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Project: Hyperfocus

Project Description:

This web application will act as a study guide generator that will allow people with executive function disorder to quickly input the information and receive a fully formatted and organized study guide.

Path in VM: /home/student1/Assignments/hyperfocus
Account: student1

Github: https://github.com/greenv2/Hyperfocus.git or https://github.com/greenv2/Hyperfocus

Introduction:

The project that implements option 2 will be web based application that will assist students with learning disabilities centering around Executive Function Disorder (EFD). Executive functions include the cognitive and mental capabilities that allow people to be goal-oriented, focused and organized. Executive function is highly connected to Attention Deficit Disorder (ADD or ADHD). People who have this disorder are more motivated by short-term goals and activities. Education is an important social justice issue. Approaching this issue from the point of view of a student learning and studying takes a lot more effort for people with EFD and ADD. The web application will act as study guide generator that will allow them to quickly input the information and output a fully formatted and organized study guide. Making a study guide takes a lot of time, focus, and energy and students with attention and organization problems will be able to review by inputting notes. If there is time there will be a login feature to access a dashboard with the study guides produced and their work log so they can track their progress.

Innovation:

Currently the preexisting apps made for people with executive function disorder focus on providing reminders to keep a consistent schedule. The apps mainly center on organization rather than helping them carry out a task. This application will allow them to review their notes while inputting the information to specific categories such as title, statement, or subsequent points. After the information is provided it will output the formatted study guide as a pdf. The closest application that could be considered similar to this would be Quizlet. However, while quizlet's main goal is repetition for memorization the application will organize and format all their notes resulting an organized page or packet of notes. Potentially, this application will allow the user to keep their generated study guides on their dashboard like page with a work log of the time they've spent viewing it.

Logistics:

Languages: Ruby, Javascript, Html, CSS

Frameworks: PostgreSQL, Ruby on Rails, AngularJS

Algorithms:

<u>Initial Functionality</u>

Web application will provide a form for the user to enter information including text areas for title, subtitle, terms, definitions, main points, and subsequent points. The user can choose from a variety of study guide templates or select an option indicating that they do not have a preference. The base templates offered will be organize by the order the information is provided or separate the vocabulary from the outline information. When the user submits the form the information will be stored in a hash. If the user chose the sequentially based template the information will be stored in one hash. On the other hand if the user chose to separate the vocabulary from the bulk information, then the information will be stored in two different hashmaps. If the user does not select a preference one will be chosen for them based on the number of terms entered. The information stored in the hash will be outputted to an html file to

add formatting. The resulting html file will be converted in to pdf using a pdf generation gem. The user will then be able to preview the study guide and the download it.

Potential Functionality

If there is time after implementing the initial functionality login access will be added so that the user can have a dashboard style page of the study guides generated and the amount of time that they have spent viewing the pdfs. The option for font selection could be added for customization. They should be able to create a "subject" and assign the generated study guide to a subject. Additionally, they would be able to delete a subject and with it the corresponding study guides. The user should be able to delete specific study guides. The guides and their subjects will be stored by utilizing postgreSQL.

Future Functionality

Future functionality includes having quizlet notecards embedded in the dashboard page in the subject to which the note cards related. Also future implementation will possibly include utilizing images in study guides as well as gain the functionality to accept powerpoint slides as input for the study guide. Potentially a work log with a reward system will be created to encourage the user to keep working and take breaks to prolong their productivity.

Data Structure:

A hashmap will be used to store the studyguide input. The information provided will be in the form of term and corresponding definition. The other possibility is that it will be a statement and the associated points. Because of this, the application can utilize the key value pair properly output the information.

Software Engineering Concepts:

By the end of this project I will:

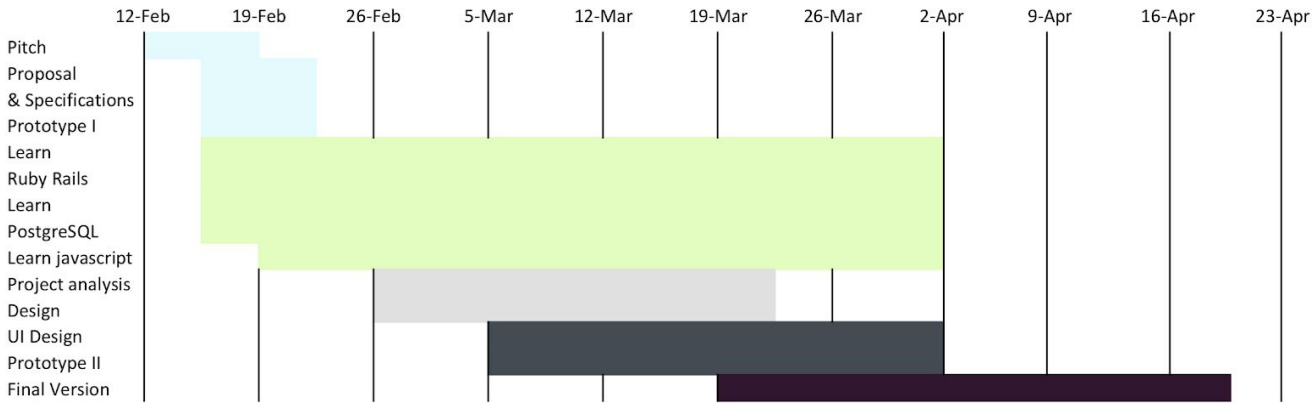
- Build a web-based application
- Utilize the incremental process model

- Apply software quality assurance
- Carry out framework & umbrella activities
- Plan & create various prototypes
- Learn Ruby on Rails
- Learn Javascript

Open Source License Analysis:

The MIT license is a simple license that does not restrict the distribution of modified code or larger works. It is more suited for open source projects that are not as focused on liability. It is still free to use and modify. This license also does not restrict the ability to sell copies of the software. Similarly, the GNU General Public License also does not rule out selling copies of the software but the sold copies will include access to the source code. The GNU General Public License also protects the authors of various versions of the source code by requiring that the modified versions are labeled as such. The other license being taken into consideration is the GNU Affero General Public License. The main difference in comparison to the GNU General Public License is that the GNU Affero General Public License takes into account when the service is provided over a network. This application needs more than the simple permissive terms of the MIT license but less than what is provided by the GNU Affero General Public License. This is why this application will have the GNU General Public License.

Gantt Chart:



Use Case Diagram:

Resources for learning:

https://www.daniweb.com/programming/web-development/threads/236062/create-html-files-using-ruby

https://www.sitepoint.com/pdf-generation-rails/

https://www.viget.com/articles/how-to-create-pdfs-in-rails/

https://www.codecademy.com/learn/learn-rails

https://www.codecademy.com/learn/introduction-to-javascript

http://www.postgresqltutorial.com

https://www.w3schools.com/angular/default.asp

Sources:

https://www.gnu.org/licenses/why-affero-gpl.en.html

https://www.sitepoint.com/pdf-generation-rails/

https://www.viget.com/articles/how-to-create-pdfs-in-rails/

https://www.understood.org/en/learning-attention-issues/child-learning-disabilities/executive-functioning-issues/executive-functioning-issues-what-youre-seeing

https://ldaamerica.org/types-of-learning-disabilities/

https://www.daniweb.com/programming/web-development/threads/236062/create-html-files-using-ruby

https://choosealicense.com/licenses/agpl-3.0/

https://www.tawesoft.co.uk/kb/article/mit-license-faq