Unit 2 – GRASP

Presentation by:

Ms. J.K. Josephine Julina

Assistant Professor

Department of Information Technology

SSN College of Engineering

General Responsibility Assignment Software Patterns or Principles

Pattern/Principle	Description	Responsibilities
Information Expert	A general principle of object design and responsibility assignment	Assign to information expert – the class that has the information necessary to fulfill the responsibility
Creator	Who creates?	Assign class B the responsibility to create an instance of class A if one of these is true: 1. B contains A 2. B aggregates A 3. B has the initializing data for A 4. B records A 5. B closely uses A

SSN

GRASP

Pattern/Principle	Description	Responsibilities
Controller	What first object beyond the UI layer receives and coordinates ("controls") a system operation?	Assign to an object representing – the overall "system ", "root object", device, major subsystem (facade); a use case scenario within which the system operation occurs (use-case/session)
Low coupling (evaluative)	How to reduce the impact of change?	Assign responsibilities so that coupling remains low. Use this principle to evaluate alternatives.
High cohesion (evaluative)	How to keep objects focused, understandable, and manageable, and as a side-effect, support Low Coupling?	Assign responsibilities so that cohesion remains high. Use this principle to evaluate alternatives.

GRASP

Pattern/Principle	Description	Responsibilities
Polymorphism	Who is responsible when behavior varies by type?	When related alternatives or behaviors vary by type (class), assign responsibility for the behavior - using polymorphic operations – to the types for which the behavior varies
Pure Fabrication	Who is responsible when you are desperate, and do not want to violate cohesion and low coupling?	Assign a highly cohesive set of responsibilities to an artificial or convenience "behavior" class that does not represent a problem domain concept – something made up, in order to support high cohesion, low coupling, and reuse

GRASP

Pattern/Principle	Description	Responsibilities
Indirection	How to assign responsibilities to avoid direct coupling?	Assign the responsibility to an intermediate object to mediate between other components or services, so that they are not directly coupled.
Protected Variations	How to assign responsibilities to objects, subsystems, and systems so that the variation or inability in these elements do not have an undesirable impact on other elements?	Identify points of predicted variation or instability; assign responsibilities to create a stable "interface" around them.

ssn