Module 2

Designing ASP.NET Core Web Applications

infoSupport
Solid Innovator

Module Overview

- Planning in the Project Design Phase
- Designing Models, Handlers and Pages

Lesson 1: Planning in the Project Design Phase

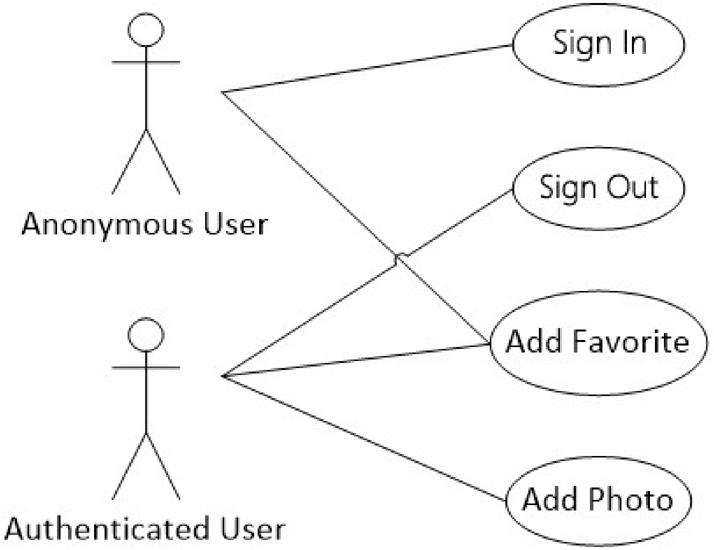
- Project Development Methodologies
- Gathering Requirements
- Planning the Database Design
- Planning for Distributed Applications
- Planning State Management
- Planning Globalization and Localization
- Planning Accessible Web Applications

Project Development Methodologies

Development Model	**Description of Activities for building an application**
Waterfall Model	Sequentially in distinct phases with clear deliverables.
Iterative Development Model	Iteratively in parts by using thoroughly tested working versions, until finalized.
Prototype Model	Prototype made based on few business requirements. Feedback on prototype used as input to develop final application.
Agile Development Model	Rapid cycles, integrating changing circumstances and requirements in the development process.
Extreme Programming	Begin with solving a few critical tasks. Developers test the simplified solution and obtain feedback from stakeholders to derive detailed requirements, which evolve over the project life cycle.
Test Driven Development	Begin with a test project. Changes to code tested singly or as a group, throughout the project.
Unified Modeling Language	Begin with UML diagrams used for planning and documenting purposes, across all project development models.

Gathering Requirements

- Functional requirements describe how the application responds to users
- Technical requirements describe the technical features of an application, such as availability, security, or performance
- You can build functional requirements by using:
  - Usage scenarios
  - Use cases
  - Requirements modeling in the agile methodology
  - User stories in the extreme programming methodology



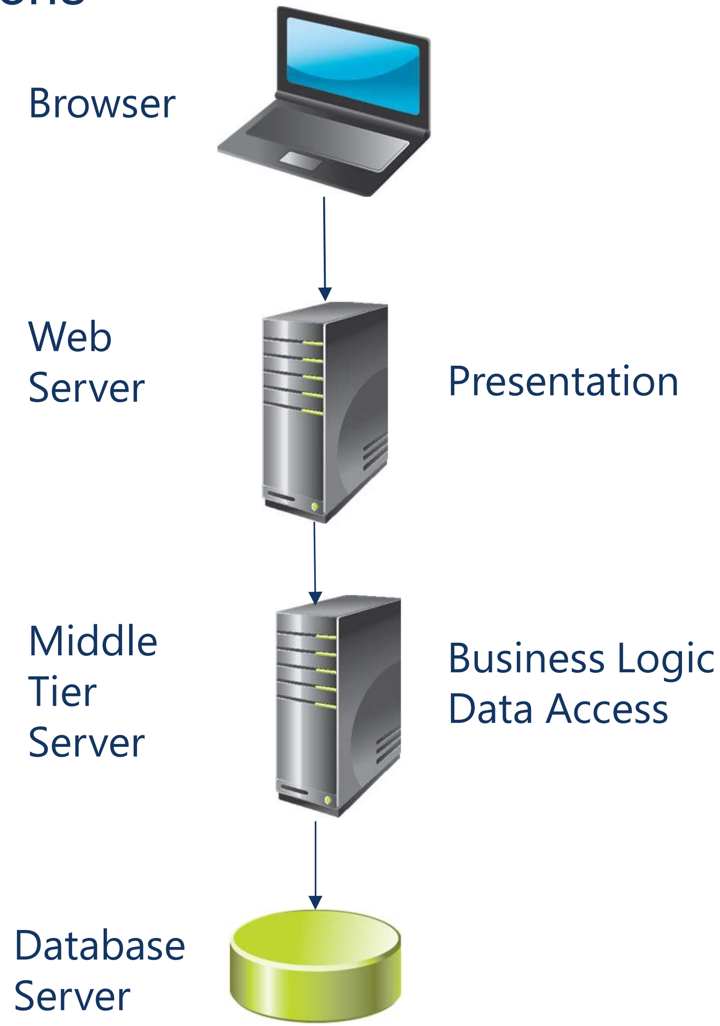
Sample UML Use Case Diagram

Planning the Database Design

- Logical modeling
- Physical database structure
- Working with DBAs
- Database design in agile and extreme programming

Planning for Distributed Applications

- Layers
  - Presentation
  - Business logic
  - Data access
  - Database
- Communication
- Security



Planning State Management

- Client-side locations to store state data:
  - Cookies
  - Query strings
- Server-side locations to store state data:
  - TempData
  - Application state
  - Session state
  - Database tables

Planning Globalization and Localization

- You can use the internationally-recognized set of language codes available in browsers to present content customized to suit a user’s language or region
- You can use resource files to provide a localized response suitable to a user’s culture
- You can use separate views to suit each language code

Planning Accessible Web Applications

You can ensure that your content is accessible to the broadest range of users by adhering to the following guidelines:

- Provide **alt** attributes for visual and auditory content
- Do not rely on color to highlight content
- Separate content from structure and presentation code:
  - Only use tables to present tabular content
  - Avoid nested tables
  - Use **<div>** elements and positional style sheets to lay out elements on the page
  - Avoid using images that include important text
  - Put all important text in HTML elements or **alt** attributes

Lesson 2: Designing Models, Pages and Handlers

- Designing Models
- Designing Views
- Designing Handlers
- Information Architecture

Designing Models

- Model classes and properties
- Using diagrams
- Relationships and aggregates
- Entity framework
- Design in agile and extreme programming

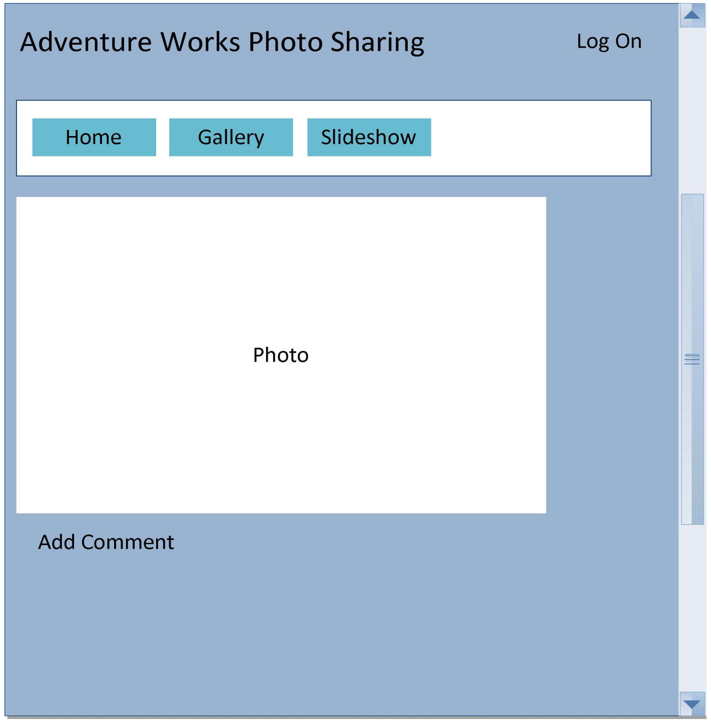
Designing Page Handlers

Page	Handler
Photo/Add	Get
	Post
	DisplayGallery
User/Logon	Get
	Post

- Identify pages and handlers
- Design in agile and extreme programming

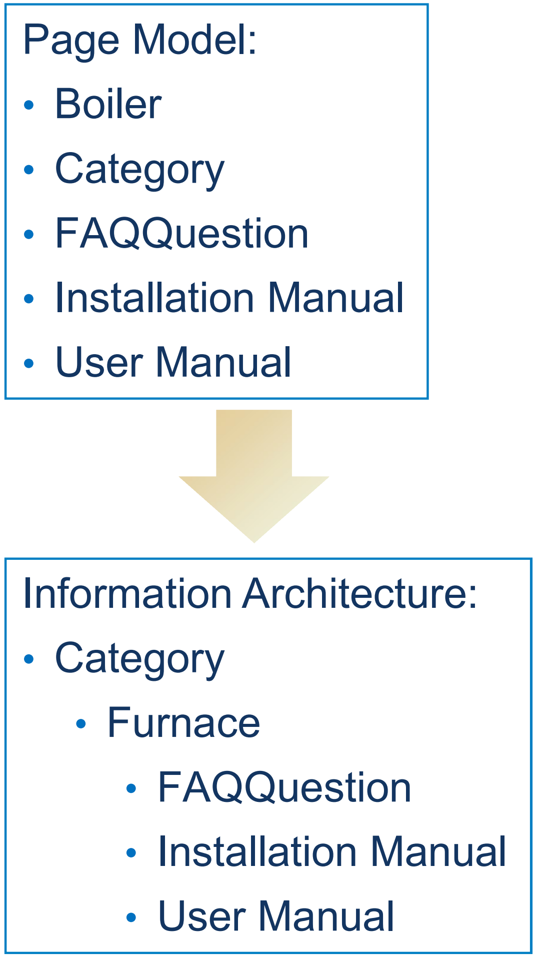
Designing Page UI

- UI
- Layouts
- Partial views and view components
- Design in agile and extreme programming



Information Architecture

- Planning a logical hierarchy
- Presenting a hierarchy in navigation controls
- Presenting a hierarchy in URLs



Page Model:

- Boiler
- Category
- FAQQuestion
- Installation Manual
- User Manual

Information Architecture:

- Category
    - Furnace
        - FAQQuestion
        - Installation Manual
        - User Manual

Lab: Designing ASP.NET Core Web Applications

- Exercise 1: Planning Model Classes
- Exercise 2: Planning Page Handlers
- Exercise 3: Planning Pages
- Exercise 4: Architecting a Web Application

Estimated Time: 45 minutes

Lab Scenario

Your team has chosen ASP.NET Core as the most appropriate ASP.NET programming model to create the photo sharing application for the Adventure Works web application. You need to create a detailed project design for the application and have been given a set of functional and technical requirements with other information. You have to plan:

- A model that you can use to implement the desired functionality.
- One or more pages and handlers that respond to users actions.
- A set of views to implement the user interface.
- The locations for hosting and data storage.

Lab Review

- What model classes should be created for the photo sharing application based on the initial investigation?
- What page models should be created for the photo sharing application based on the initial investigation?
- What views should be created for the photo sharing application?

Module Review and Takeaways

- Review Question
- Real-world Issues and Scenarios
- Tools
- Best Practice
- Common Issues and Troubleshooting Tips