Unit 11 Project Planning

Unit 11: Project Overview

People love browsing social media, but if you think about it, the search queries can be quite similar. Want to watch cat videos? You could search *cats* on YouTube—but Instagram would probably work too. Maybe you're looking for prank videos. YouTube, Instagram, TikTok, and Vine (if it still existed) would all perfectly suit your needs. That got me thinking: Why not have a web application that provides one search bar, and when you make a query, it populates relevant content from *multiple* social media sources at once? While there may be some ethical and legal concerns surrounding this—this kind of app could likely never be monetized—I thought it would be fitting for an ICS4U final project. In essence, the project would use your traditional web development tech stack, including HTML, CSS, JavaScript/Node.js, MongoDB, Heroku, and a host of other NPM packages. With a frontend library like Bootstrap, it would be easy to design a responsive user interface; the challenge and unique selling proposition, then, would be managing a way to get the external APIs working—YouTube API, Twitter API, and so forth. Whenever a user enters a topic into the search bar, we call all the APIs, fetching the content and embedding it on our little website. The user, then, can indulge themselves in getting all the cat videos the internet has to offer, not just a single platform. In essence, I'm building a web application that helps people waste time more efficiently.

Unit 12: Brushing Up

Description

Admittedly, I am a bit rusty with full stack web development. It would be wise, therefore, to spend time early in the project refreshing myself on web development concepts. An excellent resource for that would be a Udemy course called *The Complete 2021 Web Development Bootcamp* by Angela Yu, which I have experience taking from the summertime. It is an action-jammed course with 54.5 hours of on-demand video and 35 modules. My plan is to rewatch *Section 28: Putting Everything Together* in which the instructor walks through developing a to-do list application. Unlike many to-do list projects which are simply frontend, this one involves connecting to a MongoDB database and interacting with the backend, so it is truly a thorough refresh on full stack development.

Product Showcase

For a Level 3, I will rewatch all of the lessons in Module 28 of the course. A screenshot can be shown as proof of completion. For a Level 4, I will additionally build the to-do list project and deploy it to Heroku. The deployed web application can be shared to demonstrate completion.

Unit 13: Experimenting with APIs

Description

At this point, I should make sure the envisioned project can actually be implemented! What I mean by this is: Can I successfully call APIs from social media platforms, like YouTube, or

will my permission be blocked? I should test if the APIs can serve my purposes and are freely available. (The entire project, indeed, is contingent on the APIs working as I had hoped.) From my preliminary research, it seems that the APIs do support functionalities like querying for content by keyword, but this needs to be tested first hand.

Product Showcase

For a Level 3, I will write a program which calls various APIs and outputs the returned data to the console. There will be a demo video that demonstrates the program in action. For a Level 4, I will go the extra mile of adding a user interface so you can *see* what is returned—e.g., the videos requested instead of merely a URL. A demo video will also be used to showcase functionality.

Unit 14: Designing with Figma

Description

It is crucial that, before any application is developed, its user interface and user experience are clearly mapped out. This is what Figma is for—a powerful visual design tool for mocking up and prototyping products. The goal with this unit, then, is to use Figma to fully "mock up" the project, paying attention to typography, colour palette, and page structure. In essence, anything that will appear in the real application should be modelled in advance using Figma. This way, I do not have to worry about imagining what the app will look like whilst developing it; everything will be taken care of in this stage, and the development

workflow is simply a matter of translating the shapes and colours seen on-screen into executable lines of code.

Product Showcase

For a Level 3, I will use Figma to create wireframes for my application. These are black-and-white skeletal designs which model the product from a very high level, mainly focusing on structure and formatting rather than aesthetics. For a Level 4, I will upgrade the wireframes into full-fledged mockups, which encapsulate details like colours, shadows, and copy. In either case, a link to the design files will be shared.

Unit 15: Software Development Process

Description

This unit will be dedicated to writing the SWDP, which like the Figma mockups, will help guide the development workflow.

Product Showcase

For a Level 3, the SWDP will include the standard components: Problem Definition, Analysis, Design (using pseudocode), and Testing/Verification. Notice that Step 4, Implementation, is left out for now, as that will occur in the next and final unit. While the program technically cannot be tested until it has been implemented, the Testing/Verification stage can include thoughts on what testing might consist of, and it may always be amended on an as-needed basis. For a Level 4, the oft-neglected stage of Maintenance will be discussed, including

thoughts on how to maintain the program once it is deployed and scenarios in which it should/must be retired.

Unit 16: Software Development Process—but Actually Developing the Software

Description

This unit is where the bulk of the work will lie, as it is where I actually develop the software! To do this, I will leverage the following main technologies: HTML, CSS, JavaScript/Node.js, MongoDB, Heroku, and Bootstrap. Naturally, there will be hundreds of NPM packages, or dependencies, upon which this project depends, like Express.js, Mongoose, EJS, and Nodemon to name a few. Furthermore, there will be a host of third-party APIs the program will interact with—namely, those provided by the social media platforms our app will be borrowing content from, like the YouTube Data API. Visual Studio Code is the text editor of choice, and Hyperterminal is the preferred terminal. During development, the project will be linked to GitHub so Git commits and pushes can be made readily. Once the application has been deployed to Heroku and connected to a cloud MongoDB database, I can perform a final round of testing and update the SWDP to reflect these test cases. Finally, external documentation can be added to the Github repository in the form of a README.md to make it official.

Product Showcase

For a Level 3, the application will only be available via localhost:3000, will not be mobile responsive, and will only be capable of fetching data from a single API. For a Level 4, the application will be:

- Available online via Heroku

- Fully mobile responsive

- Capable of fetching data from at least 3 APIs. Candidate APIs include:

  - YouTube

  - TikTok

  - Twitter

  - Instagram

  - Reddit

  - (Not) Facebook

- Able to randomize the user's feed with the click of a button

- Able to filter the social media platforms