



Object Oriented Analysis & Design

Introduction to OOAD



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Experienced professional with a strong proficiency in various technology domains. I have successfully executed multiple projects for Fortune 500 clients and have collaborated with a company accredited at CMM Level 5. My primary focus area is to assist my clients in achieving digital transformation within their business operations.



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Experienced professional with a comprehensive skill set that encompasses various technologies. I possess deep expertise, visionary thinking, and a notable portfolio of innovative projects. My focus is on assisting businesses in achieving their objectives by leveraging technology and domain knowledge.

Agenda

- Introduction to OOAD
- Basic Concept Of OOAD
- Three Model Concept
- Integration of the Three Models
- Q & A

Introduction to OOAD

- Object-Oriented Analysis and Design (OOAD) is a methodology for analyzing and designing a system by visualizing it as a group of interacting, self-contained entities called objects.
- OOAD incorporates principles of object-oriented programming (OOP) to model real-world entities and their interactions in software systems.
- Key Principle
 - Objects and Classes
 - Encapsulation
 - Inheritance
 - Polymorphism
 - Abstraction

What is OOAD?

- **Analysis** — understanding, finding and describing concepts in the problem domain.
- **Design** — understanding and defining software solution / objects that *represent* the analysis concepts and will eventually be implemented in code.
- **OOAD** — Analysis is object-oriented and design is object-oriented. A software development approach that emphasizes a logical solution based on objects.



How the customer explained it



How the Project Leader understood it



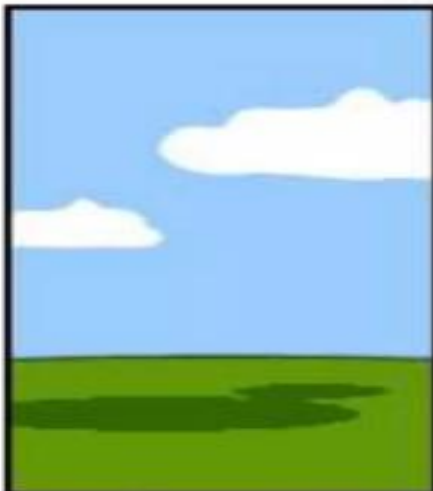
How the Analyst designed it



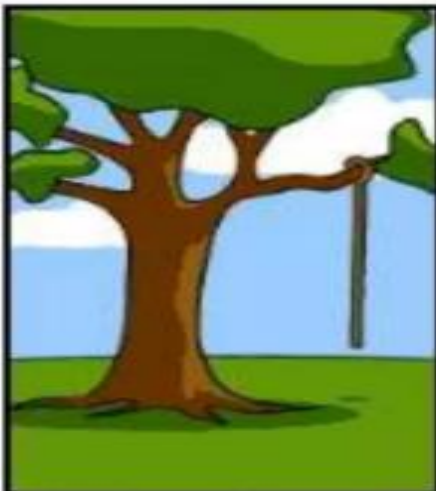
How the Programmer wrote it



How the Business Consultant described it



How the project was documented



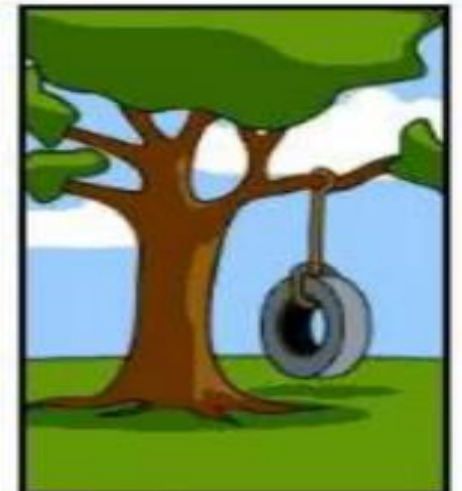
What operations installed



How the customer was billed



How it was supported



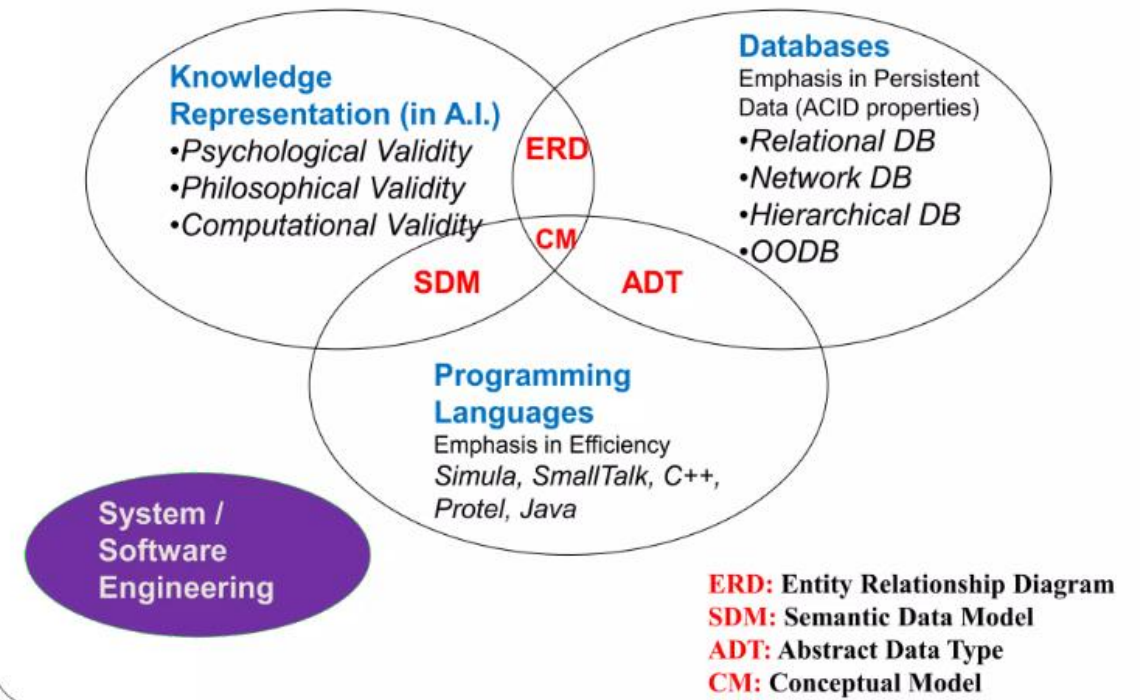
What the customer really needed

Basic Concept Of OOAD

- **Data**
 - A piece of Information
 - Anything which perform communication
- **Information**
 - Analyze from data
 - It also called Application form of Data
- **Knowledge**
 - Act of understanding and applying the meaningful data information
 - It is a organized form of data information that may used for some useful purpose
- **Computer Program**
 - A set of computer instructions which are get executed and provide specific output
 - It is a organized form of data information that may used for some useful purpose
- **Software**
 - The collection of computer programs that are integrated together and deliver desired result to user

Why Object-Oriented

- Who's Behind Object-Orientation



Three Model Concept

- **Object Model**

- Describes the static structure of the system.
- Components
 - Classes
 - Relationship
- Diagram: Class diagrams are commonly used to illustrate the object model.

- **Dynamic Model**

- Depicts the dynamic behavior of the system over time.
- Components
 - Interactions
 - State Transitions
- Diagrams: Sequence Diagrams, State Diagrams

- **Functional Model**

- Describes the functional requirements of the system.
- Components
 - Use Cases
 - Scenarios
- Diagrams: Use Case Diagrams, Activity Diagrams

Object model

- Represents the static, structural, 'data' aspects of a system

Dynamic model

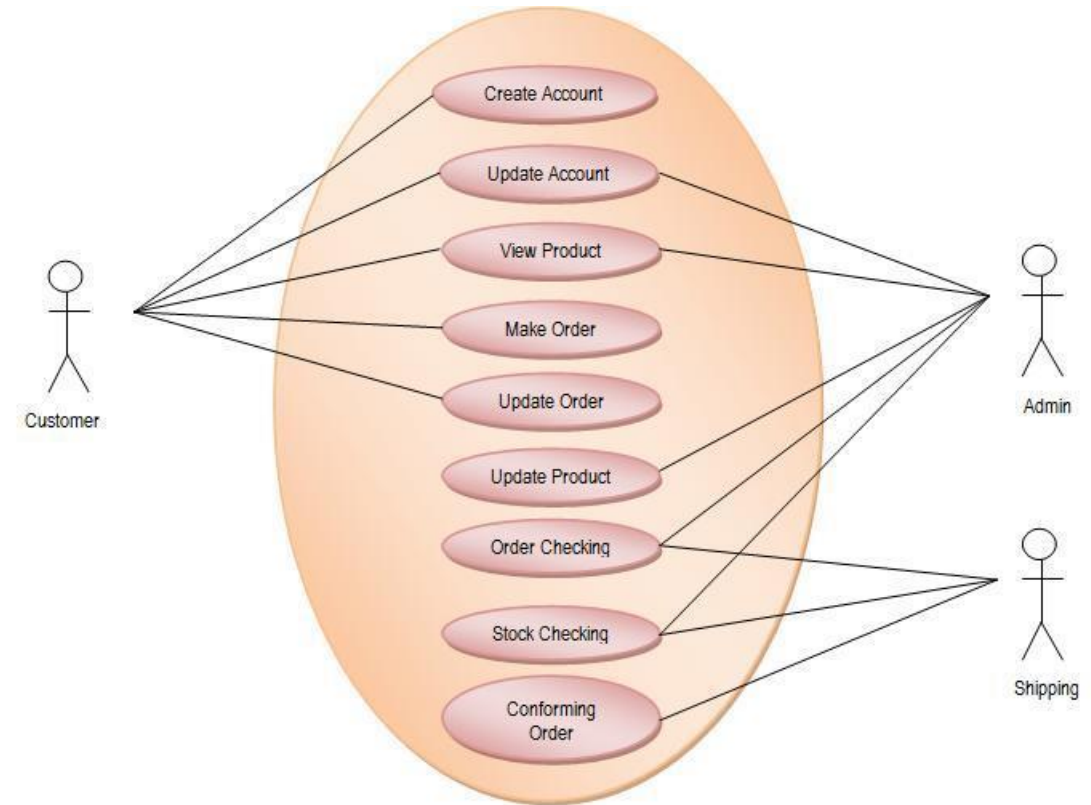
- Represents the temporal, behavioural, 'control' aspects of a system

Functional model

- Represents the transformational, 'functional' aspects of a system

Integration of the Three Models

- Use Cases and Objects
 - Connect use cases from the Functional Model to the relevant objects in the Object Model, demonstrating how functionalities are implemented.
- Activities and Methods
 - Associate activities in the Functional Model's activity diagrams with the methods and operations of objects in the Object Model.
- State Transitions and Object Attributes/Methods
 - Link the state transitions in the Dynamic Model's state diagrams to the attributes and methods of objects in the Object Model.



Conclusion

- Recap of OOAD
- Best Practices

Q&A

Thank You

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