www.softwaretestinggenius.com

A Storehouse of Vast Knowledge on Software Testing and Quality Assurance

Software Development Life Cycle

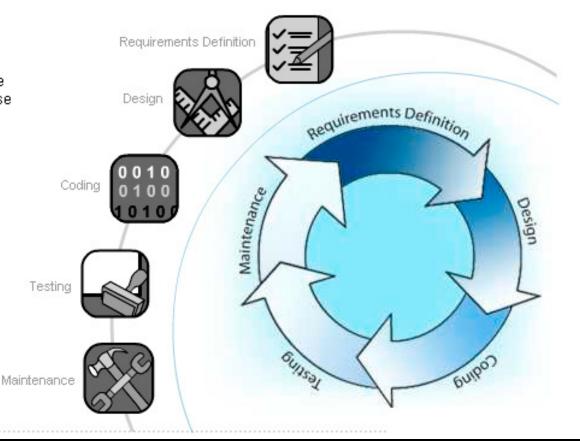# (All Types of SDLC Models)

♥ Software Development Life Cycle - (SDLC) ♥

SDLC

A software project, regardless of whether it is large or small, goes through certain defined stages, which together, are known as the Software Development Lifecycle (SDLC). There are five phases that are part of the SDLC. These phases are: requirements definition, design, coding, testing, and maintenance.

Requirements Definition

Design

Coding

Testing

Maintenance

Requirements Definition

Design

Coding

Testing

Maintenance

♥ Software Development Life Cycle - (SDLC) ♥

SDLC

A software project, regardless of whether it is large or small, goes through certain defined stages, which together, are known as the Software Development Lifecycle (SDLC). There are five phases that are part of the SDLC. These phases are: requirements definition, design, coding, testing, and maintenance.

Requirements Definition

Design

Coding

0 0 1 0
0 1 0 0
1 0 1 0

Testing

Maintenance

Requirements Definition:

In the requirements definition phase, the purpose of the system and the constraints under which it should operate are identified. These points are documented in a requirements document, which contains information related to the product, typically an overview. It also details out the specifications for operating and maintaining the product. It includes instructions for troubleshooting, a list of possible enhancements that the user can make to the system, and certain functional and non-functional specifications.

♥ Software Development Life Cycle - (SDLC) ♥

SDLC

A software project, regardless of whether it is large or small, goes through certain defined stages, which together, are known as the Software Development Lifecycle (SDLC). There are five phases that are part of the SDLC. These phases are: requirements definition, design, coding, testing, and maintenance.

Requirements Definition

Design

Coding

Testing

Maintenance

Design:

The design phase is used to develop a plan that will have the system up and running and implementing requirements. This plan is drawn using a suitable design methodology and notations. Many methodologies and notations, specifically suited to software design, have been developed. Each method emphasises certain aspects of a system and neglects others. You need to select a methodology based on your requirements.

SDLC

A software project, regardless of whether it is large or small, goes through certain defined stages, which together, are known as the Software Development Lifecycle (SDLC). There are five phases that are part of the SDLC. These phases are: requirements definition, design, coding, testing, and maintenance.

Requirements Definition

Design

Coding

Testing

Maintenance

Coding:

In the coding phase, the code to implement the design of the SDLC is written using a programming language. Most code is written in a higher-level language, which is then passed to a compiler that translates it into assembly code and converts it to machine code.

Code is separated into modules and written using a text editor. Some text editors can recognise the programming language used and allow the programmer to check for syntax errors. To check for other errors in the code, the programmer needs to use a debugger.

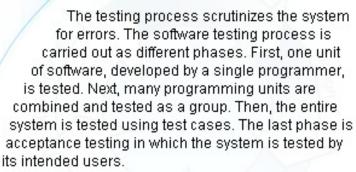# ♥ Software Development Life Cycle - (SDLC) ♥

SDLC

A software project, regardless of whether it is large or small, goes through certain defined stages, which together, are known as the Software Development Lifecycle (SDLC). There are five phases that are part of the SDLC. These phases are: requirements definition, design, coding, testing, and maintenance.

Requirements Definition

Design

Coding

Testing

Maintenance

Testing:

The testing process scrutinizes the system for errors. The software testing process is carried out as different phases. First, one unit of software, developed by a single programmer, is tested. Next, many programming units are combined and tested as a group. Then, the entire system is tested using test cases. The last phase is acceptance testing in which the system is tested by its intended users.

The test case comprises a test case type, test conditions, and the environmental state of the system.

♥ Software Development Life Cycle - (SDLC) ♥

SDLC

A software project, regardless of whether it is large or small, goes through certain defined stages, which together, are known as the Software Development Lifecycle (SDLC). There are five phases that are part of the SDLC. These phases are: requirements definition, design, coding, testing, and maintenance.

Requirements Definition

Design

Coding

`0 0 1 0`
`0 1 0 0`
`1 0 1 0`

Testing

Maintenance

Maintenance:

The maintenance phase is the last phase in the SDLC and usually occurs after deployment. The three activities in the maintenance phase include adaptation, correction, and enhancement.

Suppose a system is shifted from Windows to Linux, you need to update it so that it adapts to its new environment. This is known as adaptive maintenance. The process of fixing errors after the system has been released is known as corrective maintenance. Enhancement, on the other hand, is adding new functionality to a system.

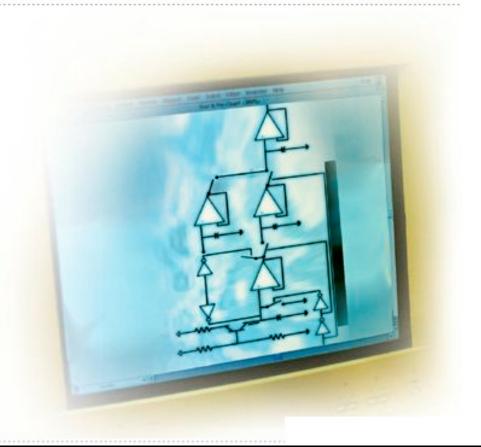# ♥ Software Development Life Cycle - (SDLC) ♥

SDLC Models

SDLC models are created based on the various phases of the SDLC, the order in which they occur, and the interaction between them. The output generated by each phase serves as the input for the next. Some SDLC models include: the Waterfall model, the Rapid Application Development (RAD) model, and the Joint Application Development (JAD) model

Waterfall Model

RAD Model

JAD Model

♥ Software Development Life Cycle - (SDLC) ♥

SDLC Models

SDLC models are created based on the various phases of the SDLC, the order in which they occur, and the interaction between them. The output generated by each phase serves as the input for the next. Some SDLC models include: the Waterfall model, the Rapid Application Development (RAD) model, and the Joint Application Development (JAD) model

Waterfall Model

RAD Model

JAD Model

Waterfall Model

The Waterfall model is the most popular one as it covers all the phases in the SDLC. It follows a linear and sequential pattern and sets goals for each phase. The Waterfall model does not take iterative or overlapping steps into account. Thus, it simplifies task scheduling. However, it is very rigid and does not easily allow revisions.

♥ Software Development Life Cycle - (SDLC) ♥

SDLC Models

SDLC models are created based on the various phases of the SDLC, the order in which they occur, and the interaction between them. The output generated by each phase serves as the input for the next. Some SDLC models include: the Waterfall model, the Rapid Application Development (RAD) model, and the Joint Application Development (JAD) model

Waterfall Model

RAD Model

JAD Model

RAD Model

The RAD model is based on the concept that better systems can be developed in lesser time by using focus groups to gather system requirements.

♥ Software Development Life Cycle - (SDLC) ♥

SDLC Models

SDLC models are created based on the various phases of the SDLC, the order in which they occur, and the interaction between them. The output generated by each phase serves as the input for the next. Some SDLC models include: the Waterfall model, the Rapid Application Development (RAD) model, and the Joint Application Development (JAD) model

Waterfall Model

RAD Model

JAD Model

JAD Model

The JAD model requires the involvement of the client or end user in the design and development of an application. This takes place through a series of collaborative workshops called JAD sessions.

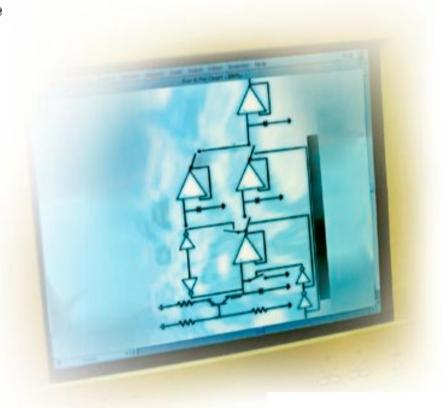# ♥ Software Development Life Cycle - (SDLC) ♥

SDLC Models

Some other SDLC models include: the Prototyping model, the Synchronize-and-Stabilize model, and the Spiral model.

- Prototyping Model
- Synchronize-and-Stabilize Model
- Spiral Model

SDLC Models

Some other SDLC models include: the Prototyping model, the Synchronize-and-Stabilize model, and the Spiral model.

Prototyping Model

Synchronize-and-Stabilize Model

Spiral Model

Prototyping Model

In the Prototyping model, a prototype is created, tested, and reworked until an acceptable prototype is created. This prototype is then used to develop the complete system.

♥ Software Development Life Cycle - (SDLC) ♥

SDLC Models

Some other SDLC models include: the Prototyping model, the Synchronize-and-Stabilize model, and the Spiral model.

Prototyping Model

Synchronize-and-Stabilize Model

Spiral Model

Synchronize-and-Stabilize Model

In the Synchronize-and-Stabilize model, many teams work on individual application modules simultaneously. Throughout the development process, these teams need to synchronize and stabilize their code with that of other teams.

SDLC Models

Some other SDLC models include: the Prototyping model, the Synchronize-and-Stabilize model, and the Spiral model.

Prototyping Model

Synchronize-and-Stabilize Model

Spiral Model

Spiral Model

The Spiral model is preferred for large, expensive, and complicated projects. It combines the features of the Prototyping and Waterfall models.

♥ Software Development Life Cycle - (SDLC) ♥

Check Point

Match each phase in the SDLC with its feature.

Phase

Feature

Phase		Feature
		Is used to identify the purpose of the system and the constraints under which it should operate
		Is used to develop a plan that will have the system up and running
		Uses a programming language implement the design of the SDLC
		Is used to scan the system for errors
		Includes three activities: adaptation, correction, and enhancement

- Testing Phase
- Requirements Phase
- Design Phase
- Maintenance Phase
- Coding Phase

Feedback

Not quite. The correct matches are displayed on the screen.

Phase	Feature
Requirements Phase	Is used to identify the purpose of the system and the constraints under which it should operate
Design Phase	Is used to develop a plan that will have the system up and running
Coding Phase	Uses a programming language implement the design of the SDLC
Testing Phase	Is used to scan the system for errors
Maintenance Phase	Includes three activities: adaptation, correction, and enhancement

♥ Software Development Life Cycle - (SDLC) ♥

Check Point

Match each SDLC model with its feature.

SDLC Model	Feature
JAD Model	Follows a linear pattern and sets goals for each phase
RAD Model	Proposes that better systems can be developed in lesser time using focus groups to gather system requirements
Waterfall Model	Uses collaborative workshops to involve the client in the design of an application
Spiral Model	Has many teams working simultaneously on individual application modules
Synchronize-and-Stabilize Model	Combines the features of the Prototyping and Waterfall models

Feedback

Not quite. The correct matches are displayed on the screen.

SDLC Model	Feature
Waterfall Model	Follows a linear pattern and sets goals for each phase
RAD Model	Proposes that better systems can be developed in lesser time using focus groups to gather system requirements
JAD Model	Uses collaborative workshops to involve the client in the design of an application
Synchronize-and-Stabilize Model	Has many teams working simultaneously on individual application modules
Spiral Model	Combines the features of the Prototyping and Waterfall models

Check Point

Select all that apply

Which of these statements is true when managing software projects?

- ☐ The activities in every phase are identified and broken down to the smallest possible unit.

- ☐ Teams in different geographical locations need to have access to facilities like e-mail, and shared Web pages.

- ☐ The manager of a software project should focus exclusively on scheduling and budgeting.

- ☐ Resource management refers only to gathering human resources and does not include the coordination of those resources.

♥ Software Development Life Cycle - (SDLC) ♥

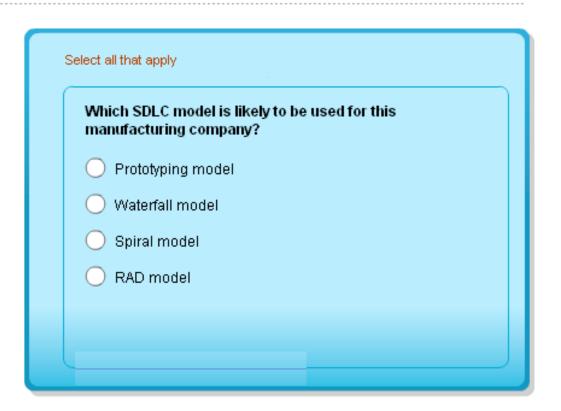## Check Point

Select all that apply

Which of these statements is true when managing software projects?

☑ The activities in every phase are identified and broken down to the smallest possible unit.

☑ Teams in different geographical locations need to have access to facilities like e-mail, and shared Web pages.

☐ The manager of a software project should focus exclusively on scheduling and budgeting.

☐ Resource management refers only to gathering human resources and does not include the coordination of those resources.

Feedback

That's right! The activities in every phase are identified and broken down to the smallest possible unit. Teams in different geographical locations need to have access to facilities like threaded discussion boards, e-mail, and shared Web pages that facilitate collaboration throughout the SDLC.

♥ Software Development Life Cycle - (SDLC) ♥

Check Point

A manufacturing company wants you to develop software for purchase order processing. The purchase order processes in the company are well defined. The customer requirements are also very clear. There is very little chance that the system might be revised.

Select all that apply

Which SDLC model is likely to be used for this manufacturing company?

- ○ Prototyping model
- ○ Waterfall model
- ○ Spiral model
- ○ RAD model

♥ Software Development Life Cycle - (SDLC) ♥

Check Point

A manufacturing company wants you to develop software for purchase order processing. The purchase order processes in the company are well defined. The customer requirements are also very clear. There is very little chance that

Feedback

Correct. The Waterfall model follows a linear and sequential pattern and sets goals for each phase. However, it is very rigid and does not easily allow revisions.

Select all that apply

Which SDLC model is likely to be used for this manufacturing company?

○ Prototyping model

◉ Waterfall model

○ Spiral model

○ RAD model

Conclusion

Every Software Project goes through certain stages known as the Software Development Lifecycle (SDLC). There are five phases that are part of SDLC: requirements definition, design, coding, testing, and maintenance.

Based on the various phases of the SDLC, the order in which they occur, and the interaction between them, every software project fits into a SDLC model. Some popular SDLC models are: the Waterfall model, the RAD model, the Prototyping model, the synchronize-and-Stabilize model, and the Spiral Model.

Summary

Software Testing Genius

Thank You