Website/Portfolio

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Website Process

To accurately describe the process of developing this course I've broken up the process into sections. If you would like to learn more about each of the tools and resources, I've provided links and references at the bottom of this document.

Hosting and Domain Name (URL)

- For this website I've chosen to use the purchased domain name: EduDevTeam. This stands for Educational Development Team.
- For the hosting I am using GitHub Pages which is a free service. To host on GitHub Pages, you must have a free GitHub account. If you are not familiar with GitHub, it is a service which provides the storage of online repositories for any project, but it is mainly used by software developers to store public and private projects.

Graphic Design Tools

- My belief is that if you can go free then do so. To create the graphics for this course so far, I am using the free vector editing tool Lunacy. It is like Sketchapp on Mac if you are familiar with the Mac OSX operating system.

Screen Capture Video Tools

- To capture the screen recording I will use Snagit by TechSmith
- To Edit the videos, I will be using the cross-platform video editor Shot Cut. I've used this free video editor for years. First off, it works on Windows, Mac, and Linux. It is an excellent tool for reducing video size.

Web Authoring Tools

- I am using the free development tool VS Code to manage my development. VS Code is an Integrated Development Environment tool provided free by Microsoft. It is common tool used in the professional world for software application development and web development.
- Regarding languages, I am using HTML5/CSS3 along with JavaScript and JSON (JavaScript Object Notation)
- For the CSS, I am using the preconfigured Bootstrap Template library with a Material Design and additional custom CSS I've created.
- I've created all the HTML, CSS, JavaScript, and JSON from scratch.

Version Control Software

- Git version control software is used to track all my changes and upload to the GitHub repository where the website is stored.

Creating the Website

A note to the reader. I software developer and familiar with what many might consider advanced tools. The website project I've build can be recreated by anyone but to add or modify functionality the user will need to know JavaScript and be familiar with GitHub repositories.

1. Before designing the website, I wrote down topics of what I would like to build.
2. After decided on the idea of a micro-course, I needed to consider the functionality.
3. I looked at multiple educational websites and finally decided on a similar structure and layout like Udemy.com.
4. Udemy's course-like tile grid and video player were ideal for my topic.
5. Next, I needed some sample graphics, so I chose four topics work with.
    a. Git Version Control
    b. Code.org
    c. TinkerCAD.com
    d. Swift Playgrounds
6. To design the card previews I used the free vector editing tool Lunacy. (Windows Only)
    a. Each card preview is a .png file and is 500 x 375 pixels
7. With the card previews designed it was time to consider how to effectively layout the content in HTML and CSS.
8. For content layout and base template, I decided to go with the Material Theme for the Bootstrap template.
9. Now before I created my first page, I need to choose hosting.
10. I decided to try out the GitHub pages because I had already considered storing this website in an online repository.
11. To host the site on GitHub I first had to create a new repository on GitHub.
12. I called the new repo (repository): edu-dev-team. You can see this repo at following link: https://github.com/drjonesy/edu-dev-team

    Note - When you first create a new repo anywhere including GitHub, if starts out empty unlike files you will find provided in the link.

13. Once I created the repo, it asked if I would like to create a README.md file. I agreed.

    Note - .md is the file extension for Markdown Language.

14. Next, I needed to clone the repo to my local computer and link it with my GitHub.com repo.

    Note - Cloning is like using cloud storage with files. One of the courses I am creating covers this process. It's pretty cool once you learn it.

15. Once the repo is cloned, I open the local repo directory with VS Codes so I can see the file structure inside my local copy of /edu-dev-team.

16. Now it's time to create a basic html website template using Material Theme Bootstrap. If you like to see what the template looks like locate the Starter Template.

https://mdbootstrap.github.io/bootstrap-material-design/docs/4.0/getting-started/introduction/

For detailed documentation you can also use this: https://getbootstrap.com/

17. Using the Bootstrap template, I created a single Card element in the document using the Git Version Control image file, the title, and description.

    Note – About 90% of this project is generated using custom JavaScript and JSON. This may become confusing the reader if they are unfamiliar with programming. I will try to make it as clear as possible.

18. Next, I duplicated the process using JavaScript.
19. First, I created a custom file structure to store images, custom CSS, and custom JavaScript with JSON. Here is what the file structure looks like.

```
|_ index.html
  |_ courses
  |_ src
     |_css
     |_images
     |_js
```

20. Then I added the following files to the js directory: app.js and courses.js
21. The courses.js is solely a JSON file.
22. Next, I included the two new JavaScript files in the bottom of the index.html file directly above the closing </body> element.

```
<script src="../src/js/courses.js"></script>
<script src="../src/js/app.js"></script>
</body>
```

23. Now it is time to begin creating the JSON structure. If you'd like to learn more about JSON the w3schools.com website has good example for beginners. - https://www.w3schools.com/whatis/whatis_json.asp - I'm not going to show the current JSON content because it is bit overwhelming and would likely take up five to six pages. For now you can view it at this link: https://github.com/drjonesy/edu-dev-team/blob/main/src/js/courses.js
24. Once the structure was formatted, it was time to create custom JavaScript functions to auto-populate the tiles.
25. I will cover a high-level view of the process.
    a. Build a function to generate one Card with image preview, title, and description
    b. Build a new function to loop to show all Cards
    c. Adjust CSS so cards fit evenly across a full screen and appear attractive.
    d. Apply CSS to adjust for mobile views.

   e. Build a function to filter by Category
   f. Build a function to filter by text search
   g. Build a function to disable links on course not available yet.
26. With the basic functionality of the homepage working, it was time to apply a little user-friendly design.
27. Design can take a long time so instead I decided to brows the web and look for free templates that could be adapted. I came across the following: https://themes.gohugo.io//theme/hugo-fresh/
28. I liked the text layout, the welcoming person on the computer, and the rounded buttons.
29. I adapted the layout into my current design, added custom CSS to change the look of the buttons to more rounded look with custom colors, and modified the graphic to contain shorter hair which produces a gender-neutral character.
30. The logo is a simple custom design which will changed in the future to accurately capture the essence of the Educational Development Team.
31. Now that the home page is built, responsive, and functioning it is time to design the micro-course template.
32. Again, this page is generated using a heavy amount of custom JavaScript with JSON so I will explain the process in high-level.
    a. Build a Template using HTML and CSS to make it look like an active Udemy course page.
    b. Build a function load course video links in the right-hand column navigation
    c. Build a function that loads a YouTube video into the video frame when a link is clicked
    d. Build a function that loads and formats content from JSON data into the Overview Tab
        i. Repeat this process for the Classroom and Announcements Tabs.
    e. Makes sure the website is responsive.

Next Stage

- For the next steps, I plan on creating a course that covers git version control, GitHub, and using GUI tool. The course will be broken up into multiple videos. You can currently see the list of video topics that the course will be broken up into on the Git Version Control Micro-Course page.
- Once the course is created, I will draft up a Syllabus for teachers and students to use
- I also plan on providing an instructional design document that teachers can present if they need approval from higher-ups.

Instructions for Recreating and Hosting

I am aware that my description of the website development process is not too detailed which might be difficult for non-technical people to recreate the site. I will provide a quick tutorial on how to download and work with the current site and functionality if someone wishes to create a similar site but with different content.

– Please be aware that the website application created cannot be commercialized unless permitted by myself. It can be freely used and shared.

Local Development Tutorial

Downloading

1. The easiest way to create a copy of this website for non-technical users is to first open a browser and go to: https://github.com/drjonesy/edu-dev-team
2. This is the entire project
3. Locate the button with the word **main** and down-arrow. Click this button and change it to: **base_template**
4. Next locate the **Code** button with the down-arrow. It is likely green.
5. Click the button. A pop-up will appear.
6. Find and select **Download Zip** at the bottom of the pop-up.
7. You will either receive a prompt window asking you were you like to download the project to or depending on your browser settings it might just download directly to your /Downloads folder.
8. The project should download as: **edu-dev-team-main.zip**
9. Now that it's downloaded you have multiple options.
    a. You can upload the zip file to hosting website and unzip it there.
    b. Unzip the project locally and play around with it.
10. For this tutorial, we will stick with working locally aka. on your computer.
11. Unzip the project which will now create a new folder called: **/edu-dev-team-main**
12. Locate and open the project folder.
13. Inside the project folder you will find multiple files and folders.

Getting Familiar with Home Page

14. For now, let's make sure we can load the homepage.
15. Find the **index.html** file and double-click it to load home page.
16. On the homepage *ignore* the top navigation. The links and buttons are auto assigned using code.
17. Let's play with the **search** and **category** filter features.
18. In the **search** field type: **code** and press enter. The Cards/Courses listed should be reduced those with the word code assigned to them.
19. Now clear the **search** and press enter again. All the Cards/Courses should re-appear.
20. Next, click on the drop-down that says **-- Show All --** and select a category. Again, only the Cards/Courses that match the category will show.
21. Change the category back to **-- Show All --** which will display all Cards/Courses.
22. Now let's take a look at a course page. For this tutorial let look at the **Git Version Control**
23. Click on the Card: **Git Version Control** to load its course page.

Getting Familiar with the Course Page

24. On the Course Page you should see a video frame with either a sample video loaded from YouTube.com
25. Below the video are three tabs: Overview, Classroom, and Announcements
26. In the Overview Tab, you will see a detailed description of the course, additional resources which contains external links, and categories section which lists all the categories assigned for this course.
27. The Classroom Tab will contain resources and material for students and teachers in the future once each course is initially created.
28. The Announcements Tab contains updates and changes to the course.
29. On the right you should see the Course Topics navigation. If you are on mobile, the topics will display below the tabs.
30. Clicking on a topic will load the video for the topic.

How to Add/Edit/Delete (Static Content)

Home Page Static Text

The homepage has only little bit of static content. This includes the logo, the next below it with button, and the feature image.

All images for this project are stored in the following directory: ***../../src/images/***

1. To edit or change this content you will need to open the index.html file in the project/root directory using a text editor. For cross-platform support I recommend downloading and installing the free application VS Code by Microsoft. https://code.visualstudio.com/ - Then open the project folder in VS Code.

Logo

2. To change the logo, locate the following image element: <img id="logo" src="" …
3. Change the **src** path to new logo path.
4. If you want to use just text and no image, then replace the img element with span element with the id="logo".

Feature Text

5. The feature text is located within the Section Element with the ID of 'feature'
6. The larger text is an H1 element, and the descriptor text is wrapped in an H4 element.
7. The Learn More button is wrapped within a link directly below this.
8. Last, the feature image below this located in div element with the class='col-md'. I've included a comment to the original author's design.

How to Add/Edit/Delete (Dynamic Content)

- Before we create new cards let's play around with the existing ones.
- For this tutorial I've reduced the content so that your now overwhelmed. This is why we downloaded the **base_template** version instead of the main.

Home Page Cards

1. Expand the **src/js/** directory. You should see two file: **app.js** and **courses.js**
2. Open the **courses.js** file. Which is a JSON (JavaScript Object Notation) document.

   Take a look at the w3schools website for more on JSON
   https://www.w3schools.com/whatis/whatis_json.asp

3. Make sure you have the index.html file opened in a browser.
4. Now inside the **courses.js** file locate the text: **Git Version Control** – To the right of this text is the word title. Title is the key. In our code: we call the object[‘title’] to load the text **Git Version Control** dynamically.
5. Change this to anything you like and save it. Then look at the home page in the browser. The text should have changed to what you set it to.
6. Now let us change the image preview. Find the image key.
7. To right of the “image” key in the “git” object you should see: “src/images/git.png”
8. Change git.png to tinkercad.png
9. Save and view the changes on the homepage in the browser.
10. Undo all your changes.

New Card

Let’s create a new card using our existing images. We will not do anything too crazy or overwhelming.

1. In your courses.js file scroll down to the bottom and find the object “codeorg”: {
2. Copy all of the following text:

```
"codeorg": {
  "enabled": "false",
  "keywords": ["free", "code"],
  "title": "Intro to Coding",
  "desc": "A free and fun way to learning computer science.",
  "details":"",
  "image": "src/images/code-org.png",
  "courseURL": "/courses/codeorg/...",
  "updates": [],
  "resources": [],
  "videos": [],
}
```

3. Then after the closing curly bracket and comma: **},**
   add a new line.
4. Then paste the text you just copied.
5. You should now have to versions of the “codeorg” object
6. Also, after the object you just created there should be one more curly bracket.

```
"codeorg": {
  "enabled": "false",
  "keywords": ["free", "code"],
    "title": "Intro to Coding",
    "desc": "A free and fun way to learning computer science.",
    "details":"",
    "image": "src/images/code-org.png",
    "courseURL": "/courses/codeorg/...",
    "updates": [],
    "resources": [],
    "videos": [],
  },
}
```

7. Change the following bold values to match the example below:

```
"tinkercad": {
  "enabled": "false",
  "keywords": ["free", "3D", “CAD”],
  "title": "Start Tinkering in 3D",
  "desc": "A free and fun way to learning computer science.",
  "details":"",
  "image": "src/images/tinkercad.png",
  "courseURL": "/courses/codeorg/...",
  "updates": [],
  "resources": [],
  "videos": [],
},
```

8. Refresh your homepage and view the new card added to the results. You should also see the Categories: 3D and CAD in the Category Drop-Down.

Creating a Course Page

1. To create a course page, we need first add new course folder and copy in the course_template.html
2. In the /courses directory create a new folder called: **tinkercad**
3. Then in the /courses directory copy the **course_template.html** file and place it in the new folder: /**tinkercad**
4. Your file directory should now look like this:

```
|_ tinkercad
   |_course_template.html
```

5. In the /tinkercad directory change the **course_template.html** to **course.html**
6. Now in the **courses.js** file, under the **tinkercad** object find the **courseURL** key.
7. Change the value from: **/courses/codeord/…** to **courses/tinkercad/course.html**
   -- *Notice that we removed the forward slash before the courses. You must do this.*
8. Save your changes and view your homepage in the browser.
9. Try clicking on the TinkerCAD card. You might realize nothing is working. Well, that’s not true. We have to enable the card.

10. Back in the **courses.js** file under the **tinkercad** object find the **enabled** key and change the value from **“false”** to **“true”** and refresh your browser. The course link should work now.
11. The page loaded but content isn’t correct. This is because the template is looking for the “git” object content.
12. Open the course.html and scroll-down to the bottom of the page. We only need to change once thing.
13. Find the following lines:

    ```
    const obj = 'git';
    ```

14. Change text between the single quotes from '**git**' to '**tinkercad**'
15. Save and see if you changes took effect.
16. If don’t’ see any videos or a just random text in the column navigation, then you are good because we haven’t assigned any videos our links to load the videos.

Adding Course Content

1. Let’s add some dummy content as placeholders so we can see how to work with the template
2. In the **courses.js** file under the **tinkercad** object, find **update** key. In between the square bracket [] place the following:

    ```
    "updates": [
      {
        "date": "3/22/2021",
        "title": "Placeholder Data",
        "details": "This should describe the update..."
      },
    ],
    ```

3. This will insert an update into the Announcements Tab. Save and view the tab.
4. For this tutorial we will skip the classroom tab. If you want to add content to this, then add it to the HTML course file.
5. Next, let’s add content to the Overview Tab.
6. In the **courses.js** file under the **tinkercad** object, find the **details** key. Change it as shown below:

    "details": "This is the detailed section about the course. You can put as much or as little information as you like.",

7. Save the change and refresh the browser to see the pages.
8. Now let’s add some external links to the Additional Resources Tab

9. In the **courses.js** file under the **tinkercad** object, find the **resources** key. Between the square brackets add the following:

```
"resources": [
  {
    "text": "tinkercad",
    "url": "https://www.tinkercad.com/"
  },
 {
    "text": "autodesk",
    "url": "https://www.autodesk.com/
  },
],
```

10. Finally, let’s add some sample links which load videos from YouTube.
11. In the **courses.js** file under the **tinkercad** object, find the **videos** key. Between the square brackets add the following:

```
"videos": [
 {
   "title": "Welcome",
   "url": "https://www.youtube.com/embed/60xfIu-lqAs"
 },
 {
   "title": "What is CAD",
   "url": "https://www.youtube.com/embed/igKq9ORkcHc"
 },
],
```

12. Okay so, you added the video objects, but you don’t see them on the page. Since we are working with a template, I inserted place holders for the column navigation. We need to disable this.
13. In the **course.html** file down towards the bottom find the following line:

```
buildColNav(obj, 3);
```

14. Remove the number 3 and the comma so the line now looks like this:

```
buildColNav(obj);
```

15. Save and refresh your browser to see the videos and links. Click on a link to change the video.
16. Finally, change the page title to match the course.
17. In the **course.html** file locate the <title>…</title> element and replace the inside the tags.

    For example: TinkerCAD 3D Modeling

18. And…. you’re done!!!

Tools / Resources

Tools

- GitHub and GitHub Pages
- Git Version Control with GitHub
- VS Code (Visual Studio Code)
- Lunacy
- SnagIt - TechSmith
- Shot Cut
- Chrome, Firefox, Brave, and Safari Mobile Browser.

Languages

- HTML5
- CSS
    - Bootstrap
    - Material Design for Bootstrap
- JavaScript
- JSON (JavaScript Object Notation)

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