**Model-View-Controller (MVC) Pattern:**

**MVC** is a design pattern used to separate the concerns of an application into three main components:

**Model:** Represents the data and logic of the application. It handles data access, validation, and business rules.

**View:** The user interface that displays the data to the user. It renders the model's data in a visually appealing format.

**Controller:** Acts as the intermediary between the model and the view. It handles user input, updates the model, and determines which view to display.

**Benefits of MVC Pattern:**

**Improved maintainability:** The separation of concerns makes it easier to understand, modify, and test the application's code.

**Enhanced scalability:** New features can be added to the application without significantly impacting existing code.

**Better reusability:** Components can be reused in different parts of the application or even in other projects.

**Improved testability:** The separation of concerns allows for easier unit testing of individual components.

**How MVC Works:**

**User Interaction:** The user interacts with the view (e.g., clicks a button, enters data).

**Controller Updates:** The controller receives the user input and updates the model accordingly.

**Model Updates:** The model processes the data, performs any necessary calculations, and updates its internal state.

**View Updates:** The controller informs the view that the model has changed. The view then retrieves the updated data from the model and re-renders itself to display the new information.

**Example:**

Consider a simple web application that displays a list of products.

**Model:** Represents the products (name, price, quantity) and handles operations like adding, removing, and updating products.

**View:** Renders the list of products as an HTML table.

**Controller:** Handles user requests (e.g., "Show products," "Add product") and updates the model accordingly. When a product is added or removed, the controller informs the view to re-render the list.