Agenda

- SDLC models
- OOAD

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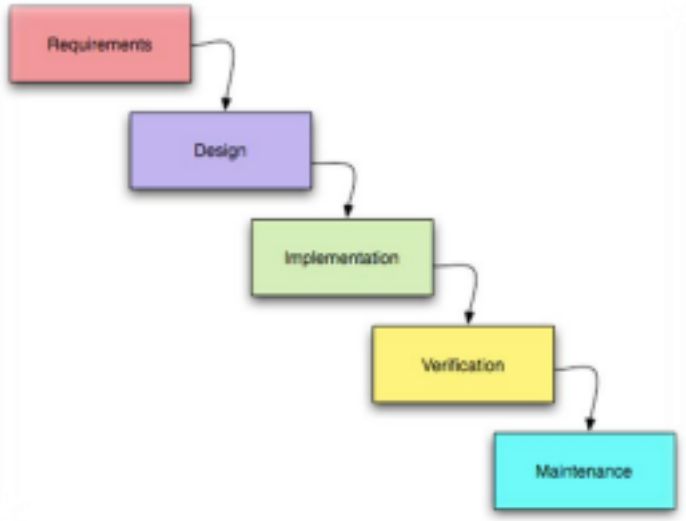

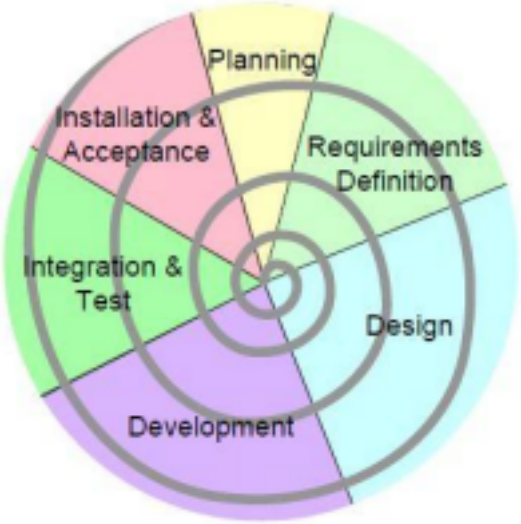

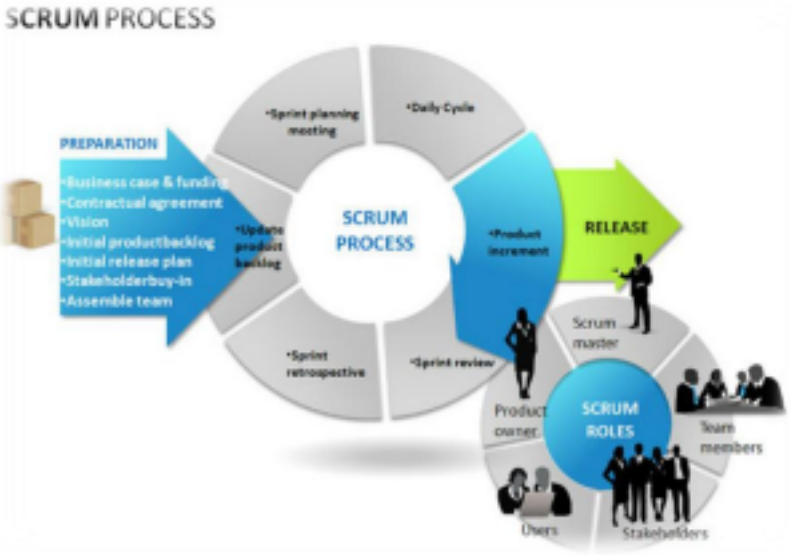

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SDLC models

- The Waterfall Model
- The Spiral Model •
- V

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OOAD????

- A popular technical approach for analyzing & designing an application, system, or business
- Used to create visual modeling throughout the development
  oster better stakeholder communication and
  y

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- The purpose of OO analysis and design :
  - Identifying the objects of a system.
  - Identify their relationships.

esign which can be converted to executables using OO
s.

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- Fundamental concepts of object oriented world: • **Objects:**

  Objects represent an entity and the basic building block. • **Class:**

  Class is the blue print of an object.

  - **Abstraction:** Abstraction represents the behavior of an real world entity.
  - **Encapsulation:** Encapsulation is the mechanism of binding the data together and hiding them from outside world.
  - **Inheritance:** Inheritance is the mechanism of making new classes from existing one.

hism: It defines the mechanism to exists in different

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- The design is
- Identifying the
- Identify their relationships and Make a design

implemented using object oriented programming language

objects of a system

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Object Oriented Analysis

- The primary tasks in object-oriented analysis (OOA) are:
  - Find the objects
  - Organize the objects
  - Describe how the objects interact
  - Define the behavior of the objects
  - Define the internals of the objects

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Object Oriented Design

- To solve a problem that was identified and documented during object-oriented analysis

- Object-oriented design is the discipline of
  - defining the objects &
  - their interactions

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Object Oriented Implementation

- The design is implemented using object oriented languages like Java, C++ etc.

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Role of UML in OO analysis & design

- UML is a modeling language used to model software and non software systems

sis & design is transformed into UML diagrams
he requirement

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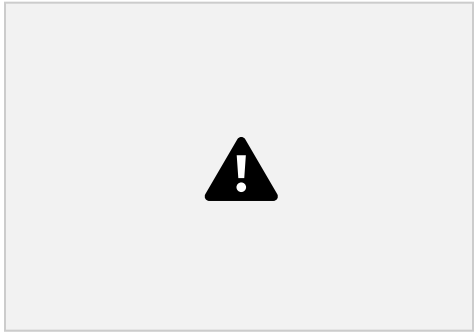
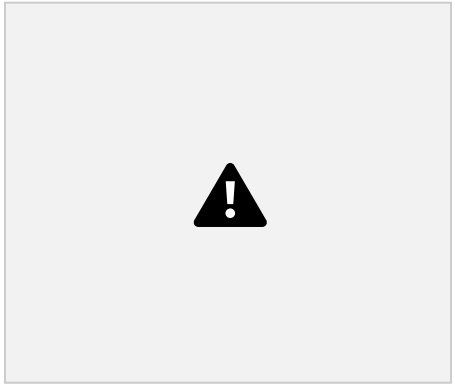
- Architect - design buildings

- Builders -Create buildings





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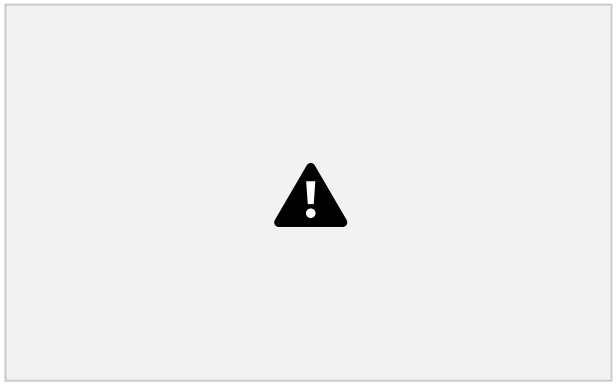
Blue Print 

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- Booch

  - **Grady Booch , Rational Corp.,**
  - Excellent for design and implementation
- OMT (Object Modelling Technique)
  - **Jim Rumbaugh,General Electrics.,**
  - Best for analysis
- OOSE (Object Oriented Software Engineering)
  - **Ivar Jacobson**

owerful technique for understanding the behavior
tem

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- The UML is a graphical language for capturing the artifacts of

software developments.

- The language provides us with the notations to produce models.
- The UML is adopted industry wide language.

riginally designed by the Three Amigos at

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UML???

- UML stands for **U**nified **M**odeling **L**anguage.
- The language is very rich, and carries with it many aspects of Software Engineering best practice
- UML is different from the other common programming C++, Java, COBOL etc.

rial language used to make software blue prints.

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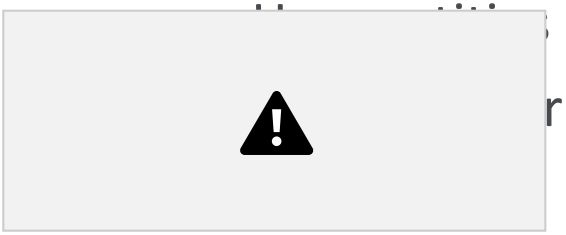
- The Unified Modeling Language (UML) offers a way to visualize a system's architectural blueprints in a diagram – Any activities (jobs)
  - Individual components of the system
    - And how they can interact with other software components.
  - How the system will run
  - interact with others (components and interfaces)
  - r interface



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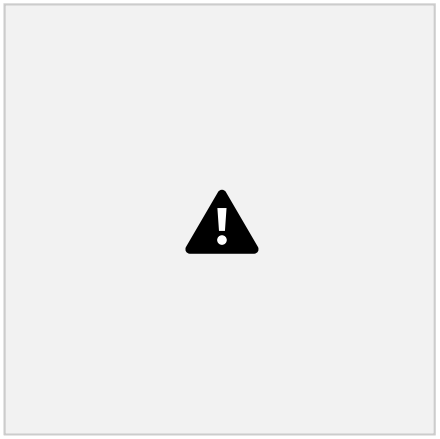
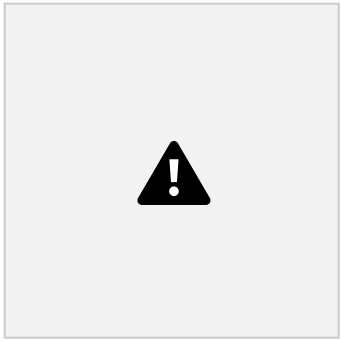
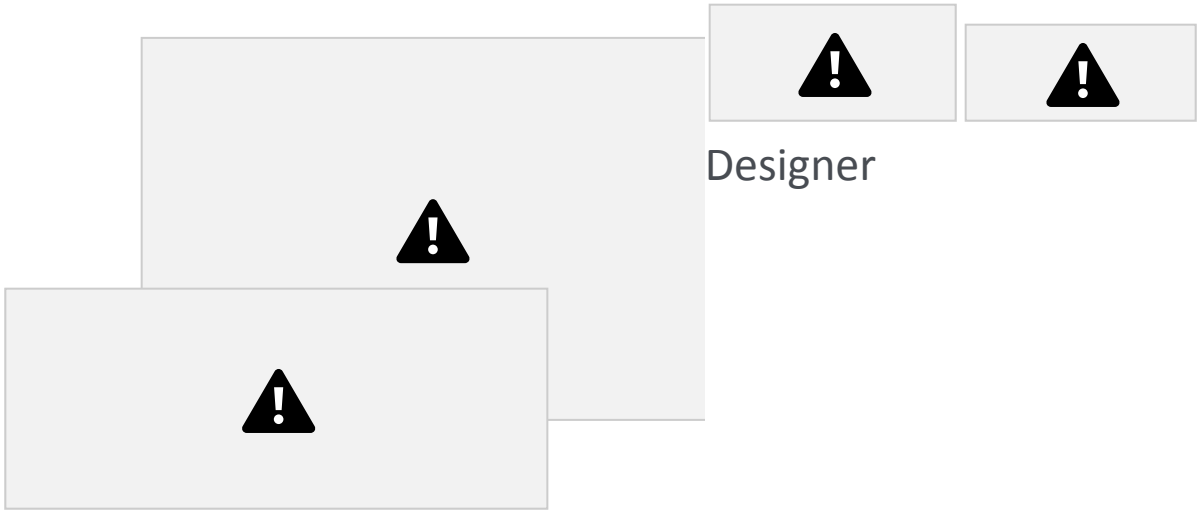


Business Analyst

Programmer



Tester



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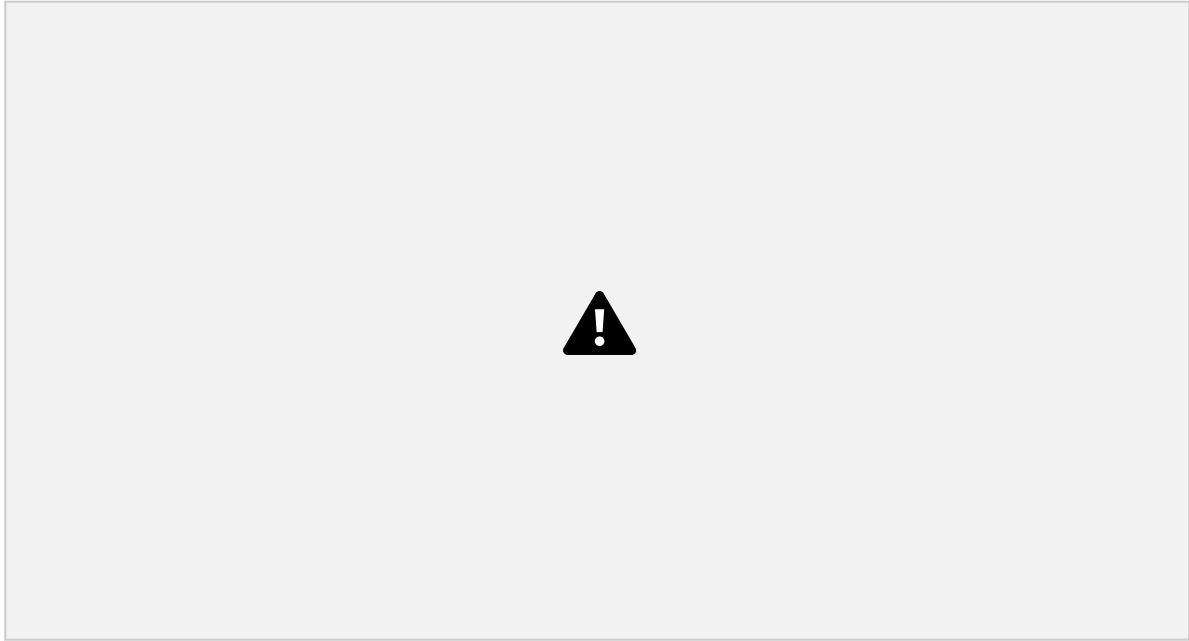
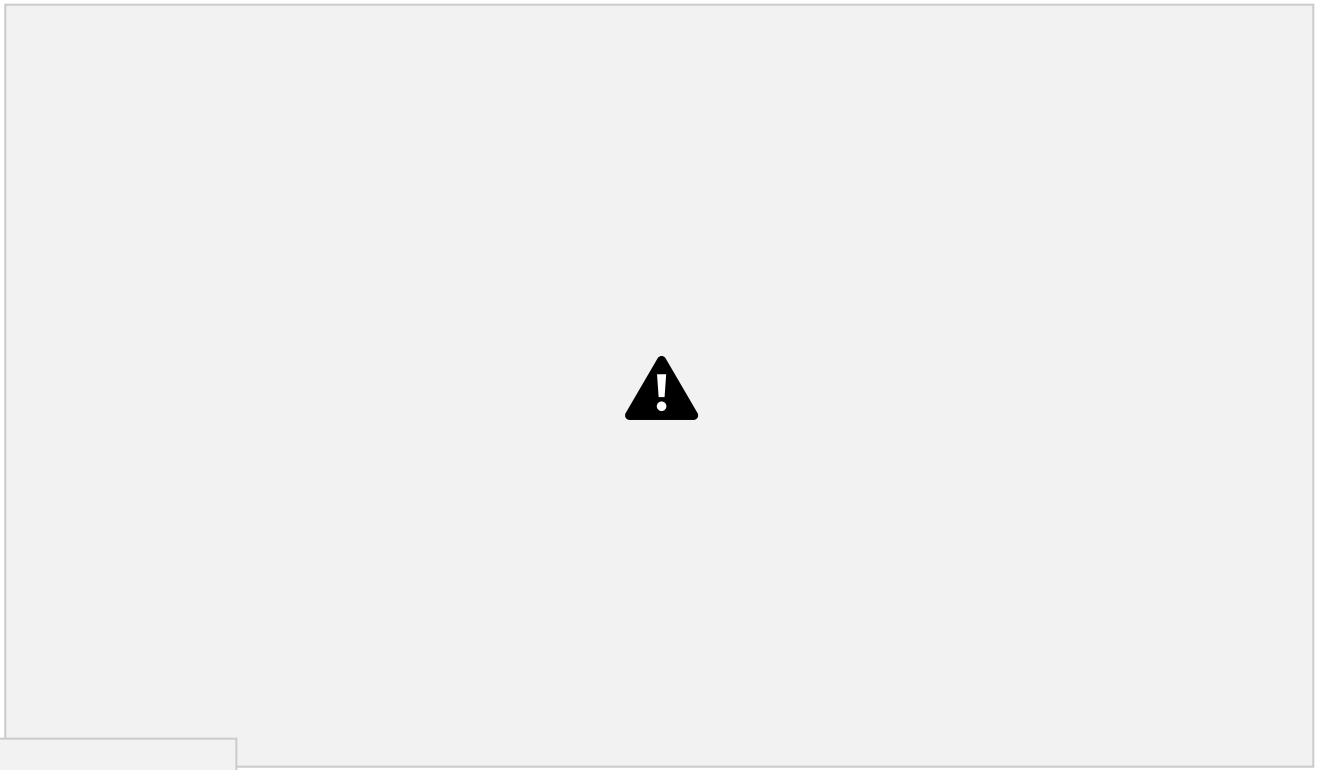
Types of Diagrams





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- Use Cases - How will our system interact with the outside world?
- Class & Object Diagram - What objects do we need? How will they be related?
- Collaboration Diagram - How will the objects interact? •

Sequence Diagram - How will the objects interact(order/time)?

- State Diagram - What states should our objects be in? •

Package Diagram - How are we going to modularize our development?

- Component Diagram - How will our software components be

agram - How will the software be deployed?

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A conceptual model

- *What is a conceptual model?*
  - It helps to understand the entities in the real world and how they interact with each other.
  - Conceptual Modeling (sometimes called Domain Modeling) is of finding out which concepts are important to our

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- On the conceptual model, we aim to capture all of the concepts or ideas that the customer recognizes.
- For example, some good examples of concepts would be:
  - Lift in a lift control system
  - Order in a home shopping system
  - Footballer in a PlayStation football game
  - online e-learning system
  - oom booking system

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- EventTrigger - the special process that waits for 5 minutes and then tells the system to wake up and do something
- CustomerDetailsForm - the window that asks for details of the new customer in a shopping system
- DbArchiveTable - the database table holding a list of all old orders

concepts, because they are focusing on design
nd not the problem

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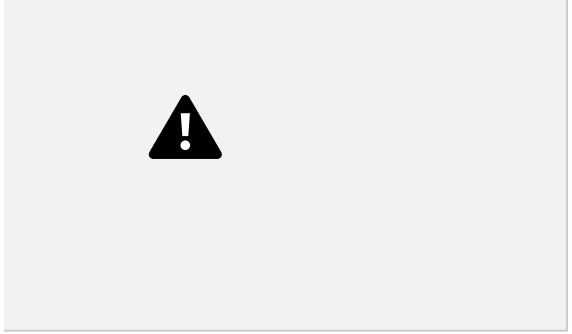

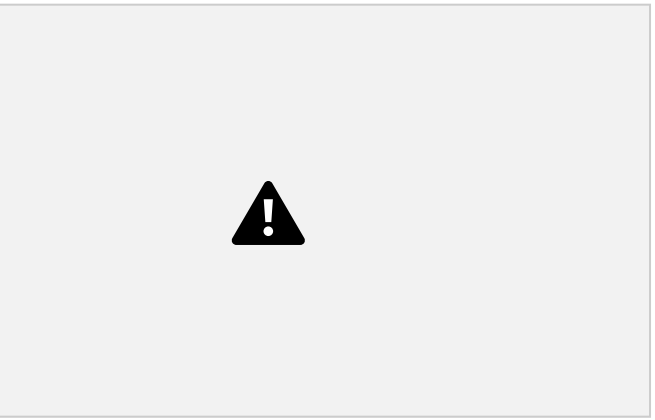

User View

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UML Diagrams

- Use case diagrams
- Class diagrams
- Object diagrams
- Sequence diagrams
- Collaboration diagrams
- State chart diagrams
- Activity diagrams

Component diagrams •

grams

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Thank

You

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