Object-oriented Analysis

Topics

- Purpose
  - To model computer software as it works to satisfy user requirements.
- OOA Methods
- OOA Models
  - The Requirements Model
  - The Analysis Model

Object-oriented Analysis

- The main objective of object-oriented analysis is to develop a series of models that describes the computer software as it works to satisfy a set of customer-defined requirements.
- The intent of object-oriented analysis is to define a set of classes, their relationships and behavior that is relevant to the system being studied.
- Because customer requirements influence the creation of the models, this phase or activity is also called ***requirements engineering***.

Five Principles in Analysis

- The information domain is modeled.
- Module function is described.
- Model behavior is represented.
- The models are partitioned to expose greater detail.
- Early models represent the essence of the problem while later models provide implementation details.

Object-oriented Analysis Methods

- Booch Method [BOO94].
  - This method encompasses both a “micro development process” and a “marcro development process.”
- The Coad and Yourdon Method [COA91]
  - This is often viewed as one of the easiest OOA methods to learn.
- The Jacobson Method [JAC92]
  - This method is also known as OOSE. It differentiated from others by heavy emphasis on the *use case*.

Object-oriented Analysis Methods

- Rambaugh Method [RAM91]
  - It is also known as the Object Modeling Technique which creates three models- object model, dynamic model, and a functional model.
- Wirfs-Brock Method [WIR90]
  - It does not make a clear distinction between analysis and design tasks. A continuous process that begins with the assessment of customer specification and ends with a proposed design.

Common Steps of All OOA Methods

- STEP 1: Identify customer requirements for the object-oriented system.
- STEP 2: Select classes and objects using the requirements model as the guideline.
- STEP 3: Identity attributes and operation for each class.
- STEP 4: Define structures and hierarchies that will organize the classes.
- STEP 5: Build the object-relationship model.
- STEP 6: Build the object-behavioral model.
- STEP 7: Review the object-oriented analysis model against requirements and standards.

OO Analysis Main Work Products

- The Requirements Model
  - Use Case Model
  - Supplementary Requirements
  - Glossary
- The Analysis Model
  - Object Model
  - Behavioral Model

Summary

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