

# Lesson Plan: Level 5 (Introduction to Web Development)

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## Real Life Application

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- Web Sites
- Web Applications
- Web APIs

## Outcomes

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- Learning how to create a website using HTML, CSS, Javascript
- Create a programming project with a code editor
- Construct nested websites with HTML tags and elements
- Troubleshoot and debug HTML errors and bugs
- What are the languages that we use to develop a web application?

## Tools

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- Visual Studio Code
- Google Chrome
- Node.js

## Content Overview

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- Learn about basic web development
- Learn HTML, CSS, and JS development

## Chapter 1: Introduction to the internet

### Concepts to Cover

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- Introduction to the Internet
  - Applications and services that are on the internet
  - The good and bad about the internet
  - Security; protect yourself when you browse the internet

## Lessons to Cover

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Introduction to the Internet

Web Applications and Services

The Good and Bad of the Internet

Protecting yourself in the internet

## Chapter Challenge

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A Client, that offers educational streaming content (Netflix, for classes) wants you to host an entire system on the internet, and provide all of the necessary services that are available to offer. How would you tackle this assignment? Provide all of the necessary software and services, that are available. The software is pre built, and is a blackbox software. You will have to surrender the information to the client as to how they can connect to the database. Use as much third party software as possible.

- They must use a form of security, to protect the application from hackers
- An email service is a requirement
- The type of domain and the name. Brownie points for those who can provide a good name
- The hosting services
- A database, to host the information
- A system that will be used for billing users
- A backend application is provided. Those services must not be accessible to the end user

# Chapter 2: HTML Development

## Concepts to Cover

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- Introduction to HTML
- Understanding document structures
- Using layouts to specify the placement of text bodies
- Using text formatting, and styling
- Adding assets to the image
- Navigation
- Adding, and understanding attributes

## Lessons to Cover

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Introduction to HTML

Document Structure

Browser DOM

Text Formatting

Working with Layouts

Working with Attributes

Working with Assets

Navigation: Moving your way around the page

## External links

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- <https://dev.to/jordanholtdev/how-to-create-a-web-page-with-html-26ho>

# Chapter 3: CSS Development

## Concepts to Cover

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- Introduction to styling
- Importing image assets via CSS
- Changing the fonts
- Style website components by ID, class and type
- Connect CSS to a website
- Position and display website elements
- Modify and control website typography
- Troubleshoot and debug issues with stylesheets
- Control web elements orientation and layout with Flexbox
- Control ordering of web elements with Flexbox
- Align and justify web elements with Flexbox
- Transform and resize web elements with Flexbox
- Compare and contrast the use cases for CSS Grid and Flexbox
- Structure the layout of a web page using grid columns and rows
- Define custom styles for different screen sizes using media queries.

## Lessons to Cover

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Introduction to CSS

CSS styling syntax

Box Models

Flexbox

Grids

Typography

## Chapter Challenge

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Style the page based on the image. You will be given a template page, with all of the HTML content. It's up to you to style the page, based on the image and submit the styling to the lecturer.

## External Links

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- <https://dev.to/zinox9/html-css-responsiveness-reference-sheet-45i3>

## Chapter 4: Javascript Development

### Concepts to Cover

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- Introduction to JavaScript
- Basic concepts of JavaScript
- Adding events to buttons
- Testing the javascript on the browser console
- Working with forms
- Adding a dialog
- Manipulating the web page

### Lessons to Cover

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Introduction to JavaScript

Basic Information on JavaScript

Dom Manipulation

Working With Event Handling

Working With Forms

AJAX

JQuery

## Chapter Challenge

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Create a banking app, that will allow the user to deposit, withdraw, and view a statement of transactions

1. The user cannot withdraw more than what they have in the account. Validation must be added, to make sure that the user does not overdraw.

## Chapter 5: Incorporating Bootstrap into the project

### Concepts to Cover

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- Downloading the bootstrap folder, and integrating it into the project
- Styling the project, using the guidelines
- Adding functionality into the application

### Lessons to Cover

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Migrating the project to Bootstrap

### Lesson Challenge

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Style the page, with the bootstrap framework These are the following requirements:

- The page must have a navigation bar, with all of the navigation options
- The page must be styled the same way as Bootstrap specified it
- The dialog functionality must be implemented

## Chapter 6: Hosting and Git Repo Management

### Concepts to Cover

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- Setting up the Firebase Account
- Setting up a Firebase environment

- Setting up a GitHub Account
- Deploying to Firebase

## Lessons to Cover

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Setting Up Firebase

Setting Up Github

## Challenges

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Code katas with each concept to be added onto the challenge for the day. The requirements will change in every day

## Chapter 7: .NET Core with C#

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## Chapter 8: Python

## Chapter 9: Azure hosting

### Level Challenge

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Create a web page that has your profile. The application will be deployed to Firebase

- The application will be styled using Bootstrap
- basic information
- A picture of yourself
- A SWOT analysis
- Where do you see yourself in 5 years
- What you took away from the levels



- A contact me section that will store the information in an endpoint that will be provided.
- A dashboard screen that will list all of the necessary contact information