CSD-4464 Java EE

Class 6a: Design Patterns

Singleton Pattern

- Singleton pattern is one of the simplest design patterns in Java.

- This pattern involves a single class which is responsible to create an object while making sure that only single object gets created.

- This class provides a way to access its only object which can be accessed directly without need to instantiate the object of the class.

- Useful for objects that have costly initializations, or large overheads

Data Access Pattern

- Data Access Object Pattern or DAO pattern is used to separate low level data accessing API or operations from high level business services

DAO responsibilities

- **Data Access Object Interface** - This interface defines the standard operations to be performed on a model object(s)

- **Data Access Object concrete class** - This class implements above interface. This class is responsible to get data from a data source which can be database / xml or any other storage mechanism.

- **Model Object or Value Object** - This object is simple POJO containing get/set methods to store data retrieved using DAO class.

MVC Design pattern

- MVC Pattern stands for Model-View-Controller Pattern. This pattern is used to separate application's concerns

- MVC separates application into three components - Model, View and Controller.

- Allows for parallel development as components are split

The Model

- Model represents shape of the data and business logic.

- It maintains the data of the application.

- Model objects retrieve and store model state in a database.

- In Java the model represents an object or JAVA POJO carrying data. It can also have logic to update controller if its data changes.

The View

- View is a user interface.
- View display data using model to the user and also enables them to modify the data.

The Controller

- Controller handles the user request.

- Typically, user interact with View, which in-turn raises appropriate URL request to be handled by a controller. The controller renders the appropriate view with the model data as a response.