**Ms. McD's Virtual Classroom**

This project is a web application that serves as a virtual classroom that can be used to run a virtual or in-person class. Users can log in as students or as teachers. The teacher site is password protected, but it is not very difficult to get in, while the students only have to provide a user name. The teacher account requires any username four characters or longer and the password is "password." Obviously, this must be changed, so it is listed in the future work section below.

This project was based on the project I completed for the Foundations 2 course. The functionality is similar, although I programmed it in React and Java. This implementation was created as a Flask project using JavaScript and Python. While the result may look similar, the code is entirely new. The last iteration used only one page, and the code was very long and poorly organized. I started this project iteration with specific pages for students and teachers and did a lot of information storage on the local machines rather than on the server side. This design is much more readable, although the files are still relatively long. I aim to use this for my computational artifact, but I still have a lot of work to complete before I feel anywhere near done.

Students have access to the following features:

* Help the teacher know how they are doing by choosing their status: good, slow, or stuck, based on tools teachers use to monitor student or group progress, like stoplight cups.
* Students can send a question to the teacher. This is the equivalent of raising their hand and waiting for the teacher to come over.
* Students can chat with the teacher and send them messages. Students can only see messages addressed to them.
* Students can request a hall pass and designate the destination as restroom, water, or other. They will have a record of when that request is granted, dismissed, or ended. If the pass is granted, a popup will alert them that it has been granted.

Teachers have the following features:

* See at a glance which students are struggling or stuck.
* See the list of students who have asked questions so they can go to them. Teachers can also dismiss questions when they have answered them.
* Teachers can chat with the individual users. Each chat will appear in the message box based on which student in selected. If a student sends a message, the radio box associated with their user name will automatically be selected and their chat will appear in the box. Every hall pass interaction is automatically logged so teachers can refer back for reference.
* Teachers can send announcements to all students, like 5 minute warnings or anything they want students to know.

Future work:

* Make it prettier.
* Make an audible sound and change the window title when a student gets a pass.
* Use a database to store teacher logins and passwords.
* Allow multiple teacher classrooms to exist at once.
* Filter the messages on the server side. Currently, all student instances get the chat messages, but the results are ignored if the username does not match the target. It would be better to have them sorted server-side so they do not see them at all.
* Create the ability to download logs of questions and chats.
* Implement a simple chatbot into the message box so students' questions can be answered immediately when asked if they relate to known issues, like missing curly braces or parentheses.
* Store data so that the information does not go away each time the student or teacher refreshes. I spent a lot of time ensuring students who are logged in before the teacher will show up when the teacher logs in, but this still needs some work.
* Put in online. Get it running on Hiroku and use it in class.