

CSE417: WEB ENGINEERING

Daffodil International University



LEARNING OUTCOMES

- ✓ You will know MVC design pattern
- ✓ You will be able to apply Project management techniques



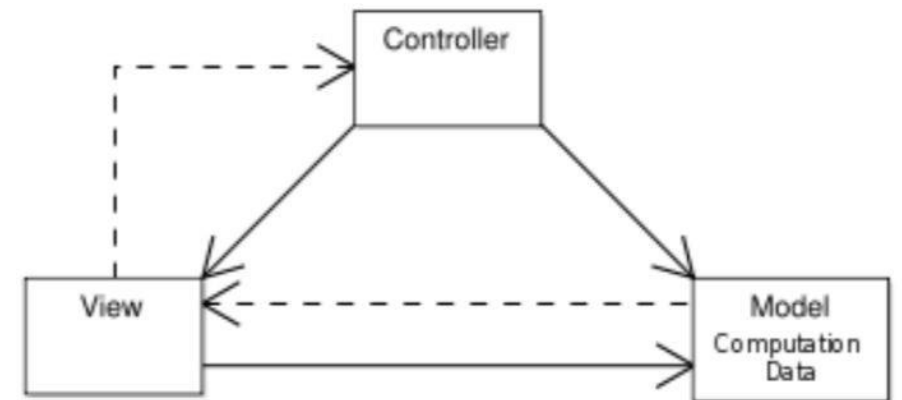
DISTRIBUTED SYSTEMS: FUNDAMENTAL QUESTIONS

- Software developers have to consider a wide, but rather stable, range of questions including:
 - Where can or should computations take place?
 - Where can or should data be stored?
 - How fast can data be transferred/communicated?
 - What is the cost of data storage/computations/communication depending on how/where we do it?
 - How robustly/securely can data storage/computations/communication be done depending on how/where we do it?
 - How much energy is available to support data storage/computations/communication depending on how/where we do it?
 - What is the legality of data storage/computations/communications depending on how/where we do it?
- The possible answers to each of these questions is also rather stable, but the 'right' answers change



DISTRIBUTED SYSTEMS: MVC(1/3)

- We use the Model-View-Controller(MVC) software design pattern to discuss some of these questions in more detail:
 - The model manages the behavior and data
 - The view renders the model into a form suitable for interaction
 - The controller receives user input and translates it into instructions for the model



MVC

Model

The Model component corresponds to all the data-related logic that the user works with. This can represent either the data that is being transferred between the View and Controller components or any other business logic-related data. For example, a Customer object will retrieve the customer information from the database, manipulate it and update it data back to the database or use it to render data.

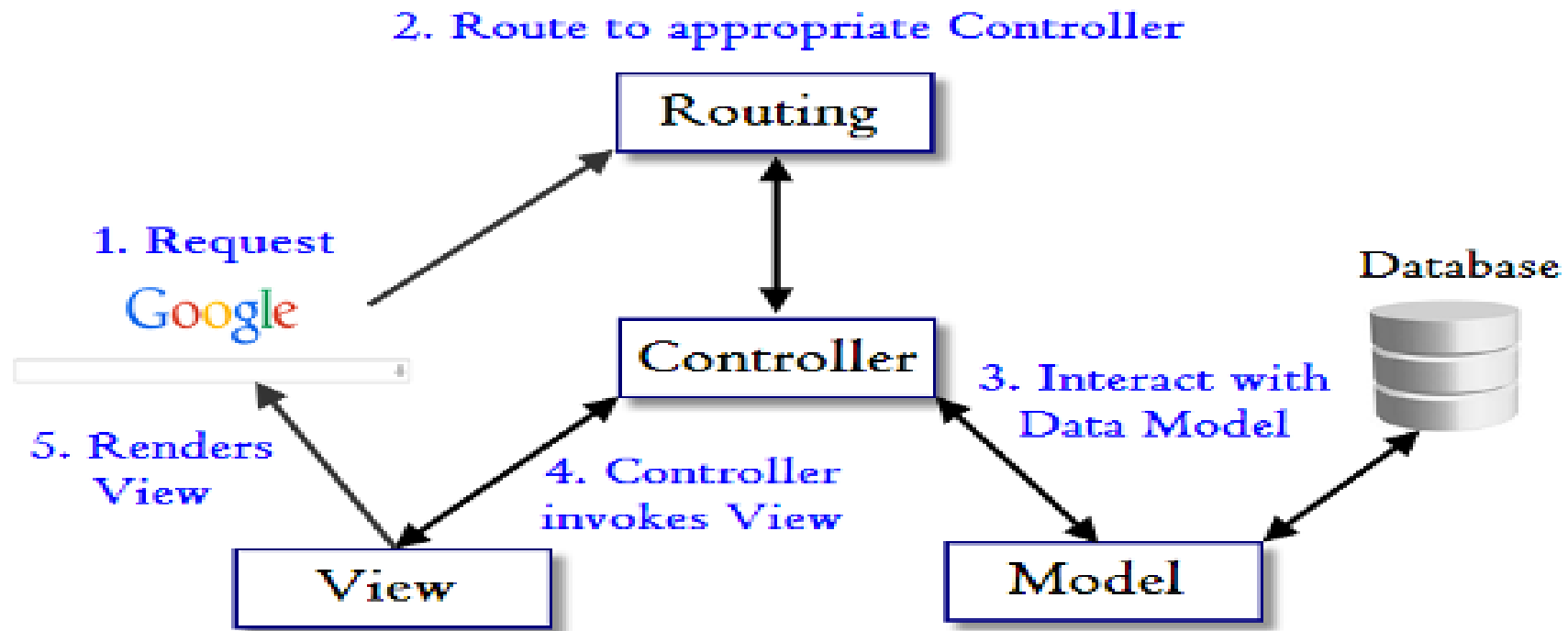
View

The View component is used for all the UI logic of the application. For example, the Customer view will include all the UI components such as text boxes, dropdowns, etc. that the final user interacts with.

Controller

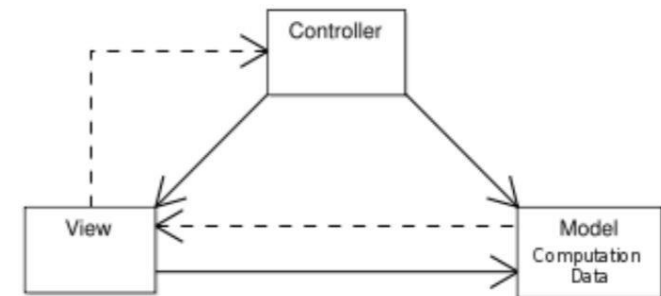
Controllers act as an interface between Model and View components to process all the business logic and incoming requests, manipulate data using the Model component and interact with the Views to render the final output. For example, the Customer controller will handle all the interactions and inputs from the Customer View and update the database using the Customer Model. The same controller will be used to view the Customer data.





DISTRIBUTED SYSTEMS: MVC (2/3)

- Where should the view be rendered?
 - On the user's computer
 - On a central server (farm) possibly shared by a multitude of users
- Where should the behaviour of the model be computed?
 - Close to the user,
 - on a single computer exclusively used by the user
 - Away from the user,
 - on a central server (farm) shared by a multitude of users
 - Distributed,
 - on several computers owned by a large group of users



PROJECT MANAGEMENT

- **Deliver on time and on schedule and in accordance with the requirements**
- **Budget and schedule constraints**
- The product is **intangible**
 - Cannot be seen or touched.
 - **Project managers can not see progress by simply looking at the artifact**
- Many software projects are 'one-off' projects
 - Large software projects are usually different from previous projects
 - Experience does not help.
- Software processes are variable and organization specific
 - cannot predict when a process is likely to lead to development



PROJECT MANAGEMENT ACTIVITIES(1/2)

- Project planning
 - Project managers are responsible for planning, estimating and scheduling project development and assigning people to tasks.
- Reporting
 - Project managers are usually responsible for reporting on the progress of a project to customers and to the managers of the company developing the software.
- Risk management
 - Project managers assess the risks that may affect a project, monitor these risks and take action when problems arise.



PROJECT MANAGEMENT ACTIVITIES (2/2)

- People management
 - Project managers have to choose people for their team and establish ways of working that leads to effective team performance.
- Proposal writing
 - The first stage in a software project may involve writing a proposal to win a contract to carry out an item of work. The proposal describes the objectives of the project and how it will be carried out.



PROJECT MANAGEMENT CHALLENGES

- **Unique software systems:** the experience from the past project is too little to be able to make reliable cost estimates.
- **Extremely technical leadership perspective:** dominated by technology freaks.
- **Poor planning:** many projects are characterize by unclear or incomplete planning objectives, frequent changes to planning objectives, defects in project organization.
- **Development Challenges**
 - Individuality of programmers
 - High number of alternative solutions
 - Rapid technological change
- **Monitoring Challenges**
 - The immaterial state of software products



- **EXERCISE**

- What are the drawbacks and benefits of using MVC design pattern?
- Write briefly about obstacles faced in your project

- **READINGS**

- https://developer.chrome.com/apps/app_frameworks
- <https://www.guru99.com/mvc-tutorial.html>



ACKNOWLEDGEMENT

- This module is designed and created with the help from following sources-
 - <https://cgi.csc.liv.ac.uk/~ullrich/COMP519/>
 - <http://www.csc.liv.ac.uk/~martin/teaching/comp519/>
 - Materials of MVC, S Rahman Shammi, Daffodil International University

