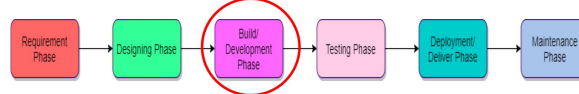
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Build/Development Phase

- This phase is also known as **coding phase**.
- Developers start to build the entire system by writing code.
- Task is divided into small units or modules.
- Coding starts according to the design and the requirements of the client.
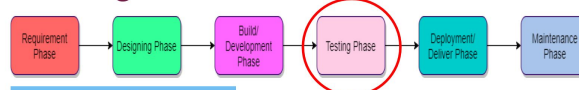
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Testing Phase

- Focus on investigation and discovery
- Make a **test plan** to start the test
- If there is a bug/defect detected in the software, or it is not working as expected, the testing team gives detailed information to the development team about the issue.
- If the defect is valid or worth fixing, it will be fixed and the development team replaces it with the new one.
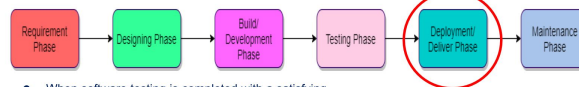
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Deployment / Deliver Phase

| Requirement Phase | Designing Phase | Build/ Development Phase | Testing Phase | Deployment/ Deliver Phase | Maintenance Phase |

- When software testing is completed with a satisfying result and there are no remaining issues in the working of the software, it is delivered to the customer.
- If any type of defect is encountered while a customer using the software, the development team will be informed to fix this problem.
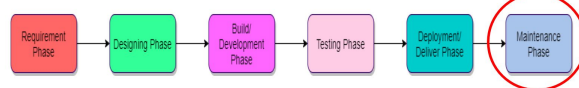- After the solution of all types of bugs and changes, the software finally deployed to the end-user.

DEVELOPMENT   DELIVERING PRODUCT TO THE CUSTOMER

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Maintenance Phase

| Requirement Phase | Designing Phase | Build/ Development Phase | Testing Phase | Deployment/ Deliver Phase | Maintenance Phase |

- The process continues until the software life cycle comes to an end.
- When a customer starts using software, actual problems start to show up. At that time, there's a need to solve these problems.
- Maintenance Phase also includes making changes in **hardware** and **software** to maintain its operational effectiveness like to improve its performance, enhance security features and address customer's requirements.

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What is the SDLC models?

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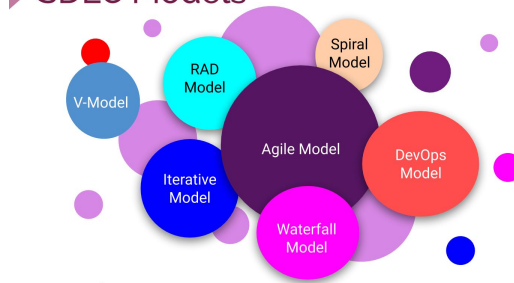
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3 ► SDLC Models

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- The **earliest** approach and a widely accepted SDLC model
- Very simple to understand and use.
- Formed the transition between the phases of the software development process like a **waterfall pouring**.
- Introduced by Royce, 1970.
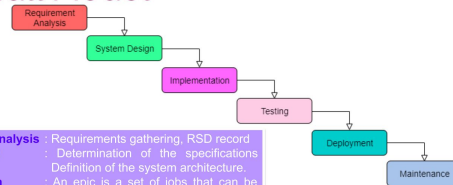- The process of software development in a linear sequential flow.
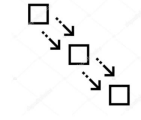
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▶ **Waterfall Model**

Requirement Analysis
System Design
Implementation
Testing
Deployment
Maintenance

- **Requirement Analysis** : Requirements gathering, RSD record
- **System Design** : Determination of the specifications Definition of the system architecture.
- **Implementation** : An epic is a set of jobs that can be divided into manageable user stories.
- **Testing** : A bug impairs expected functionality of the product.
- **Deployment** : A subtask can be considered as a smaller piece of a story.
- **Maintenance** : Bug fixes, improved versions

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Waterfall Model

Advantages

- Easy and simple to use and understand.
- Easy to manage
- Phases clearly defined.
- The coding and testing steps are very short
- The number of errors during the test phase is very small.

Disadvantages

- The time-loss due to the upper phase errors is quite high.
- No working software is produced until late during the life cycle.
- There is a high amount of risk and uncertainty.
- The progress in phases can be difficult to measure.
- It can not adapt to changing requirements.

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Kahoot!

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Link(s) on this slide:
- https://create.kahoot.it/details/sdlc-1-phases-and-models/4e2ce85b-0c9d-4479-8a46-f65b7125948e

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