Criterion A: Planning

Periodic Table

The Scenario

My client is my former chemistry teacher at my high school. In chemistry class, students must memorize certain elements of the periodic table, and many people struggled with this last year when I took chemistry. I love chemistry and was really great at it last year as a sophomore, so I think that it is a good idea to use chemistry as my topic.

I talked with my client, and she told me that she was saddened that Quizlet decided to lock the test mode behind a subscription paywall, preventing most students from being able to utilize it.[1] Because of this, we agreed that the best solution would be a free **Periodic Table** program to help her students. The program would show all elements of the periodic table, allowing students to view all the elements of the periodic table, search through the periodic table, and then allow them to test their knowledge via multiple choice and free response.

She was skeptical of the amount of programming knowledge that would be required to take on this task, but after thinking it through, I believe that I have enough skill and knowledge to take on this task.[2]

Rationale

I chose Java as the programming language and Coding Rooms as my Integrated Development Environment because I am familiar with Java because I have used it for the last year. I am not familiar with any other language to the same extent. I chose Coding Rooms as my IDE because it is free and is much better than many other IDEs that I attempted to use like GDB Debugger and Project STEM, while Coding Rooms was perfect because it had a clean, simple, and easy-to-use interface.

Coding Rooms also allows any computer to access it as long as the computer has a browser and an internet connection and has an account (which will take less than 1 minute to make if using their google school accounts), which all students at my high school have. My client and I agreed that most chemistry students would probably study on their computers, so having it optimized for computers would be best.

I will get my data for the attributes of elements of the periodic table from code.org's periodic table data column which allows attributes of the periodic table to be imported as an array. Code.org uses reliable information for their element data so there is no reason for me to worry about the accuracy[3].

[1]See Appendix, Conversations, Criterion A, First Conversation
[2]See Appendix, Conversations, Criterion A, Second Conversation

Success Criteria

My client and I agreed on this[4]:

1. View all elements in the periodic table in ascending element order.
2. Choose an element of the periodic table and view its attributes.
3. Search for elements via names or symbols and find the best matches.
4. Allow students to test their element memorization skills via free response and multiple choice.
5. Allow students to test their element memorization skills by answering with names or with symbols.
6. Allow users to choose their own elements that they want to test.
7. Allow users to receive hints about an element during the test to help them.
8. The program can be viewed on all devices, including phones and computers.

Word Count: 410

[3]See Appendix, Periodic Table Data

[4]See Appendix, Conversations, Criterion A, Third Conversation