SUS 103: INTRODUCTION TO CLIMATE CHANGE STUDY SITE

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A web app to learn more about climate change and prepare for the midterm exam.

MOTIVATION

- This project has been sponsored by Professor Jillian Gregg at Oregon State University. Her vision for the project is a website that anyone around the world can use to learn about climate change. At the same time, this site is a tool for her students to study and prepare for the SUS 103 curriculum and exams.

- The main goal of this project is to develop a study site that can allow for students to study individually as well as have game functionality that can be used by teaching assistants in labs at Oregon State

- A secondary goal of this project is to develop a web app that can be expanded on by future Capstone groups. This meant coding the website in such a way that it can be easily read, edited, and further developed by future students. It was a great practice for properly commenting, avoiding code smells, and citing all of the sources we use for future students.

IMPLEMENTATION

- **Overall Implementation**

  - Our first and most important goal when implementing this project was to have a working product that could be used by our project sponsor after we finished our Capstone course. Our second goal was to develop a robust website using many of the different technologies, tools, and skills we learned while studying at OSU.

  - The structure of our implementation was broken into two major components based on the strengths of our group members – frontend implementation and backend implementation. While we all helped with the whole site, we assigned each member to be responsible for a specific section to help divide up the work.

- **Frontend Implementation**

  - The frontend implementation was led by Kayti where she focused on developing custom HTML for the various features. All of the styling on the site was done through CSS, and while we all had input on design choices, Kayti was the main team member who implemented those choices.

- **Backend Implementation**

  - Asa and Kristin focused on the backend implementation using a Flask framework with Python for the majority of our coding. This was done by creating different routes for particular URLs and, depending on the feature, adding specifications for what action to take depending on the type of request the user is sending.

  - We used Google Cloud as our way of hosting the website. As a part of Google Cloud, Google Datastore was used for our database of questions. The decision to use GCP as our hosting service was due to a mix of cost to host as well as previously developed knowledge.

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Image 1: Main Review Code

Image 2: Main Quiz Code

Image 3: Game Review HTML

Image 4: Quiz HTML

Image 5: Home Page

Image 6: Game Mode

Image 7: Admin Portal – add a question

Image 8: Study Mode

DESCRIPTION

- This web app is a study tool for students in the SUS 103: Introduction to Climate Change course at Oregon State University. It has three major components:

  - A Study section designed for users to take practice quizzes on their own.

  - A Game section that can be used to review lecture slides and play a game matching them to a relevant question. The game is to be used in labs where teaching assistants will lead students through the game.

  - An Admin section where administrators (such as Professor Jillian Gregg, course staff, or other Capstone students working under her) can add, edit, or remove questions from the question database.

FEATURES

- **A home page to guide students**

- **A Study section where students can take practice quizzes:**
  - In our implementation, one test is available to take; a practice midterm exam.
  - A multiple choice question is asked, and on the results page, the user is informed if they got the question correct, what the correct answer is, and how many total questions are in the quiz.

- **A Game section with two major sections:**
  - Review mode
    - In this section, all of the slides are shown alongside the questions they can match with.
  - Game mode
    - This section allows users to match lecture slides to particular questions shown as buttons on the screen.

- **An Admin Portal which includes:**
  - A Login page
  - The ability to add, edit, or remove questions from the connected datastore database.