MVC Pattern

Software Architecture

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Learning Objectives

By the end of this video, you will be able to

• Explain main difference between architectural pattern and architectural style.
• Explain the three components of the MVC pattern and the relationships among the components.
• Explain the benefits gained when using the MVC pattern.
Architectural Pattern

• A general, reusable solution to a commonly occurring problem in software architecture within a given context.

• !≠ Architectural Style
  • Vocabulary of components and connectors
  • Composition constraints

(Taylor, Medvidovic, & Dashofy, 2009)
Model-View-Controller (MVC) Pattern

**Model**
- Encapsulate app state
- Respond to state queries
- Expose app functionalities
- Notify view of changes

**View**
- Render model
- Request updates from the model
- Send user gestures to controller
- Allow controller to select view

**Controller**
- Define app behavior
- Map user actions to model updates
- Select view for response

(Eckstein, 2007)
MVC Pattern Example

Model

```java
int xPosition = 50;
int yPosition = 50;
double opacity = 0.35;
Font font = new Font("Arial", Font.BOLD, 24);
String text = "Some Transparent Text";
```

Controller

```java
public void changeXPosition(int newXPosition);
public void changeYPosition(int newYPosition);
public void changeOpacity(double newOpacity);
public void changeFont (Font newFont);
public void changeText (String newText);
```

View
1 Model $\rightarrow$ 2 Views

**Model**

```java
int xPosition = 50;
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Font font = new Font("Arial", Font.BOLD, 24);
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**Controller**

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```

**View**

- State query
- Change notification
- View selection
- User gestures

(Eckstein, 2007)
A Model ➔ Multiple Views

(Gamma, Helm, Johnson, & Vlissides, 1995)
References


The End