Lab 1 – Productive Places Draft

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1 Introduction

Before the COVID-19 pandemic, working remotely was not as common as it is today. In 2019, “6.5% of workers in the private business sector worked primarily from home” (Pabilonia & Redmond, 2024). With widespread lockdowns, brought on because of the growing pandemic, came a staggering rise in remote work. As a result, more workers have had to come to terms with working from home, or other suitable spaces. Unfortunately, not all spaces are appropriate for the work required.

According to researchers at the Education Data Initiative, the amount of new high school graduates that go straight to college has declined 7.1% over the last few years (Hanson, 2024). Some graduates enter the workforce or military directly out of high school, while others continue to pursue higher education for reasons ranging from one’s passions about a subject to simply trying to enter the workforce with a higher salary potential. After some time, those who did not go to college directly out of high school, as well as those who wish to pursue different career paths, might find it necessary to seek undergraduate and graduate degrees, attending classes with students who are “first-time, first-year college students” (Hanson, 2024). Students who do not fall under the latter demographics might not have as much flexibility when it comes to dedicating time to studying, due to a variety of reasons, like having to balance school with a full-time job. Obligations like work and family may make it hard for some students to allot time to study during the business hours of a favorite café, or public library.

While seemingly different populations, students and remote workers face a common problem: finding environments suitable for productivity outside of the house. This can stem from multiple factors: distractions at home, individual needs, and limited helpful resources. Working from home often involves distractions, whether it be interruptions from family and friends, or simply one’s inability to focus, which can lead to a decrease in productivity. Working from

another space isn't always easier, especially if there aren't many spaces that satisfy a user's unique needs. Constraints like operating hours, seating availability, and amenities, such as outlets and dining options, make it difficult for those with specific needs to find a suitable space for fruitful work. Lastly, there are limited resources available for students and remote workers to locate the ideal workspace. With no centralized platforms for finding suitable workplaces, the process of finding a suitable workspace can be a time-consuming process, resulting in wasted time that could have been used more practically.

Considering these challenges, it is clear there is a need for a solution directly addressing these issues. Gold group presents "Productive Places", a web application designed to help students and remote workers find ideal locations to work or study. The use of search filters within the application will help ensure each user finds optimal environments for efficient working or effective studying.

2 Productive Places Product Description

Our solution to the problem of finding ideal work and study environments outside of the house is a tool for filtering user-reviewed establishments. Current options are either tailored to restaurants or are not detailed enough for users to be able to see if a business or location will be able to meet the user's preferences when it comes to workspaces. The goal of our software is to provide a platform in which users can find locations that are best suited to the user's needs. The software will utilize filters to efficiently meet the user's requirements, eliminating the time-consuming need for navigating multiple websites and search engines.

2.1 Key Product Features and Capabilities

Users can search for optimal locations suited for being productive, using filters to customize their searches based on their particular needs. Search filters for amenities that are not commonly seen on other platforms will be utilized, such as noise levels, outlet availability, and

types of work areas available. The proposed web application will also have a section dedicated to user-generated reviews to help potential visitors.

2.2 Major Components (Hardware/Software)

The proposed web application will utilize ReactJS to build an interactive UI, allowing users to search and filter as needed. Apache will be used as the webserver, where students, workers, and business owners can access the web application. Nodejs will complement the use of JavaScript in the backend to build a scalable real-time application. MySQL will be the database that is used, and the backend web server will communicate with the database. Express will be used as a framework for building APIs. Google Maps will be used as a reliable API for real-time information related to hours of operation and current crowd levels. Microsoft Visual Studio Code will be the IDE of choice due to its easy integration with GitHub, the platform which will be used for version control throughout the application's development.

3 Identification of Case Study

This product is being developed for students and remote workers who need places other than home to work and study effectively without the distractions that come with being at home. Those needing a space where interruptions are minimal, as well as those who simply work best surrounded by other productive people will find this application beneficial.

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4 Glossary

- API (Application Programming Interface): A set of rules that allows two software applications to communicate with each other and exchange data.
- Body doubling effect: When a person is more motivated to be productive in the presence of others, rather than alone at home.
- Git: A version control system (VCS)
- Version Control: Allows users to keep track and manage revisions or changes made to code.
- Integrated Development Environment (IDE): Software application that provides facilities for software development.
- User Interface (UI): Visual elements of a software product.
- User Experience (UX): Overall experience and interaction a user has with a product.

5 References

Draw.io - free flowchart maker and diagrams online. Flowchart Maker & Online Diagram Software. (n.d.). https://app.diagrams.net/#G1t9nWqBpGWQlMPaay1Tz1KpGtWdZxeuol#%7B%22pageId%22%3A%22C5RBs43oDa-KdzZeNtuy%22%7D

Dziuba, A. (2024, January 12). Why and when to use node.js in 2024 [Complete guide]. Relevant Software. https://relevant.software/blog/why-and-when-to-use-node-js/#When_Not_to_Use_Nodejs

Falk, A., & Ichino, A. (2006). Clean Evidence on Peer Effects. Journal of Labor Economics, 24(1), 39–57. https://doi.org/10.1086/497818

Goodwin, M. (2024, April 9). *What is an API (application programming interface)?*. IBM. https://www.ibm.com/topics/api

Hanson, M. (2024, December 21). College enrollment statistics [2024]: Total + by demographic. Education Data Initiative. https://educationdata.org/college-enrollment-statistics

Hutsulyak, O. (2024, August 13). Why use react for web development: 10 reasons to apply. TechMagic. https://www.techmagic.co/blog/why-we-use-react-js-in-the-development/

Kennedy, T. (n.d.-a). CSTKENNEDY/CS410-411W-examples. GitHub. https://github.com/cstkennedy/cs410-411w-examples

King, B. B. (n.d.). Inspire lifelong learning with these 25 education quotes. https://www.adobe.com/express/learn/blog/25-educational-quotes

Pabilonia, S. W., & Redmond, J. J. (2024, October 31). The rise in remote work since the pandemic and its impact on productivity. Bureau of Labor Statistics. https://www.bls.gov/opub/btn/volume-13/remote-work-productivity.htm

Smallcombe, M. (2024, September 4). PostgreSQL vs MySQL: The critical differences. Integrate.io. https://www.integrate.io/blog/postgresql-vs-mysql-which-one-is-better-for-your-use-case/

Steinmetz, J., & Fishbach, A. (2021, February 1). We work harder when we know someone's watching. Harvard Business Review. https://hbr.org/2020/05/we-work-harder-when-we-know-someones-watching