1 Object Oriented Paradigm

Objectives

After completing this lesson, you should be able to do the following:

- A Brief History of Object Oriented Paradigm
- Object-Oriented Analysis
- Object-Oriented Design

Brief History

- The object-oriented paradigm took its shape from the initial concept of a new programming approach, while the interest in design and analysis methods came much later.
  - Simula *Simulationofrealsystems that was developed in* 1960
  - In 1970 Dynabook and the first pure object-oriented programming language *OOPL – Smalltalk*
  - In 1980s, Grady Booch published a paper titled Object Oriented Design Ada.
  - In the 1990s, Coad incorporated behavioral ideas to object-oriented methods.

Object-Oriented Analysis

- Object–Oriented Analysis OOA is the procedure of identifying software engineering requirements and developing software specifications in terms of a software system's object model, which comprises of interacting objects.

Primary tasks in OOA

- Identifying objects
- Organizing the objects by creating object model diagram
- Defining the internals of the objects, or object attributes
- Defining the behavior of the objects, i.e., object actions
- Describing how the objects interact

The common models used in OOA are

1. use cases
2. object models.

Object-Oriented Design

- Object–Oriented Design *OOD involves implementation of the conceptual model produced during* object-oriented analysis.
- The implementation details generally include:
  - Restructuring the class data *if necessary,*
  - Implementation of methods, i.e., internal data structures and algorithms,
  - Implementation of control, and
  - Implementation of associations.

Object-Oriented Programming

- Object-oriented programming *OOP is a programming paradigm based upon objects having both data and methods that aims to incorporate the advantages of modularity and reusability.*
- The important features of object–oriented programming are:
  - Bottom–up approach in program design
  - Programs organized around objects, grouped in classes
  - Focus on data with methods to operate upon object's data
  - Interaction between objects through functions
  - Reusability of design through creation of new classes by adding features to existing classes

Summary

In this lesson, you should have learned the following:

- A Brief History of Object Oriented Paradigm
- Object-Oriented Analysis
- Object-Oriented Design