PES UNIVERSITY

(Established under Karnataka Act No. 16 of 2013)

Object Oriented Analysis and Design using Java (UE20CS352)

Self Learning Hands-on Assignment: MVC Framework

MVC (Model-View-Controller) is one of the most widely used software architecture pattern for app and web development. The Model View Controller pattern separates concerns into model, view and controller. The Model contains data, View has the presentation logic and Controller has the backend code for application logic. Using this framework, we can separate the business logic from presentation logic.

We can create a web application in Java using any of the listed frameworks:

- Spring
- Grails
- Vaadin
- Play
- Struts
- Java Server Faces

To implement MVC pattern we need to follow a step-by-step procedure.

Step1: Create the Model

Model is the part of your application that manages the data and provides the same to the other parts of the application. It creates/ updates/ deletes/ reads the data on the disk upon receiving a call from the Controller.

Step2: Create the View

The View segment of your application shows what the Controller allows. View displays the data from model. The View can be developed using HTML and JavaScript or using JSP.

Step3. Create the Controller

The Controller is perhaps the most vital segment of the MVC application as it contains the logic for the Model-View interaction. The Controller includes three main functions. These methods are described below.

- startApplication: It starts the application by calling the initial or default View
- Send data to or extract data from Model
- Receive data from or return data to View

Step4. Run the application

When the user wants to transmit or receive data, the Controller responds by asking or sending the data from or to the Model. After that, the Controller sends the result (success or error) back to the View. View also operates via the Controller, inquiring about the data or adding it to the Model. Finally, the Controller validates the data for updating by the Model.

Assignment Tasks

Choose your own simple application and demonstrate MVC architecture for at least two scenarios.

1. Create data items
2. Read the newly created data items

For Example, in a student information system application, student registration to create student record and read student record for a given SRN, could be the two scenarios.
(These are example scenarios. Do not use these scenarios for implementation, choose your own).

Typical time required to complete the assignment: 4 hours

For the submission, create a PDF document with the following

- 2 page write up on
    - MVC Architecture pattern
    - Advantages of MVC pattern
    - Features of MVC Framework chosen
- Problem definition with description of the chosen scenarios
- Complete screenshot of code written by you
- Screenshot of console with application running
- Screenshot of UIs related to the two scenarios with values, outputs, errors (if any)
- Screenshot of database with data items

Assessment:
Problem Formulation – 1M
Model Class – 2M
View Classes – 2M
Controller Classes – 2M
Run the application – 3M
Total – 10M