

EXPERIMENT 7

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Implementation of Object Oriented approach for understanding COHESION AND COUPLING

Aim

Do design using OO approach and hence highlight Cohesion and Coupling in the design.

Description

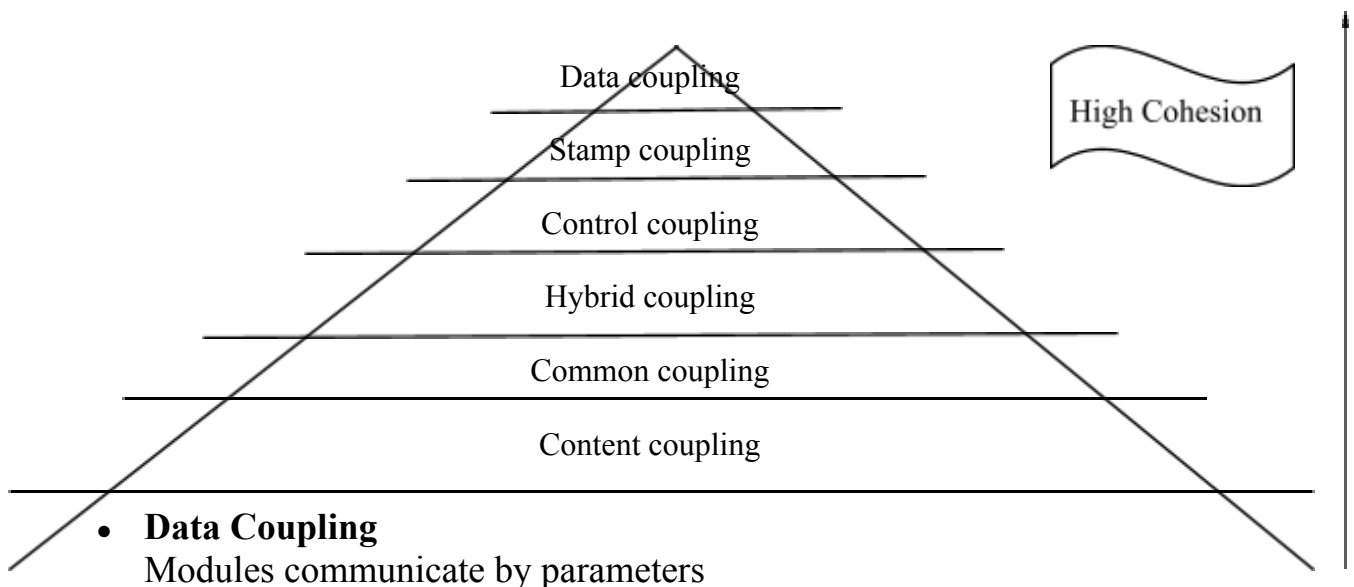
The aim of performing this experiment is to implement data flow architecture in your project and show type of cohesion between operations and coupling between components in your project.

For Good project design, Cohesion should be high and coupling should be as low as possible.

Coupling

- The degree of interdependence between two modules”
- We aim to minimize coupling - to make modules as independent as possible

Types of Coupling



- **Data Coupling**
Modules communicate by parameters

- **Data coupling problems**

Too many parameters - makes the interface difficult to understand and possible error to occur

A composite data is passed between modules

- **Control coupling**

A module controls the logic of another module through the parameter

- **Hybrid coupling**

A subset of data used as control

- **Common coupling**

Use of global data as communication between modules

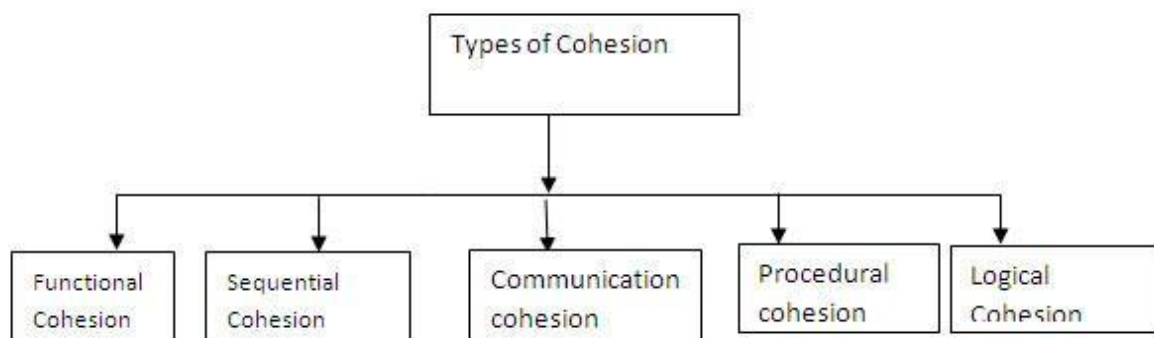
- **Content coupling**

A module refers to the inside of another module

Cohesion

- “The measure of the strength of functional relatedness of elements within a module”
- Elements: instructions, groups of instructions, data definition, call of another module
- Strong cohesion will reduce relations between modules - minimize coupling

Types of Cohesion



Functional cohesion (Most Required)

- All elements contribute to the execution of one and only one problem-related task

Sequential cohesion

- Elements are involved in activities such that output data from one activity becomes input data to the next

Communicational Cohesion

- Elements contribute to activities that use the same input or output data

Procedural cohesion

- Elements are related only by sequence, otherwise the activities are unrelated

Temporal cohesion

- Elements are involved in activities that are related in time

Logical cohesion

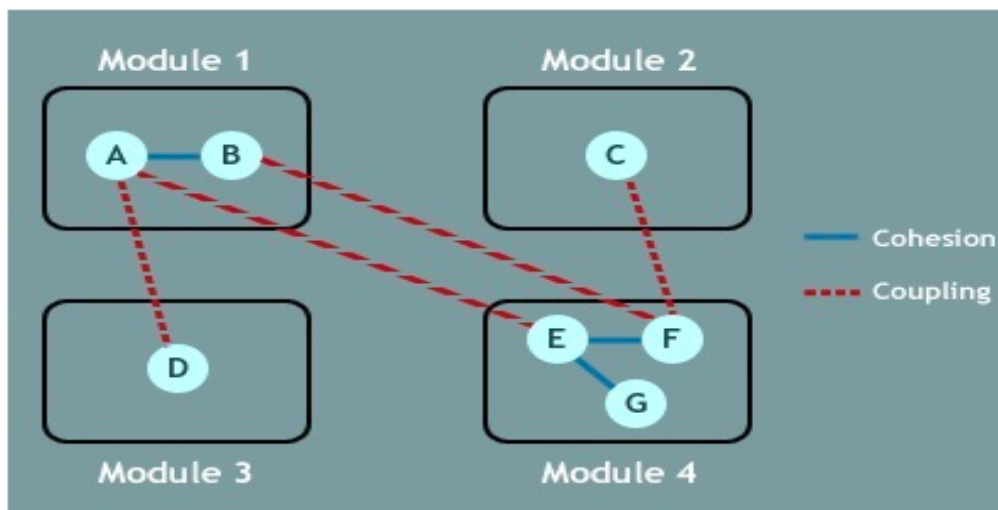
- Elements contribute to activities of the same general category

Coincidental cohesion(Least Required)

- Elements contribute to activities with no meaningful relationship to one another

1. Cohesion

2. Coupling

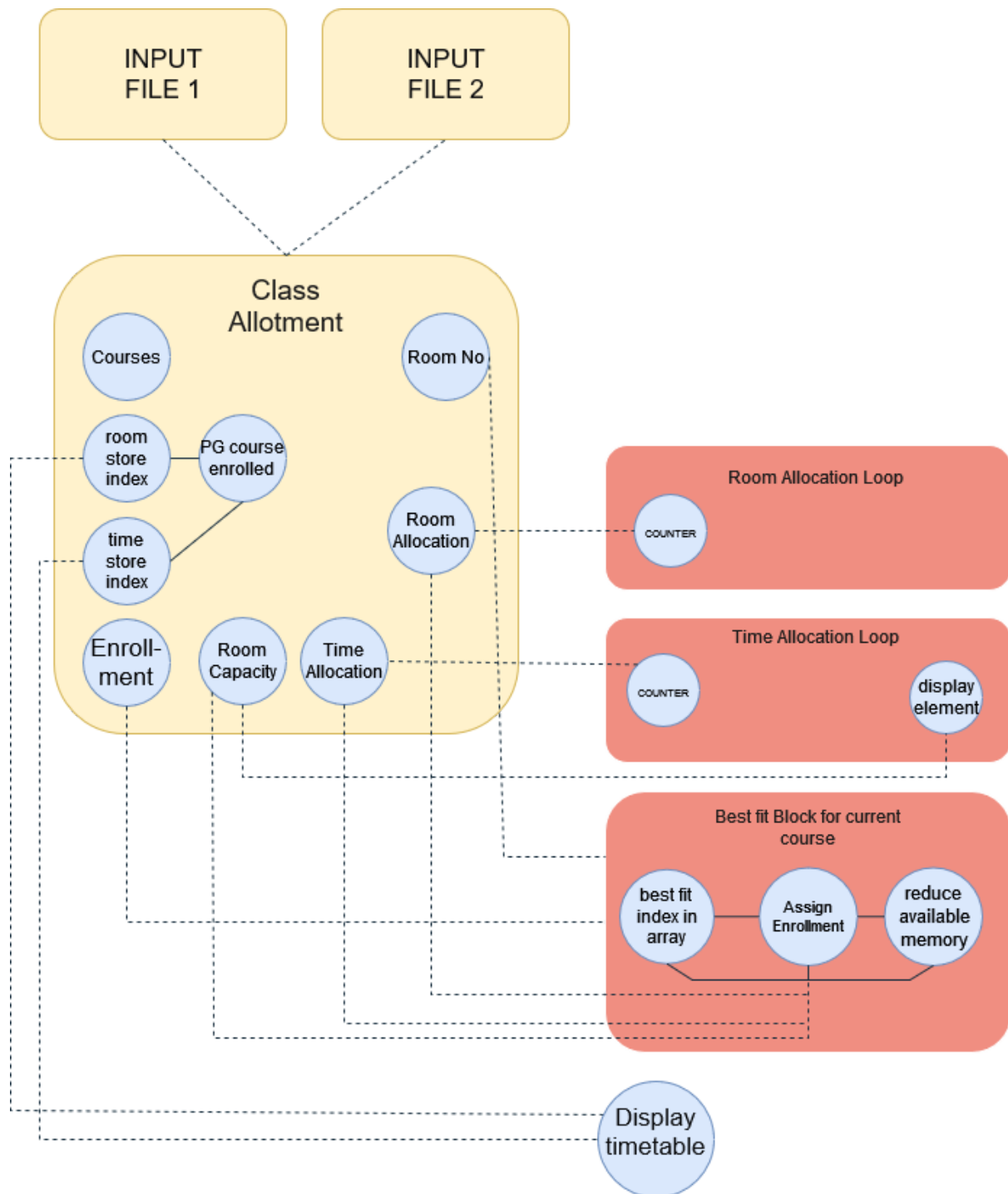


Conclusion :

Implementation of data flow architecture in a course scheduling system that depicts cohesion and coupling.

Dotted Line - Coupling

Continuous Line - Cohesion



Three Modules : InputFile 1, InputFile 2 and Class Allotment Module

Sub-modules of Class Allotment Module :

- Room Allocation Loop
- Time Allocation Loop
- Best fit Block For Current Course

