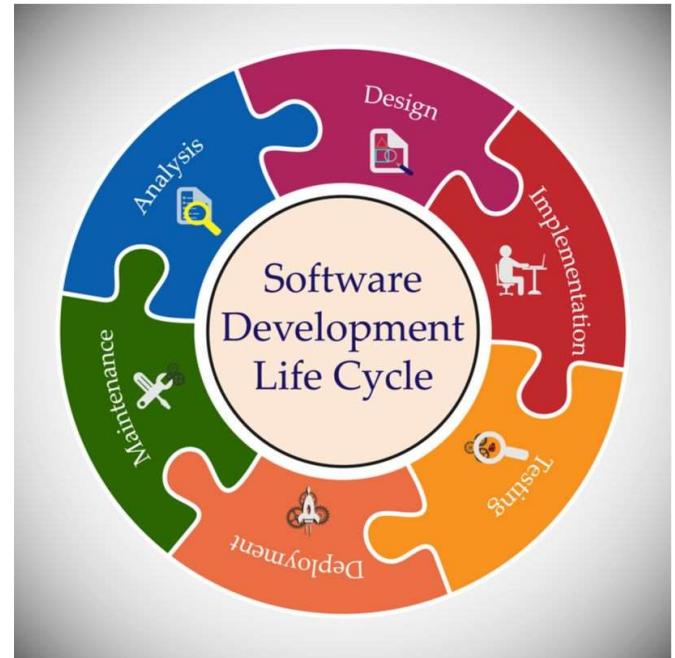




SDLC Session - 1



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SDLC



Software Development Life Cycle

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Circle how you are feeling:



Pear Deck



Students, draw anywhere on this slide!

REINVENT YOURSELF

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Do not remove this bar



► BEFORE (in-class session)



What do you know about SDLC.

(Please write shortly on PEAR DECK slide)



Students, write your response!

Pear Deck Interactive Slide
Do not remove this bar

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Table of Contents



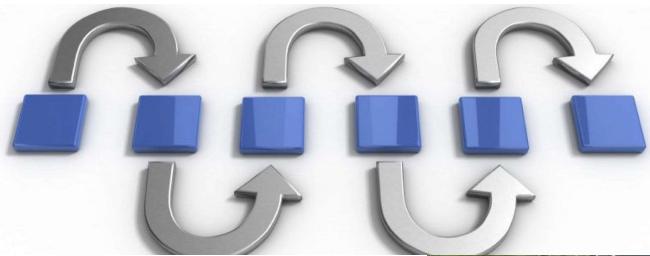
- ▶ What is SDLC ?
- ▶ Phases of SDLC
- ▶ SDLC Models
- ▶ Waterfall Model

What is SDLC ?





► What is SDLC



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► What is SDLC



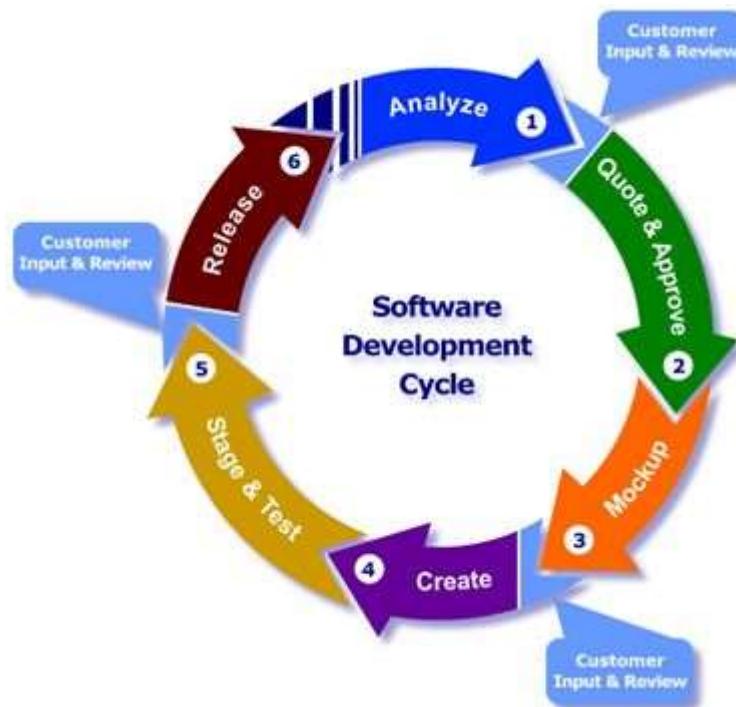
- Systematic process to be followed for a software project.
- Structured way to create and develop software.

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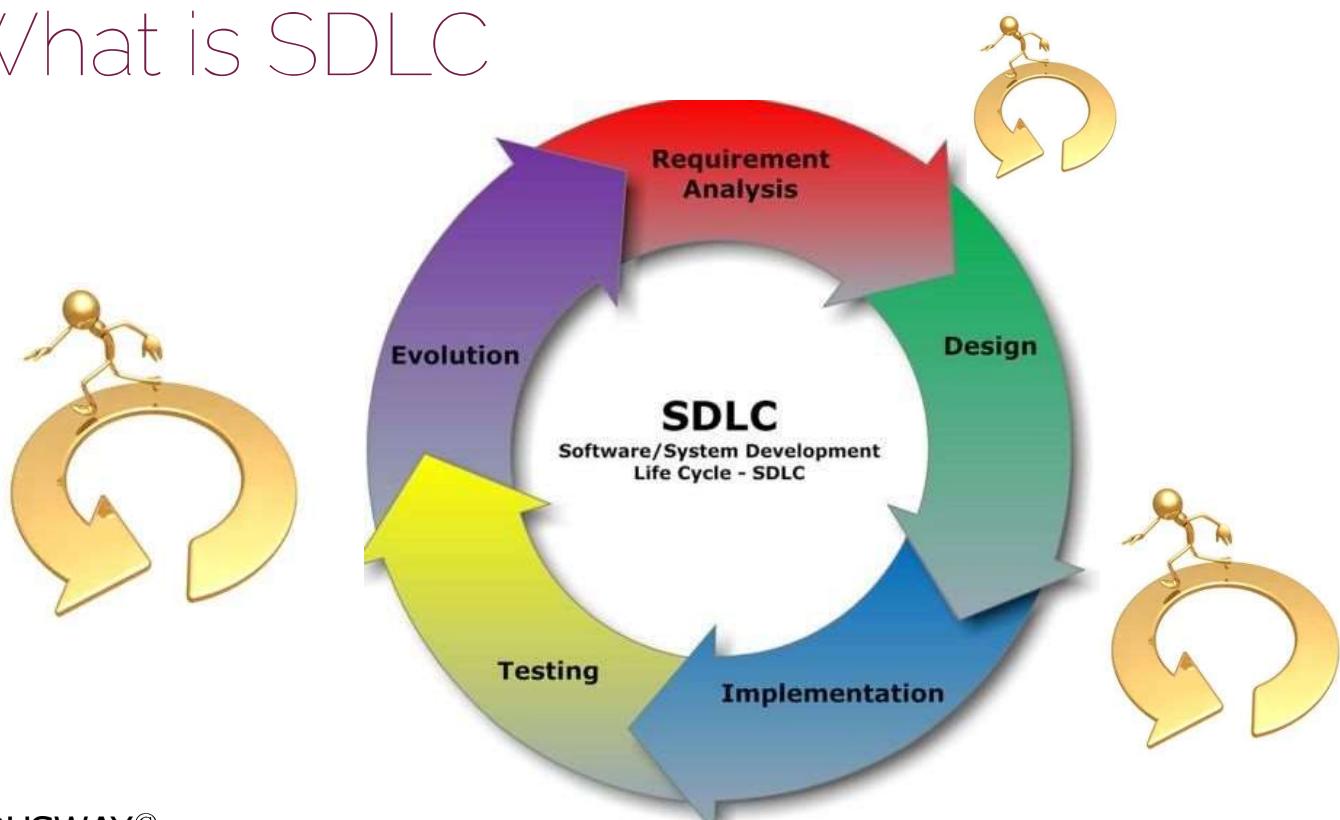


► What is SDLC



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► What is SDLC

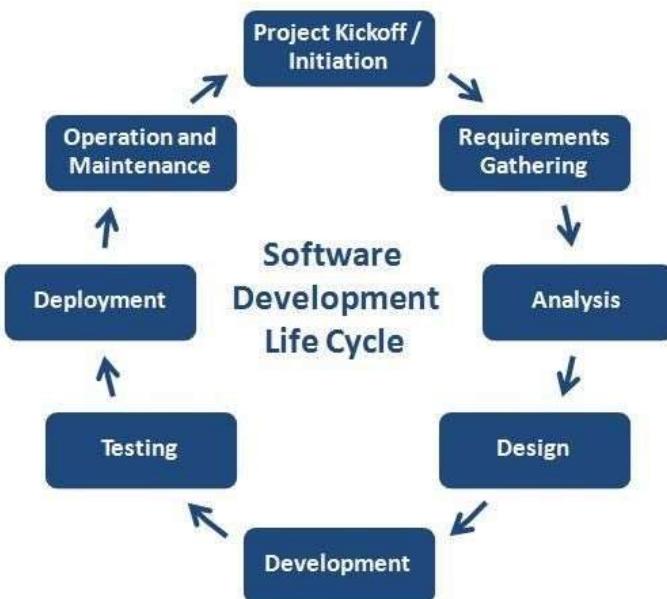


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► What is SDLC



V1.02.03



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2

Phases of SDLC

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► Phases of SDLC

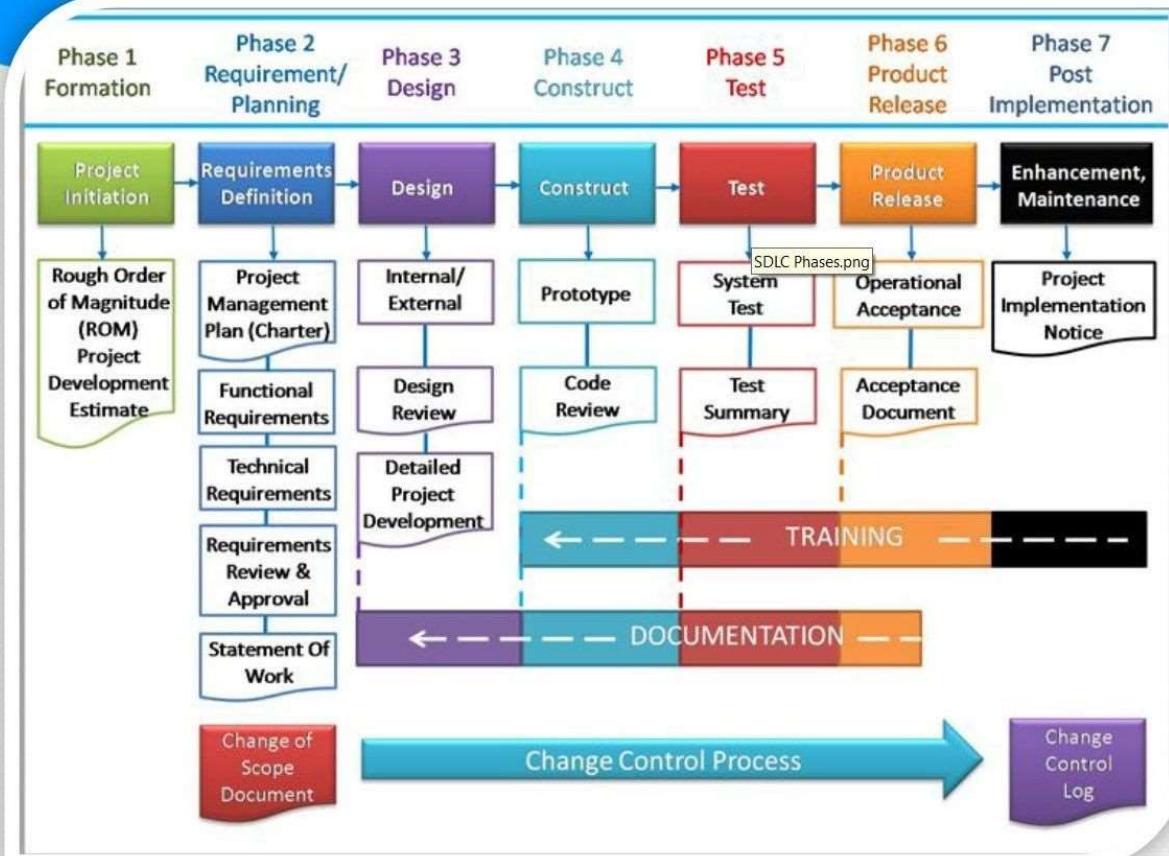


How many phases does SDLC have?

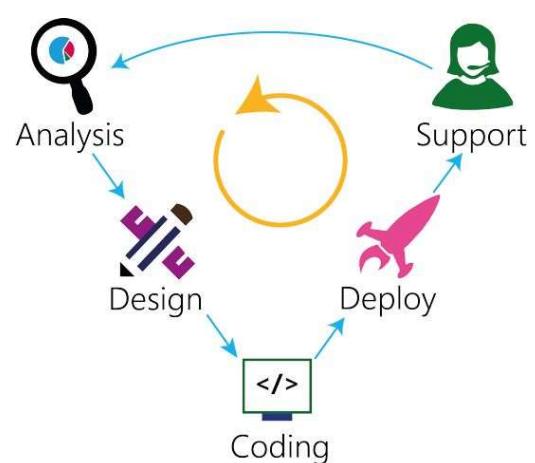


A R
C S WAY Students choose an option
REINVENT YOURSELF

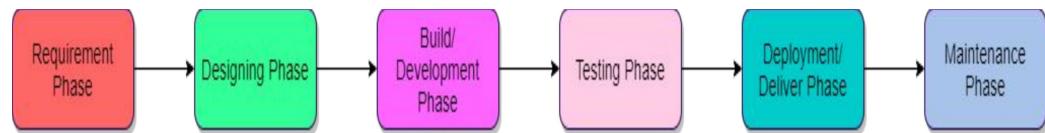
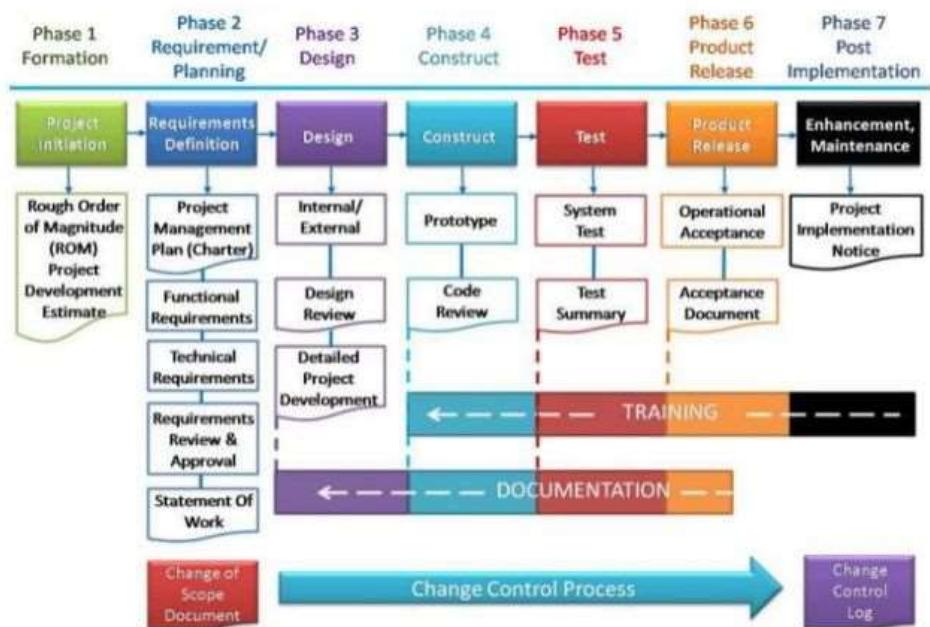
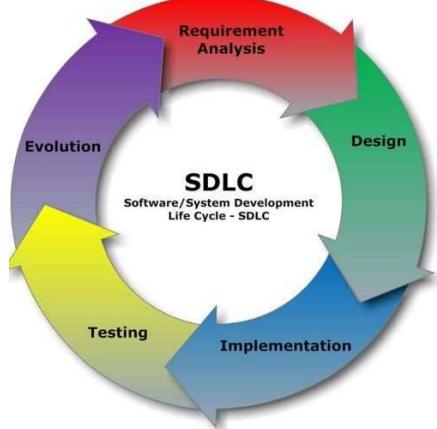
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Phases of SDLC



Phases of SDLC



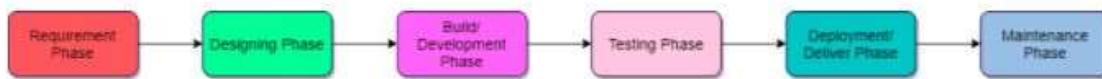
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Phases of SDLC

The SDLC process consists essentially of the following phases:

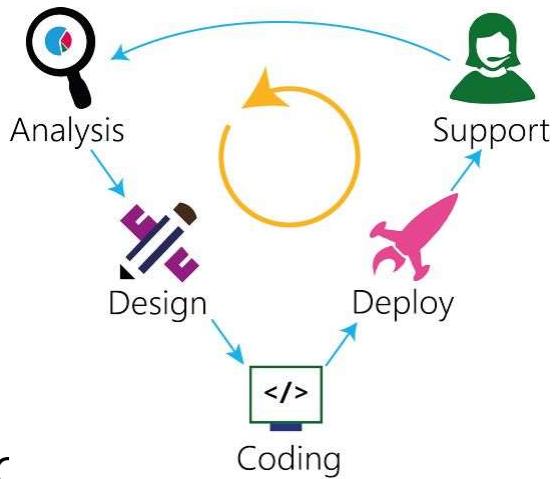
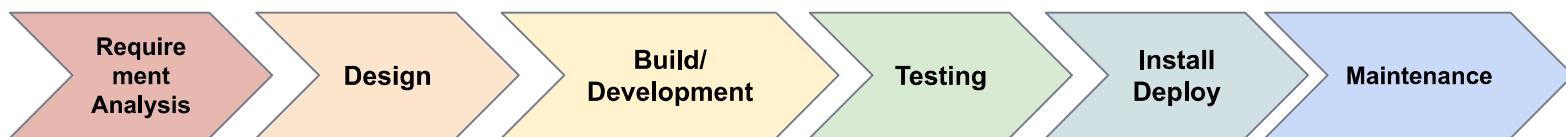
- Requirement Phase
- Design Phase
- Build/Development Phase
- Testing Phase
- Deployment/Deliver Phase
- Maintenance



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► Phases of SDLC



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► Phases of SDLC



What is the most critical phase?



► Phases of SDLC



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



Table of Contents	
Introduction:	4
1.1 Purpose:	4
1.2 Document Conventions	4
1.3 Project Scope	5
1.3.1 Sales Manager	5
1.3.2 Inventory Manager	5
1.3.3 Customer Scope	5
1.4 References	5
2. Overall Descriptions	6
2.1 Product Perspective	6
2.1.1 Context Diagram	7
2.2 User Classes	8
2.3 Organization	9

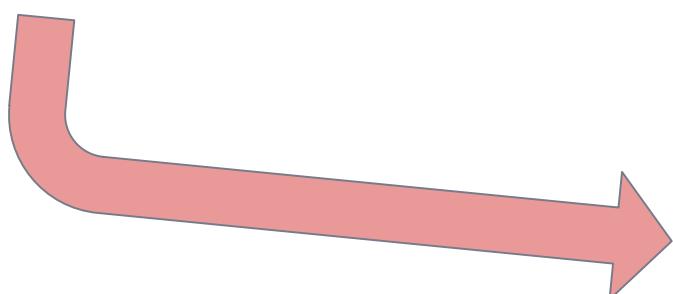
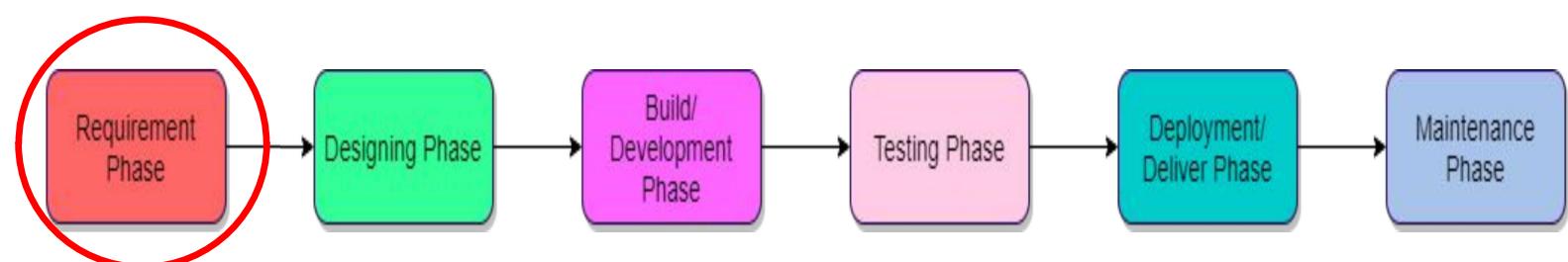


CJSWAY Students choose an option
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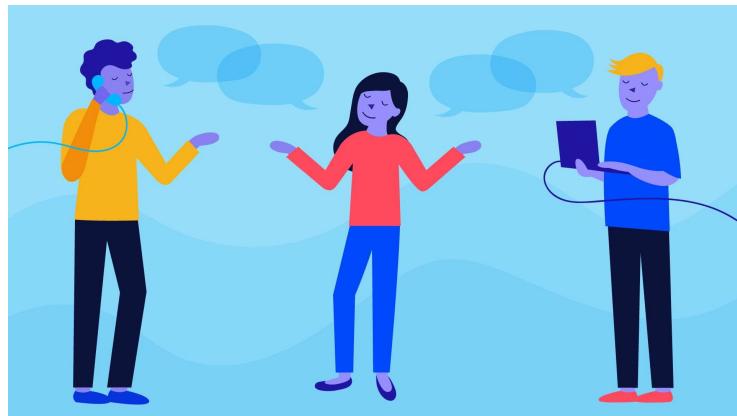
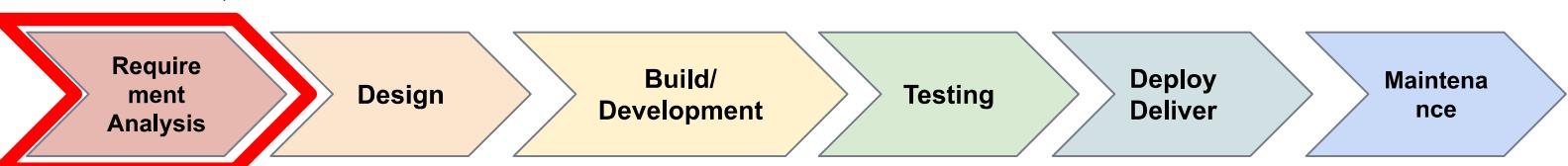
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► Requirements Phase



Requirements Phase



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Requirement Phase



STRUCTURE OF SRS

Chapter no. 1	Preface	It briefly explains about project.
Chapter no. 2	Introduction	Highlights the projects with its title and briefly describe the projects.
Chapter no. 3	Scope	What is the capability of the product?
Chapter no. 4	Glossary	Definition, acronyms and abbreviation.
Chapter no. 5	User requirement definition	Describes non-functional requirements
Chapter no. 6	Architecture	Specifies system architecture
Chapter no. 7	System requirements	System description with function and non-function requirement.
Chapter no. 8	System model	System model used to represent relationship.
Chapter no. 9	System evaluation	How system is evolved?
Chapter no. 10	Appendices	Annexure, application, data requirements.
Chapter no. 11	indexes	Indices of diagram, tables, functions.

Requirement Phase



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SRS Document Structure

Introduction

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

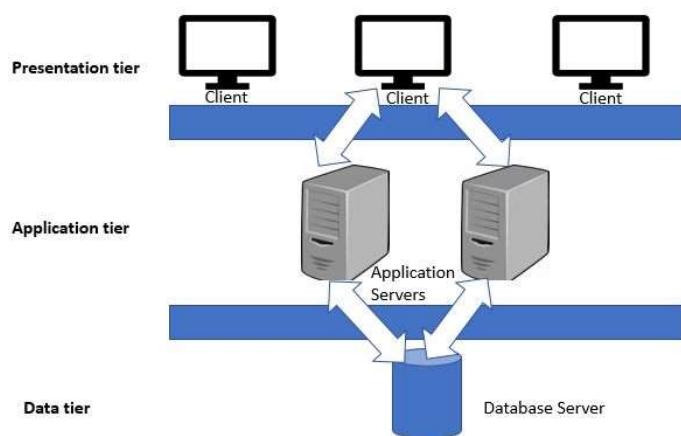
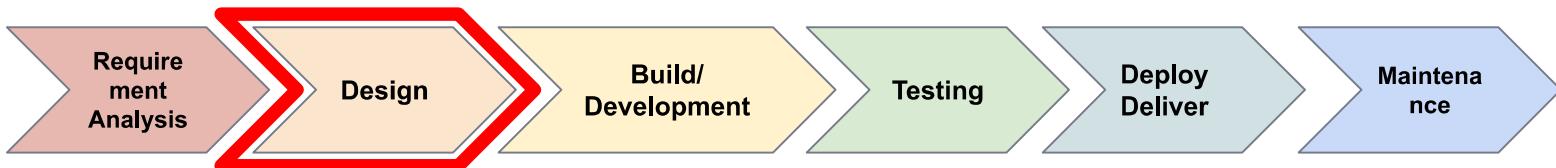
Overall description

- 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

→ Design Phase

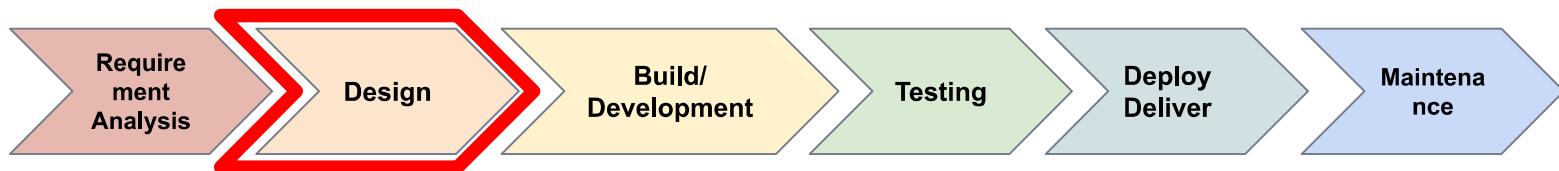


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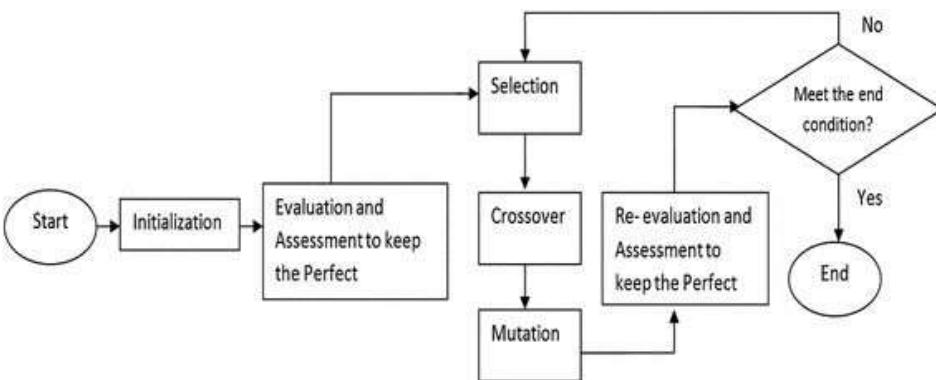
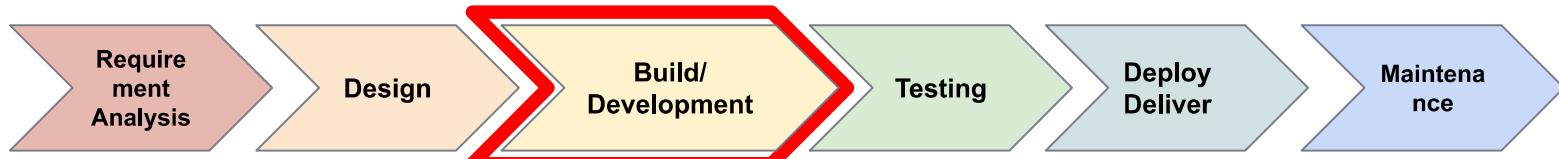
Design Phase



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Build/Development Phase



```

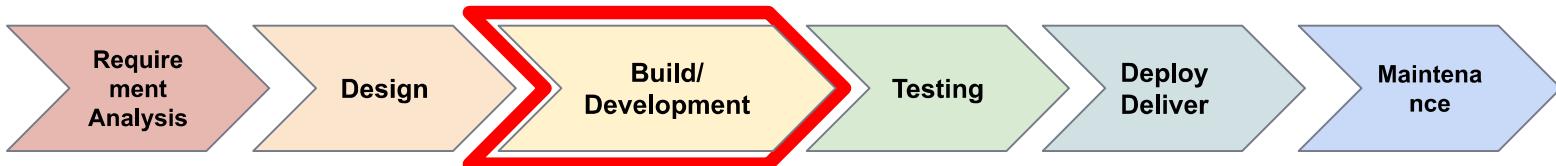
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        onSeconds() args = arg1; </script> ( var str=span.j
        .removeChild( if( data.substring(i,i+1) == ":" ) (sp
        & rest == fun(sp) ) { var theSpan=document.cre
        (rest = args.toString() document.createTextNode(
        percent1++; window.status= " % complete ";
        secForm = Math.floor(secTimeCode); sec.ctref
        on Seconds(data) { :var ll = return( data.sub
        br.while( ll%4 != 0 ) var sd = name.value; bhsdpd
        360; else color.length=span.firstChild.data.le
        (cube) { string.speed=(spd==fun(bar): if(isNur
        decimalToBin(sd); sqr.hinc=fork.deg>this.
        the next step setAttr

```

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► Design Phase



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Phases of SDLC

At what phase we focus on the investigation?

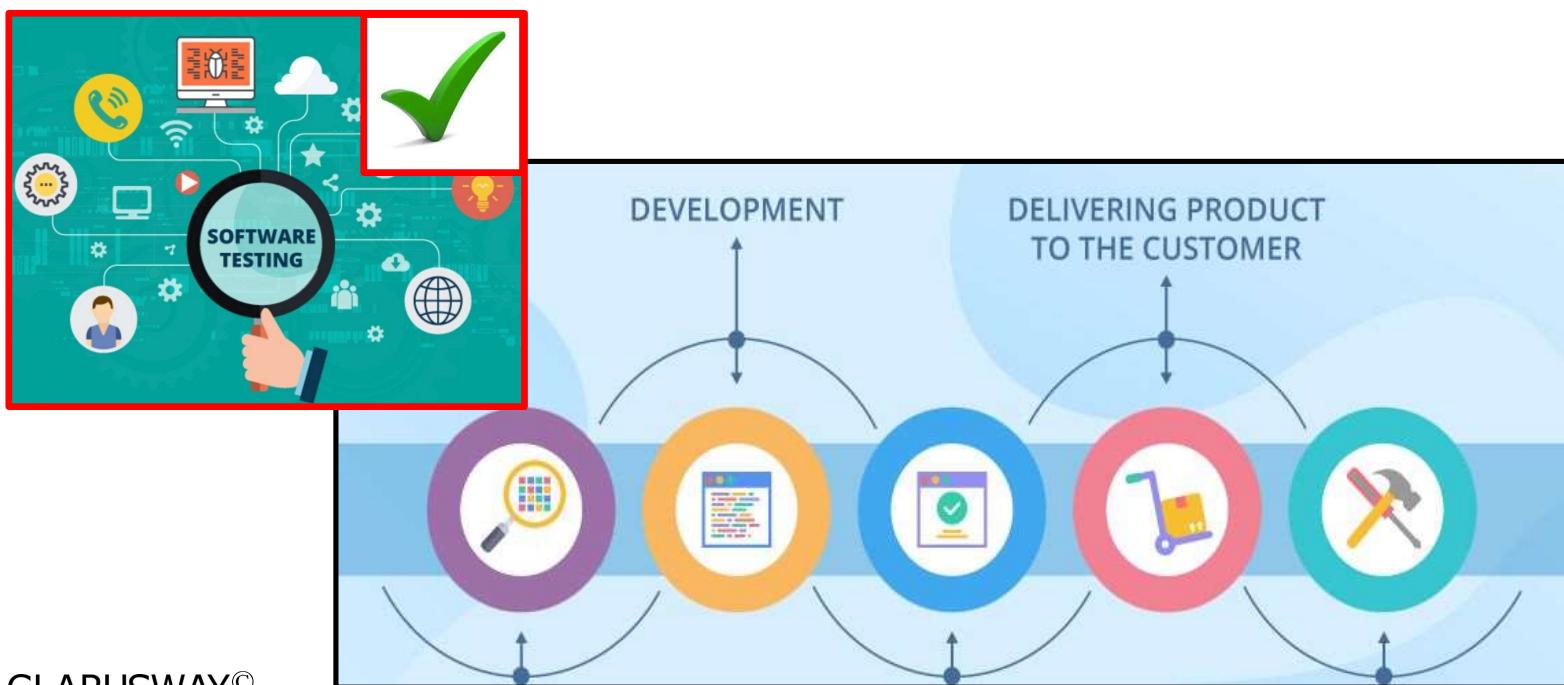
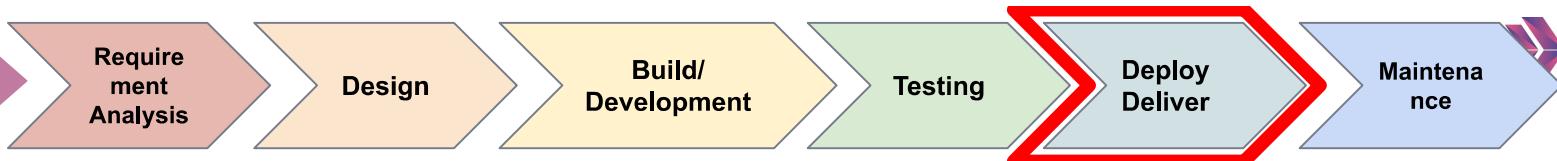


Testing Phase



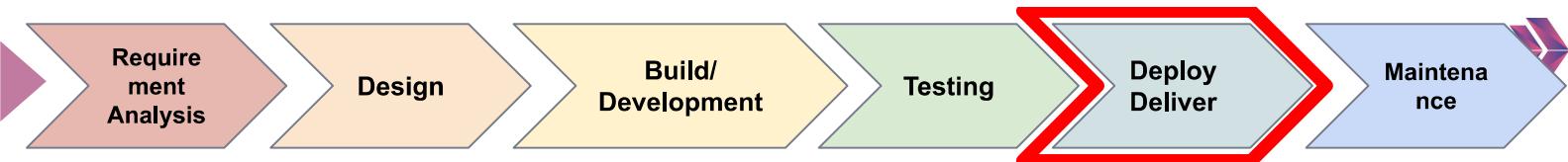
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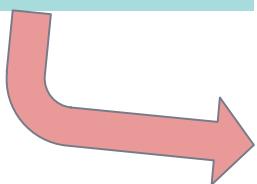
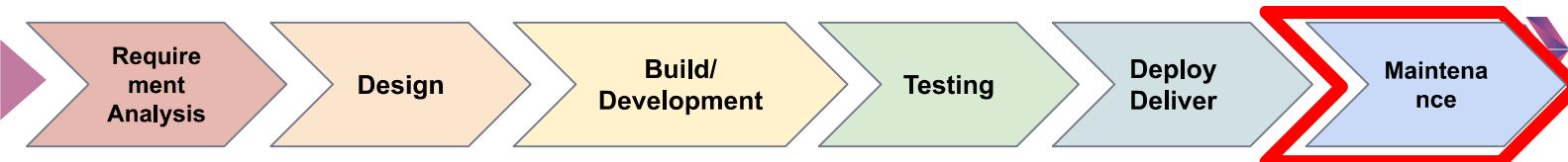


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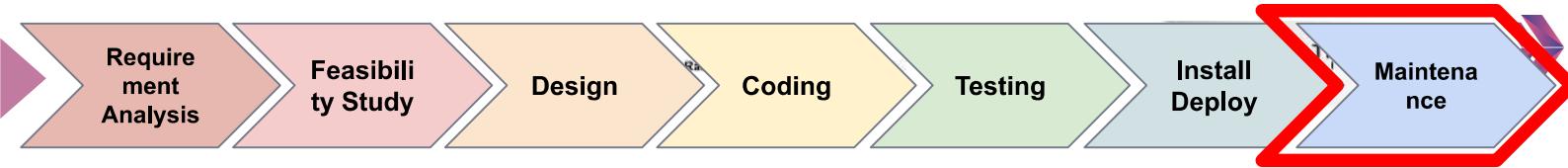
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**Verilerimizi gerçekten şifrelemek zorunda mıyız?
Zaten başlangıçta iletişimimizin büyük bölümünü anlamak mümkün değil ki...**



“Do we really need to encrypt our data? Most of our communications are impossible to understand in the first place.”

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SDLC Models

► SDLC Models



List the common SDLC models.

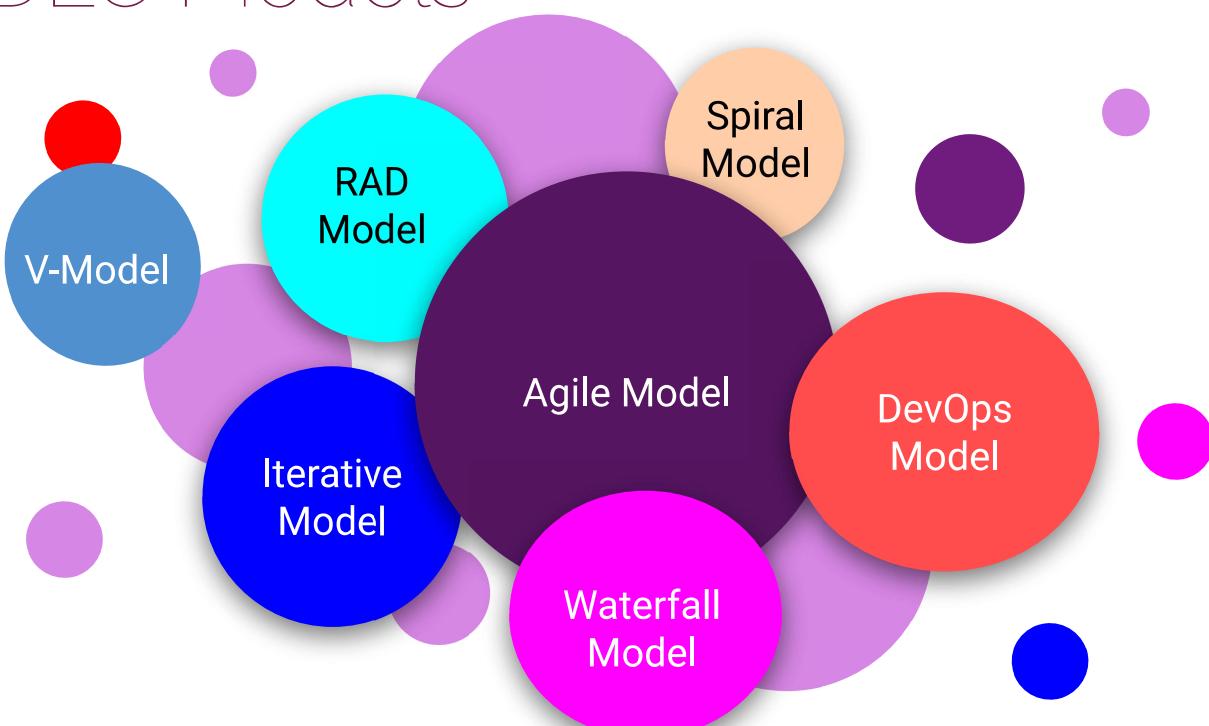


Students, write your response!

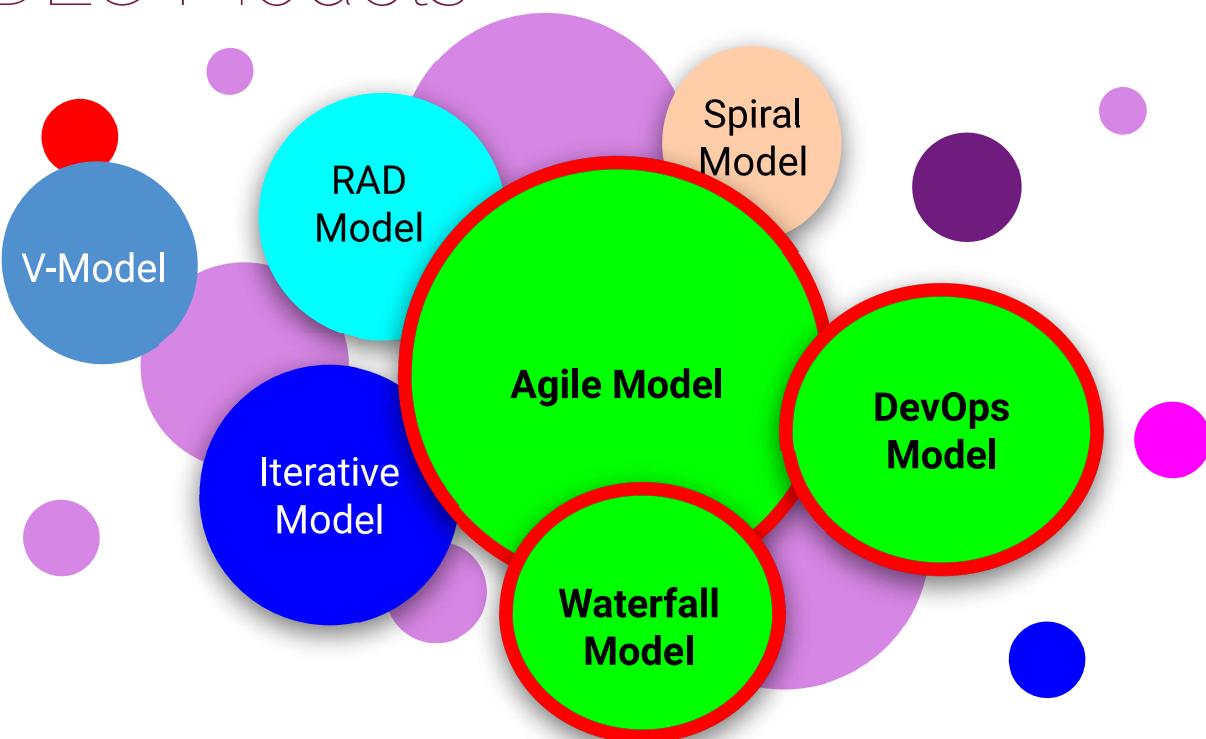
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► SDLC Models

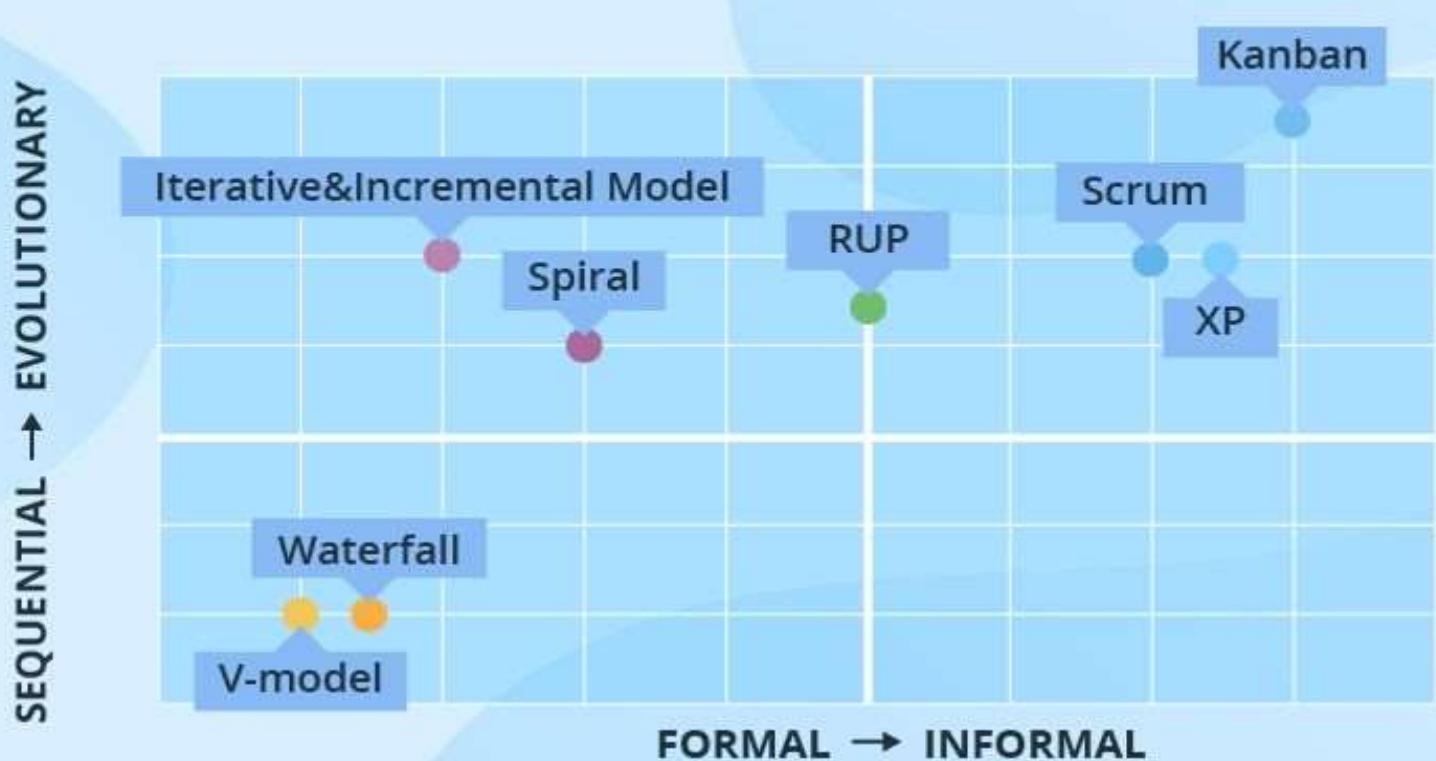


SDLC Models



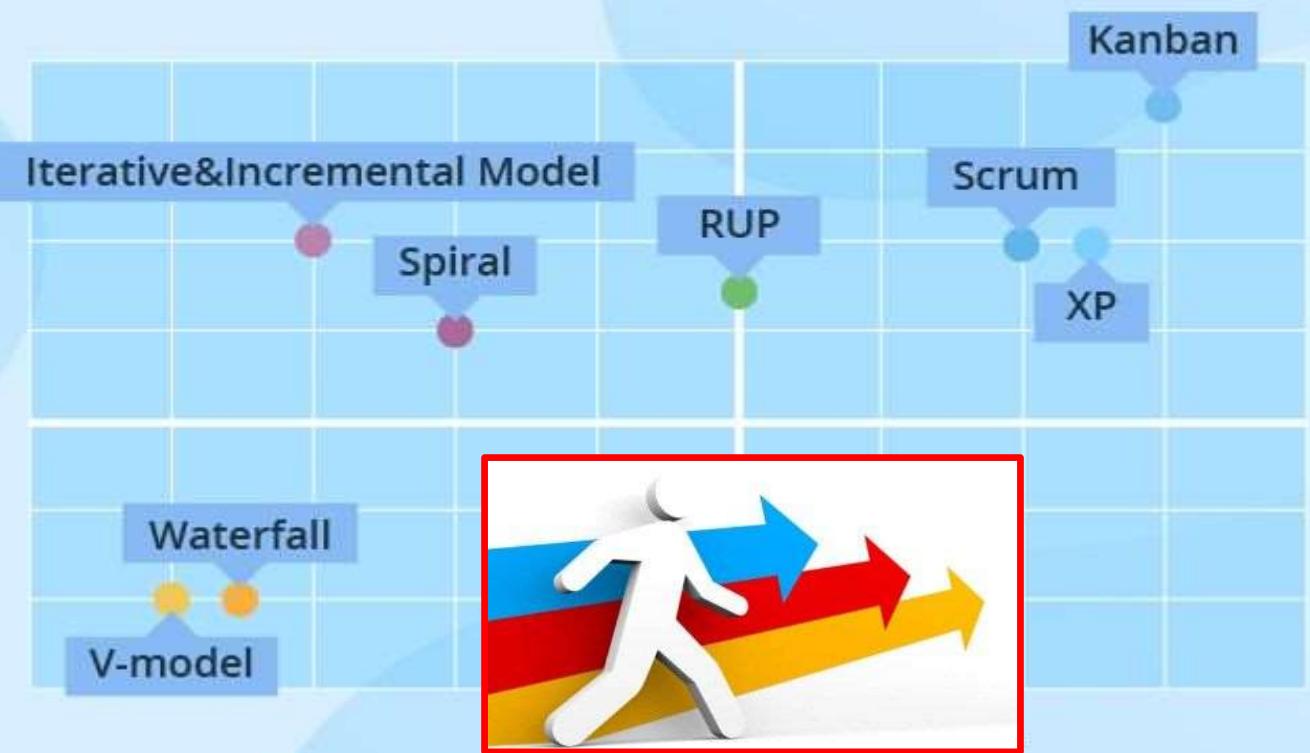
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TYPES OF POPULAR SDLC MODELS



TYPES OF POPULAR SDLC MODELS

SEQUENTIAL → EVOLUTIONARY



► SDLC Models

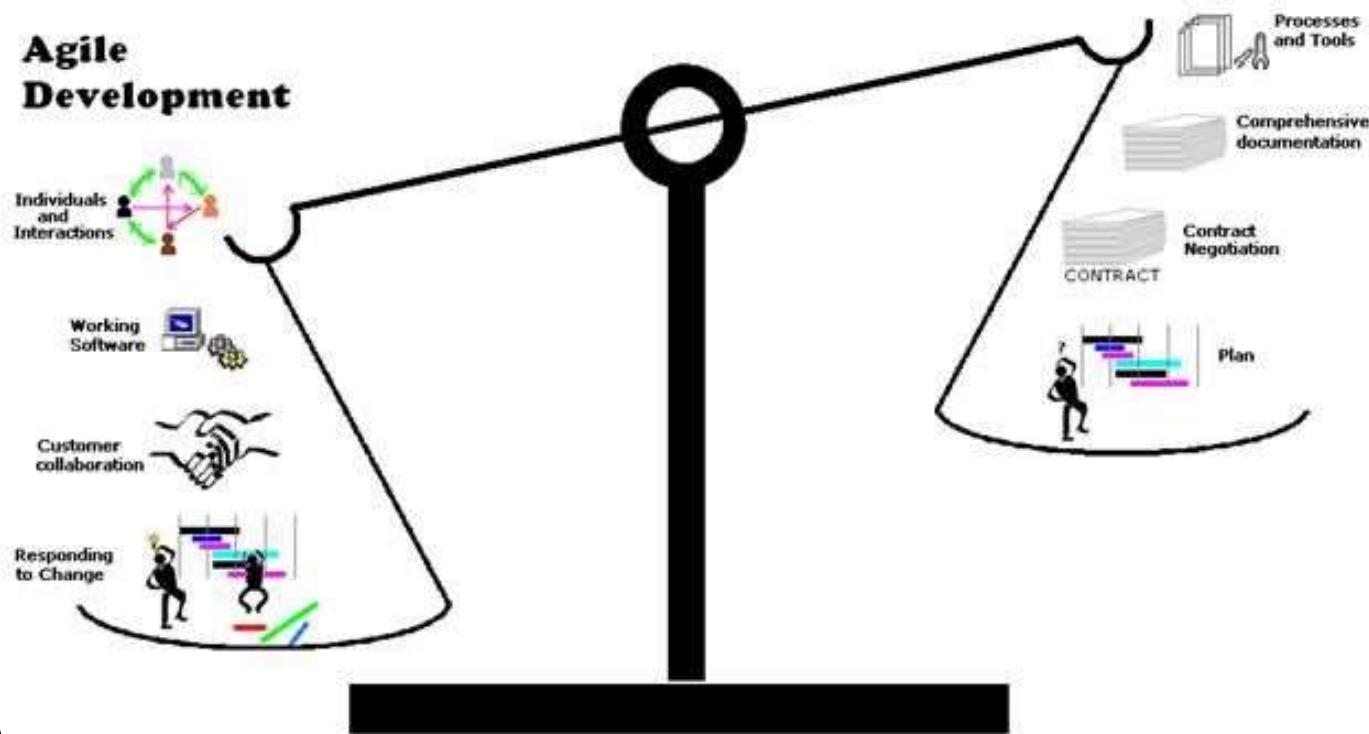
Which one is the traditional SDLC model?



SDLC Models

Traditional Development

Agile Development



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Waterfall Model

4



Waterfall Model

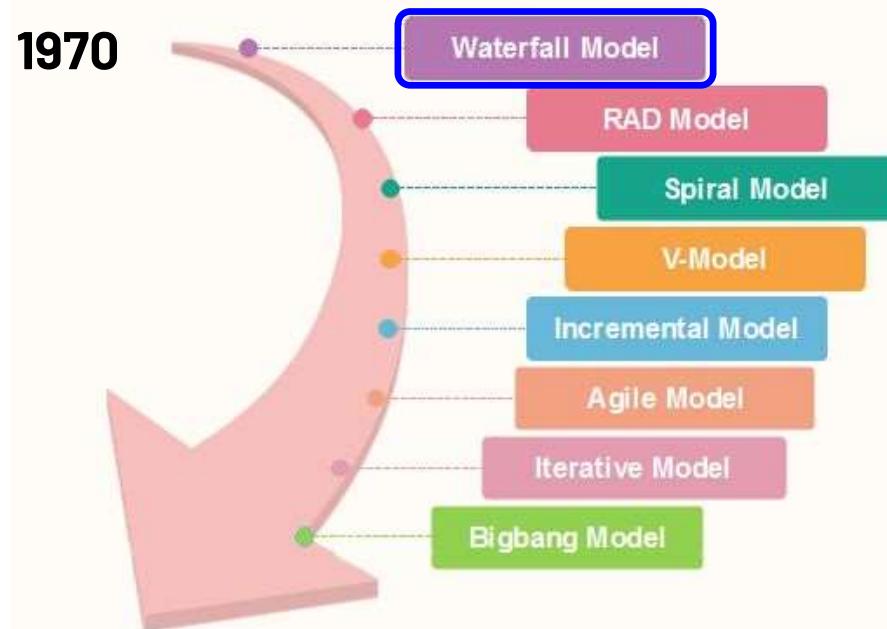
In which years did the Waterfall model appear?

Waterfall Model



SDLC (Models)

1970



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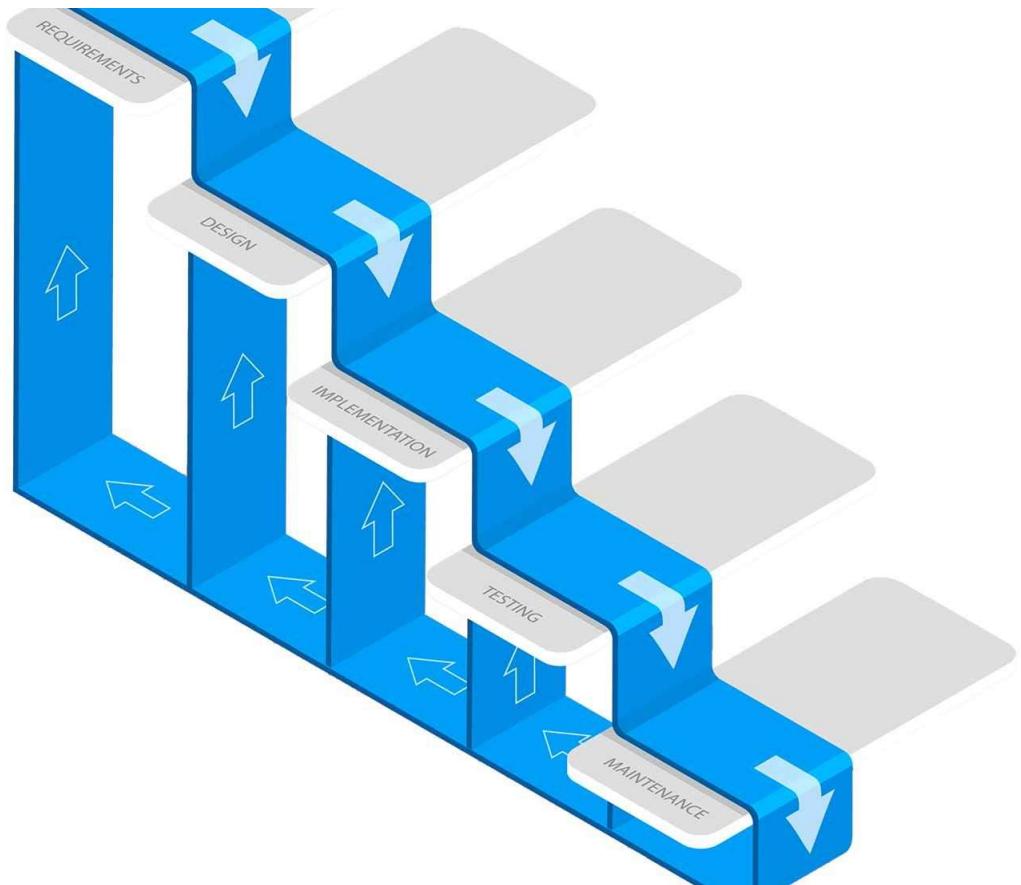
Waterfall Model



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Waterfall



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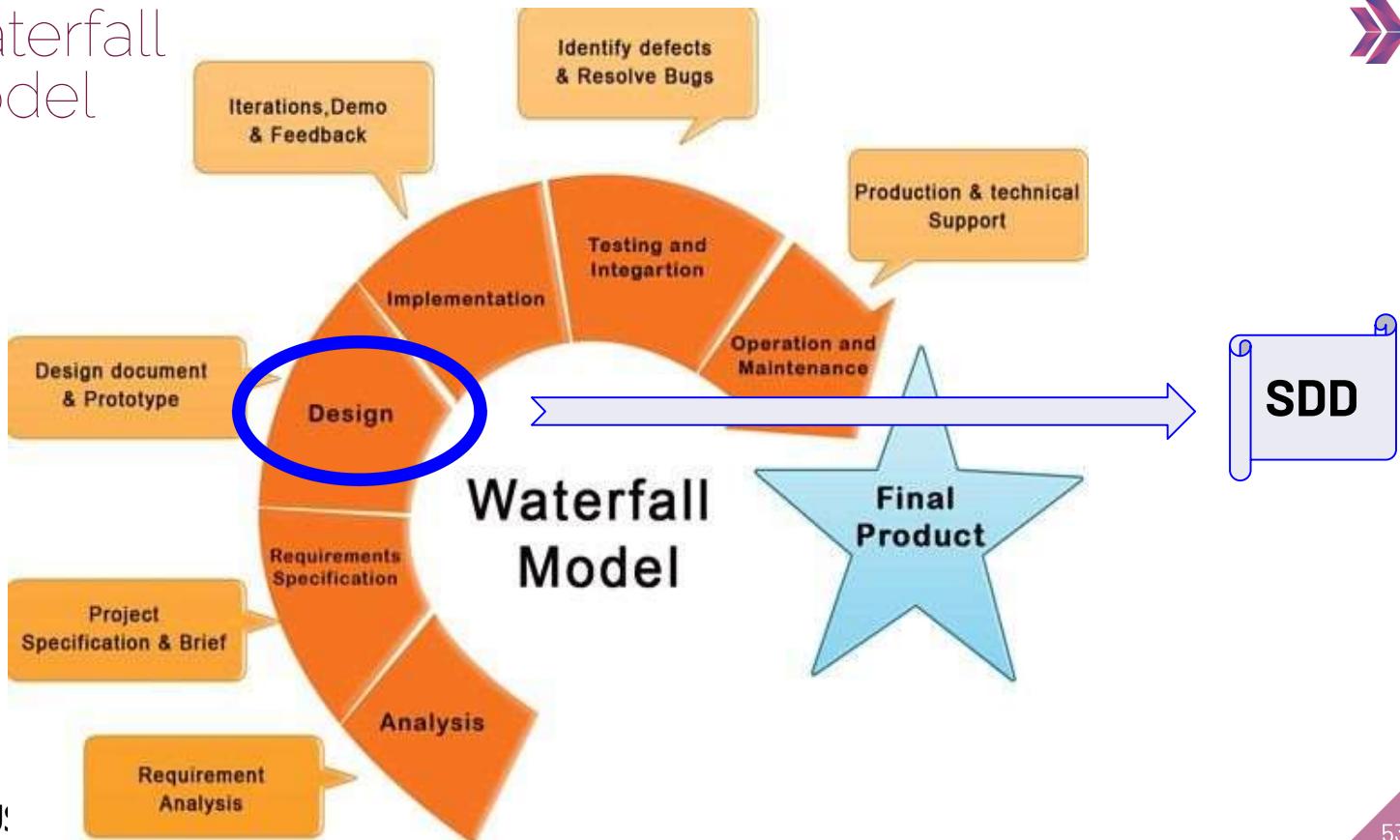
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Waterfall Model



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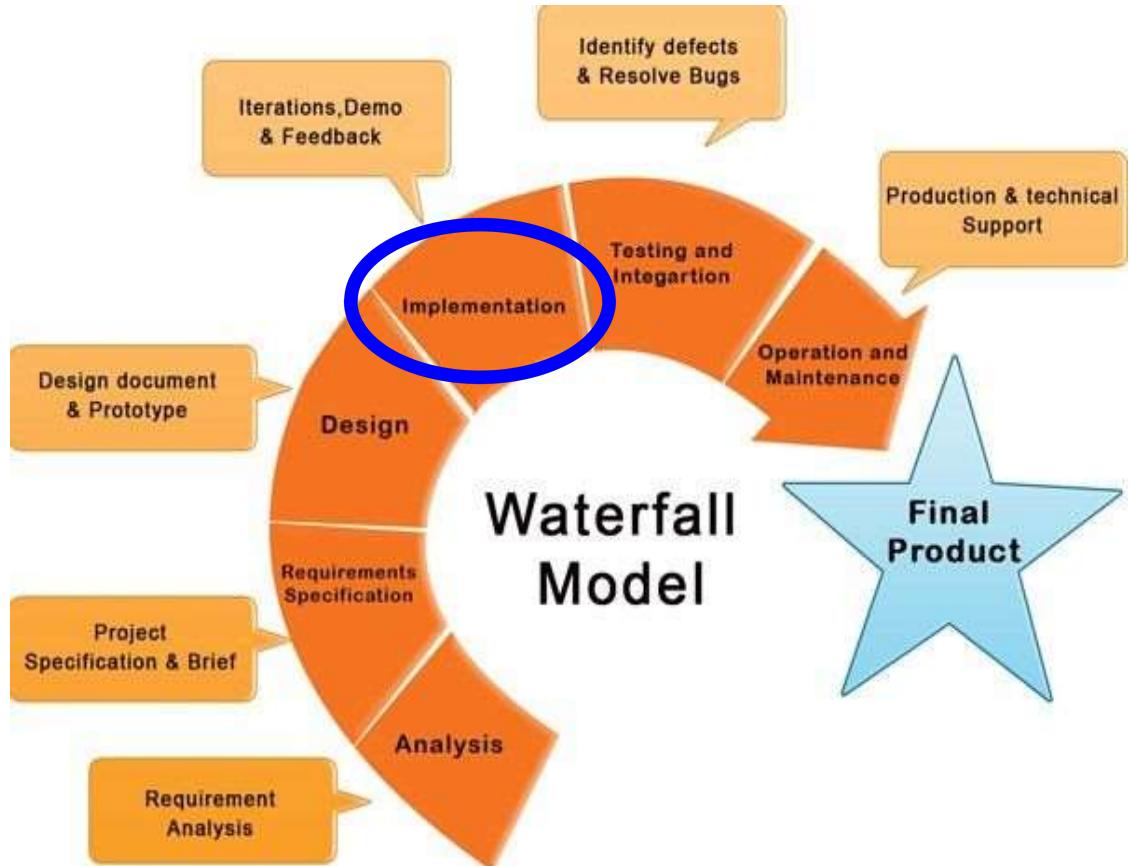
Waterfall Model



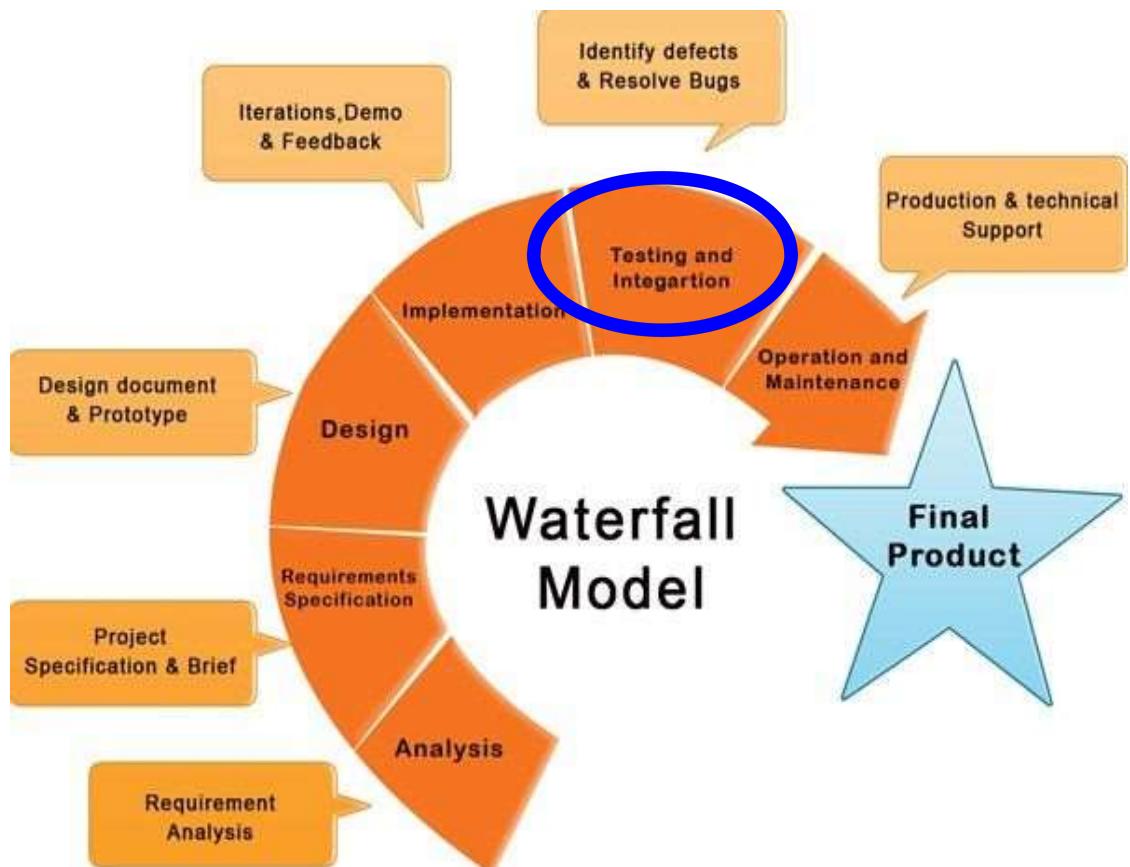
Coding is the other name for implementation/developing in SDLC.



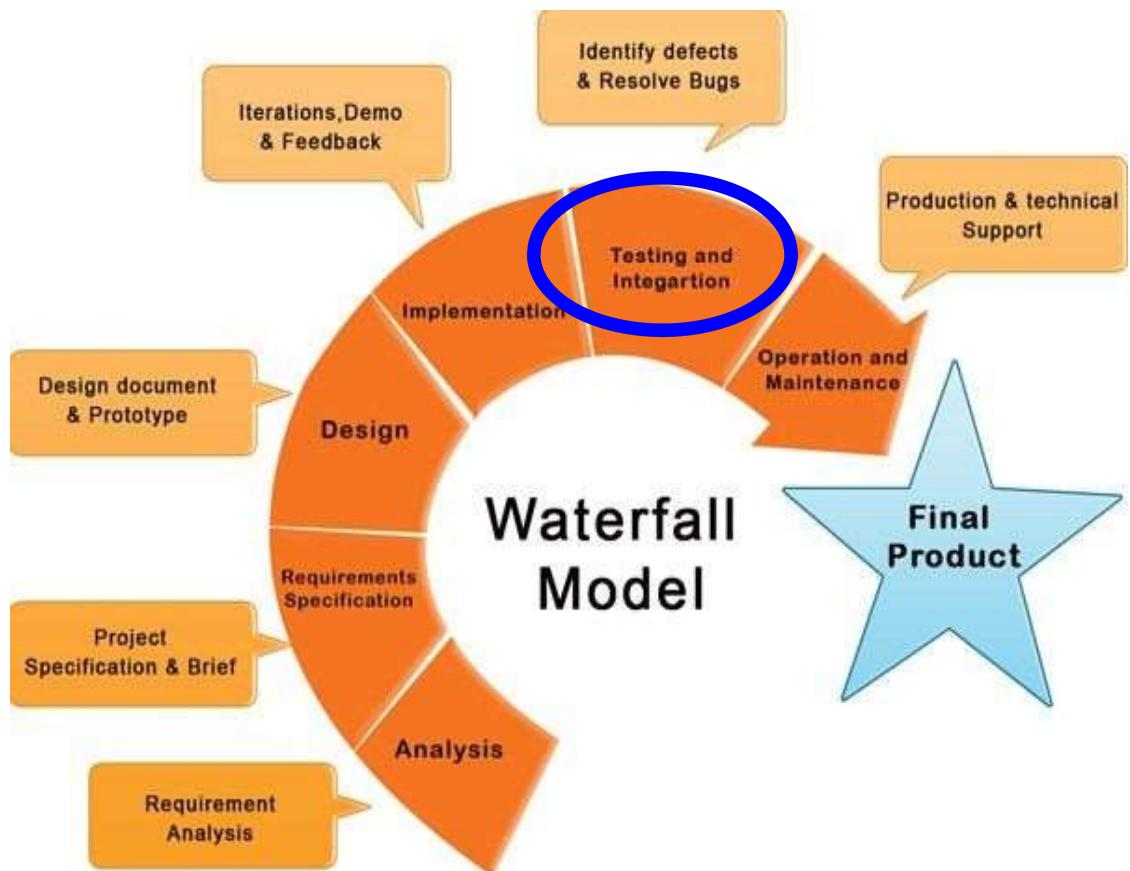
Waterfall Model



Waterfall Model



Waterfall Model



Waterfall Model



Waterfall Model



**Hayatım, çabuk
geeelll!**

**Sanırım büyük bir
bug'ımız var.**

*"Hon, come quick! I
think we have a major computer bug."*

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Application of the Waterfall Model



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► Waterfall Model

Advantages



► Waterfall Model

Advantages



Waterfall Model

disadvantages



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Waterfall Model

disadvantages



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► Summary



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THANKS!

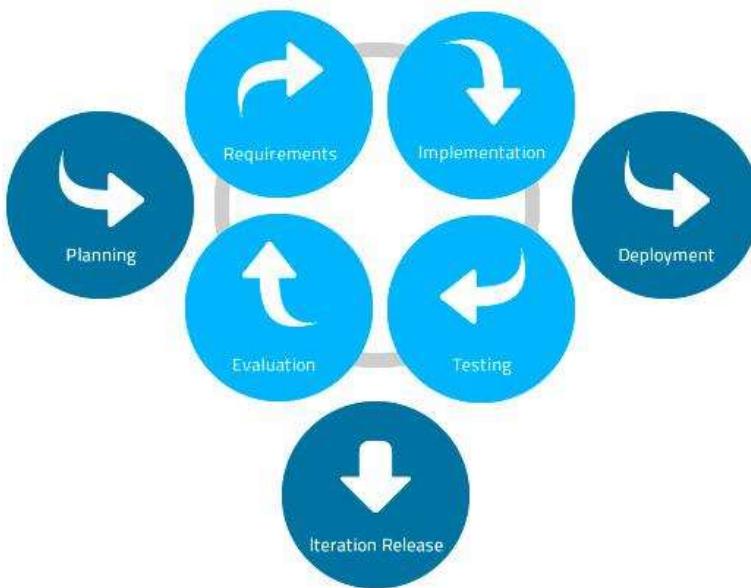
Any questions?



4 Iterative Model



► Iterative Model

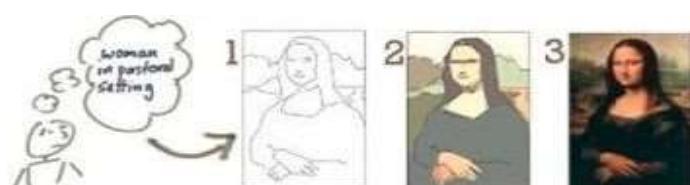
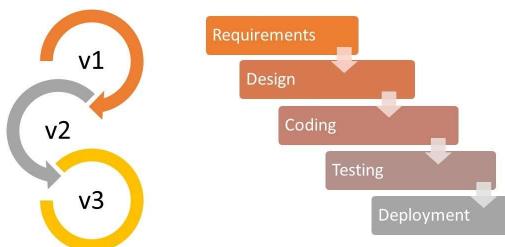


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► Iterative Model

Iteration vs Waterfall



When we work **iteratively** we create rough product or product piece in one iteration

then review it and improve it in next iteration and so on until it's finished

- In the first iteration the whole painting is sketched roughly
- Then in the second iteration colors are filled
- In the third iteration finishing is done

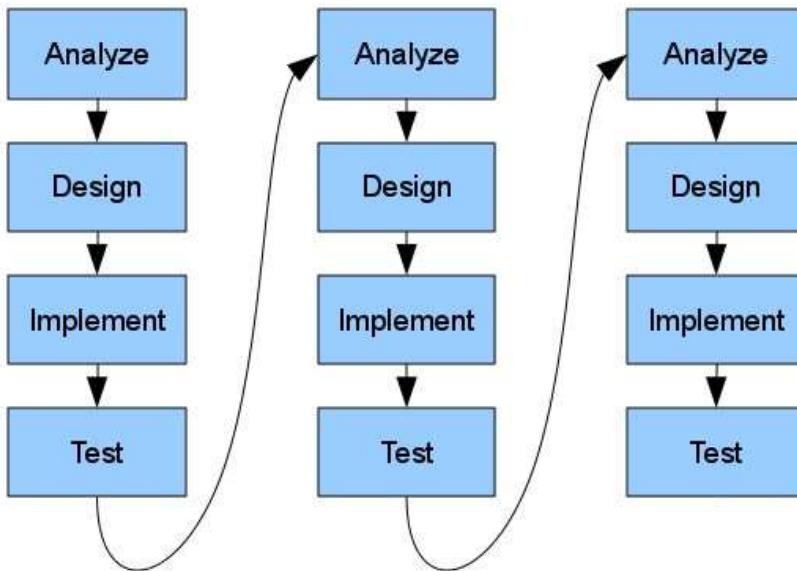
The whole product is developed step by step

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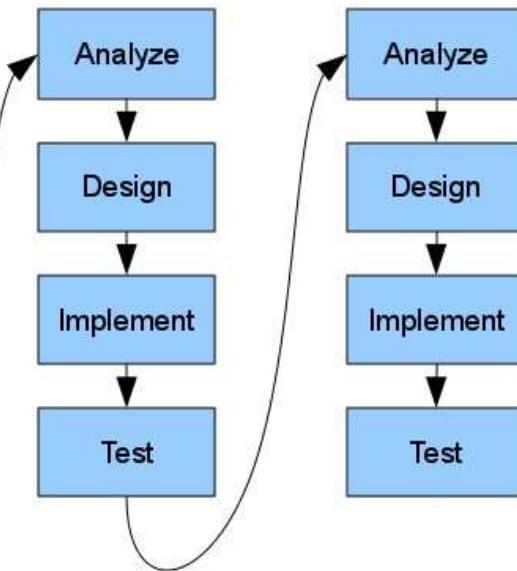
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► Iterative Model

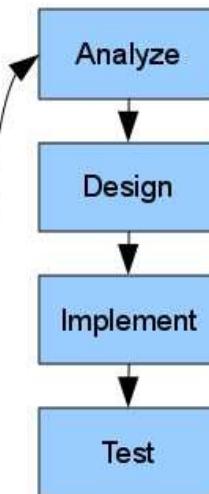
Iteration 1



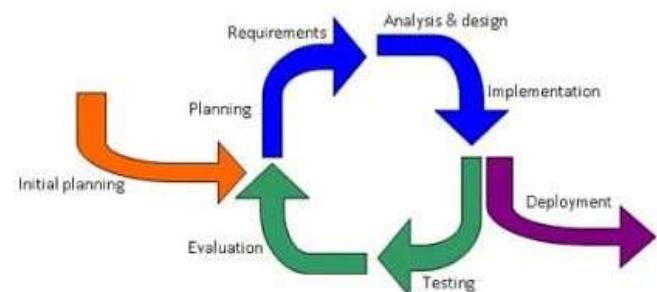
Iteration 2



Iteration 3



...Iteration N



Model 1: Typical iterative development process

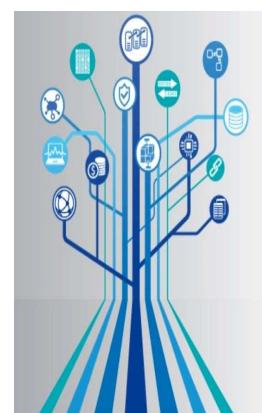
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► Iterative Model

advantages



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► Iterative Model



disadvantages



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Iterative Model

Pros	Cons
<ul style="list-style-type: none">▪ Some working functionality can be developed quickly and early in the life cycle.▪ Results are obtained early and periodically.▪ Parallel development can be planned.▪ Progress can be measured.▪ Less costly to change the scope/requirements.▪ Testing and debugging during smaller iteration is easy.▪ Risks are identified and resolved during iteration; and each iteration is an easily managed milestone.▪ Easier to manage risk - High risk part is done first.▪ With every increment operational product is delivered.▪ Issues, challenges & risks identified from each increment can be utilized/applied to the next increment.▪ Risk analysis is better.▪ It supports changing requirements.▪ Initial Operating time is less.▪ Better suited for large and mission-critical projects.▪ During life cycle software is produced early which facilitates customer evaluation and feedback.	<ul style="list-style-type: none">▪ More resources may be required.▪ Although cost of change is lesser but it is not very suitable for changing requirements.▪ More management attention is required.▪ System architecture or design issues may arise because not all requirements are gathered in the beginning of the entire life cycle.▪ Defining increments may require definition of the complete system.▪ Not suitable for smaller projects.▪ Management complexity is more.▪ End of project may not be known which is a risk.▪ Highly skilled resources are required for risk analysis.▪ Project's progress is highly dependent upon the risk analysis phase.

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4

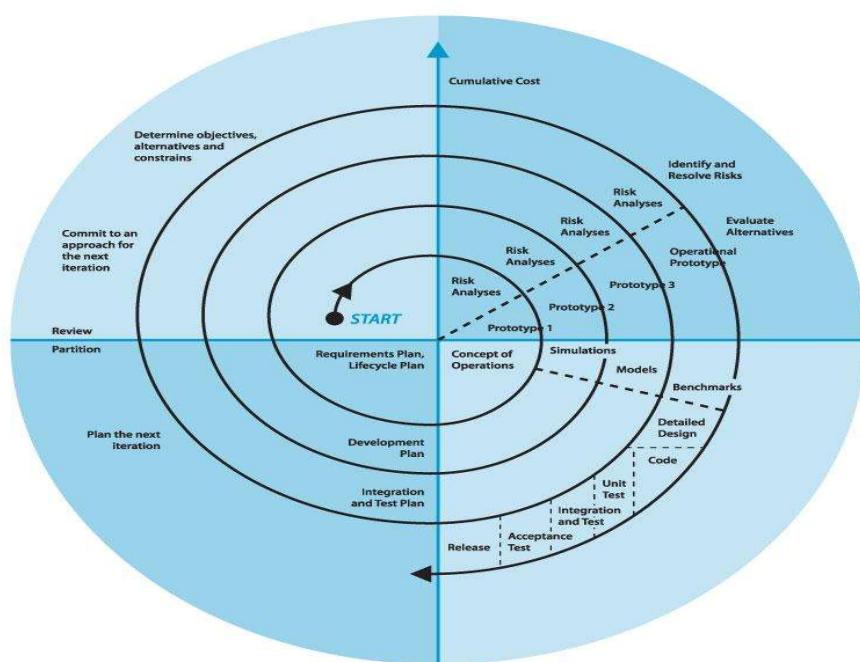
Spiral Model

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Spiral Model



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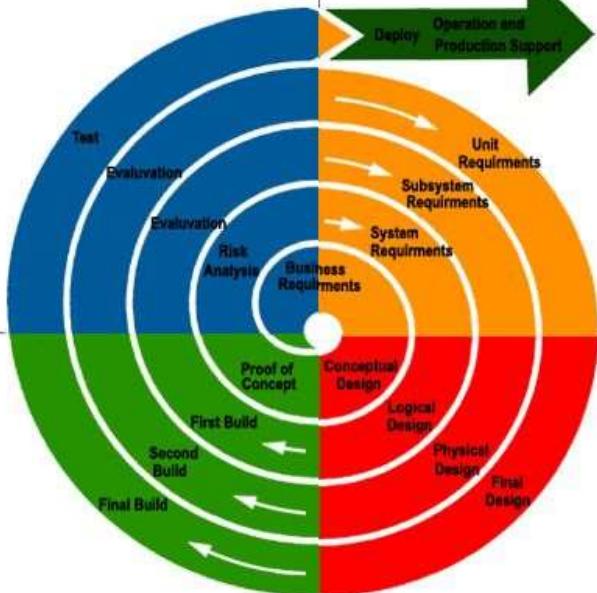
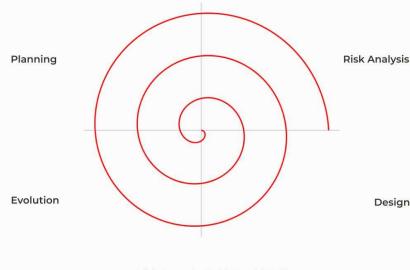
Spiral Model



Evaluate

Identify

Spiral Development Model



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Spiral Model



Pros

- Changing requirements can be accommodated.
- Allows for extensive use of prototypes
- Requirements can be captured more accurately.
- Users see the system early.
- Development can be divided into smaller parts and more risky parts can be developed earlier which helps better risk management.

Cons

- Management is more complex.
- End of project may not be known early.
- Not suitable for small or low risk projects and could be expensive for small projects.
- Process is complex
- Spiral may go indefinitely.
- Large number of intermediate stages requires excessive documentation.

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4

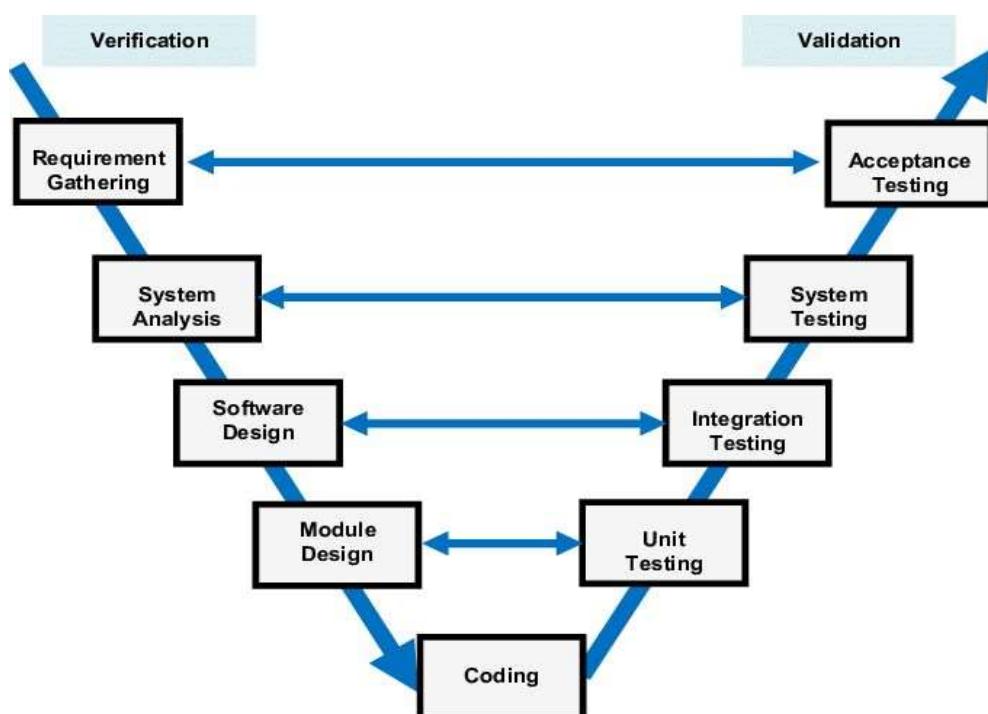
V - Model

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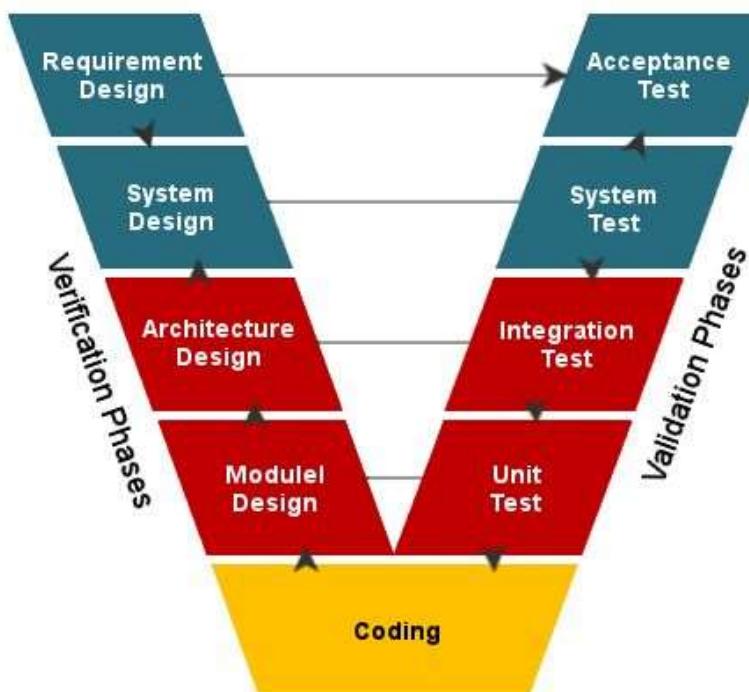
V - Model



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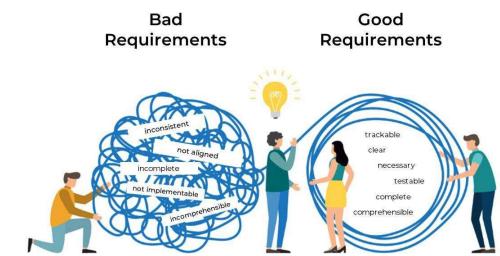
V - Model



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V - Model

advantages



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V - Model



disadvantages



V - Model



Pros	Cons
<ul style="list-style-type: none">This is a highly disciplined model and Phases are completed one at a time.Works well for smaller projects where requirements are very well understood.Simple and easy to understand and use.Easy to manage due to the rigidity of the model – each phase has specific deliverables and a review process.	<ul style="list-style-type: none">High risk and uncertainty.Not a good model for complex and object-oriented projects.Poor model for long and ongoing projects.Not suitable for the projects where requirements are at a moderate to high risk of changing.
	<ul style="list-style-type: none">Once an application is in the testing stage, it is difficult to go back and change a functionalityNo working software is produced until late during the life cycle.



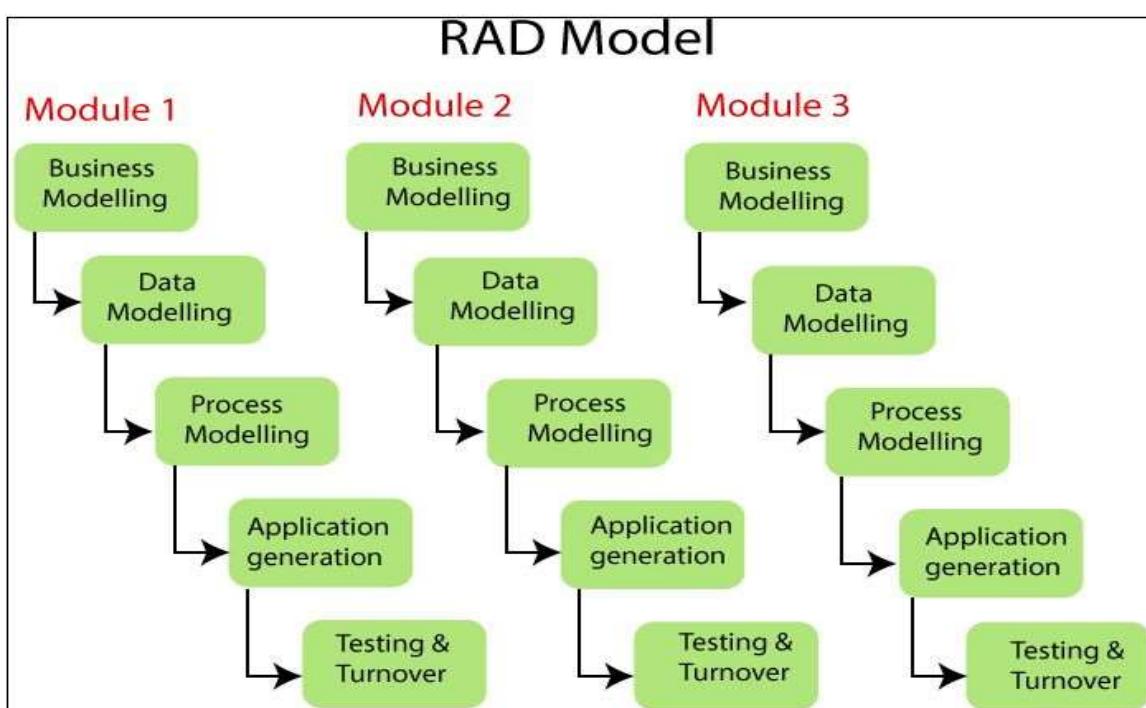
4

RAD Model

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RAD Model



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RAD Model



What is RAD

(Rapid Application Development)

Development and Programming



Designing Project Architecture



Requirement Analysis

Test



Deployment and Maintenance



RAD

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RAD Model



RAD



RAPID APPLICATION DEVELOPMENT

5 Benefits of RAD

5 Benefits of Rapid Application Development

Align Business and IT Departments

Rapid App Delivery and Minimal Waste Cycles

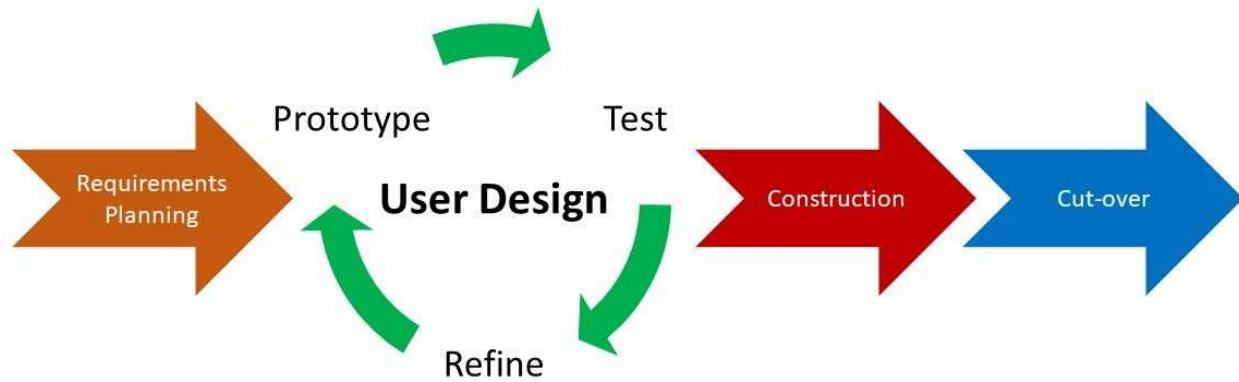
Built the Ideal Business Structure

Change with Advancing Technologies and Customer Expectations

RAD's Impact on Time and Costs

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RAD Model



RAD Model

Pros	Cons
<ul style="list-style-type: none">▪ Changing requirements can be accommodated.▪ Progress can be measured.▪ Iteration time can be short with use of powerful RAD tools.▪ Productivity with fewer people in short time.▪ Reduced development time.▪ Increases reusability of components	<ul style="list-style-type: none">▪ Dependency on technically strong team members for identifying business requirements.▪ Only system that can be modularized can be built using RAD▪ Requires highly skilled developers/designers.▪ High dependency on modeling skills▪ Inapplicable to cheaper projects as cost
<ul style="list-style-type: none">▪ Quick initial reviews occur▪ Encourages customer feedback▪ Integration from very beginning solves a lot of integration issues.	<ul style="list-style-type: none">▪ of modeling and automated code generation is very high.▪ Management complexity is more.▪ Suitable for systems that are component based and scalable.▪ Requires user involvement throughout the life cycle.▪ Suitable for project requiring shorter development times.

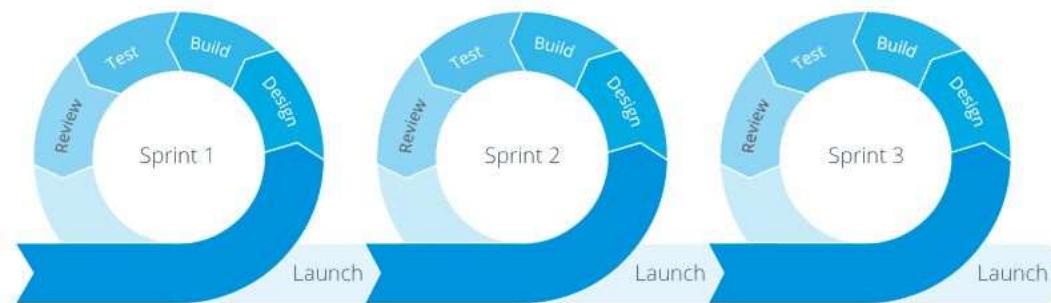


Agile Model



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Agile Model



Each iteration lasts from 1 - 3 weeks



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Agile Model



AGILE SOFTWARE DEVELOPMENT

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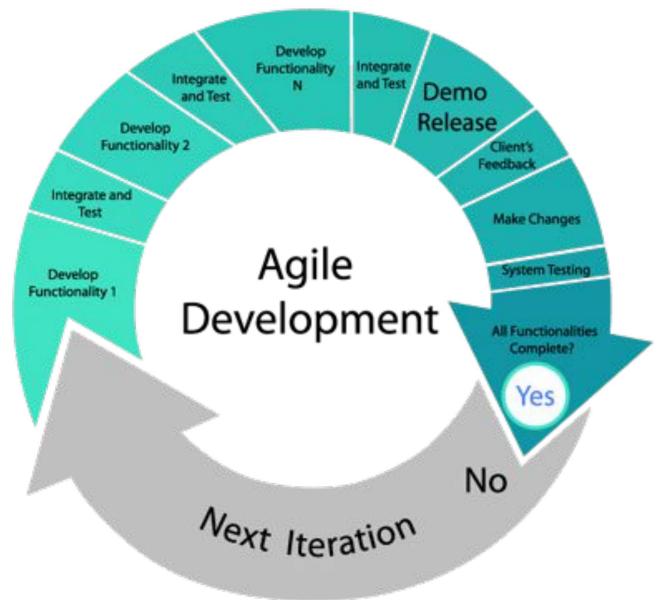
Agile Vs Traditional SDLC Models



Agile	Waterfall
<p>Agile Development</p> <ul style="list-style-type: none">• Continuous cycles• Small, high-functioning, collaborative teams• Multiple methodologies• Flexible/continuous evolution• Customer involvement	<p>Waterfall</p> <ul style="list-style-type: none">• Sequential/linear stages• Upfront planning and in-depth documentation• Contract negotiation• Best for simple, unchanging projects• Close project manager involvement

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Agile Vs Traditional SDLC Models



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THANKS!

Any questions?

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