Object-Oriented Programming

Brief Overview of MVC

Model View Controller

Outline

- Rational for Architectural Patterns
- Overview of MVC
- Example code
- Announcements

Complex Applications = Lots of Code

- As you're probably experiencing *(OR will be experiencing)* with your MP, complex applications are harder to manage in terms of development
  - Team members require tasks that are streamlined and not too dependent on other tasks
    - Some can focus on backend, some can focus on frontend
  - Code should be organized
- Hence, architectural patterns help give organization to engineering software

Overview of MVC

- This design pattern advocates for an application to be divided based on their role
- These roles include:
  - Model => Data / Logic
  - View => Interface / Feedback
  - Controller => Decision making

Model

- Manages the data
- In charge of logic / manipulation / storage
- Typically associated with querying/updating a database
  - But CCINFOM is next term!
- Should not directly update the view!

- Think of the model as a center for data logic

View

- Visualizes the data
- Acts as a bridge between the user and the application for Java applications
    - Contains setters and getters for the view elements that are used by the controller
- Should not directly update the model!

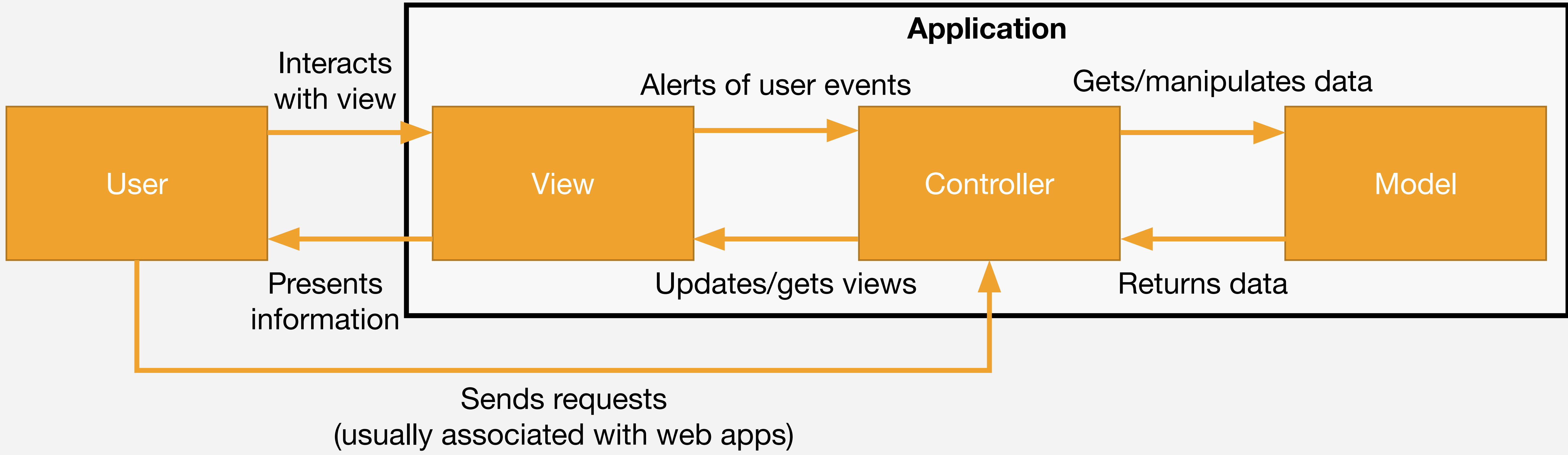
- Think of the view as a manager for the GUI

Controller

- Puts everything together
- Is the interface between the model and the view
- Sends signals to the model or view…
  - Add, modify, delete information
  - Get or set displayed information

- Think of the controller as the decision-making process

MVC


Application
Interacts with view
Alerts of user events
Gets/manipulates data
User
View
Controller
Model
Presents information
Updates/gets views
Returns data
Sends requests (usually associated with web apps)

Questions? ☺️

Let’s look at an example

(on Canvas)

Announcements

- No online meeting next week
  - [Timed] Assignments:
    - *Practice Exercise 6*
    - *Practice Exercise 7*
- Next face-to-face meeting
  - Graded Exercise 5

cont…