CS 361 Practical Activity # 1 - Group 2

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Problem Statement:

We need to train the users to properly use a caliper to measure. Users will also be assessed on their skills to ensure that the application is effective.

Core Requirements:

Requirement Number	Requirement Description
1	Accept CAD data
2	Teach the user how to use caliper using a multimedia content delivery
3	Have user apply this information in a different simulated scenario
4	Test user while they assemble a CNC drill using the caliper to assess if the drill was assembled according to the technical specifications
5	User has the opportunity to provide feedback on the course
6	Test user before providing the information to obtain diagnostics

Software Components:

Software Name	Classification
HTML5	HTML5 is the web service that would be primarily used to develop the UI elements of our application. Key UI elements are the embedded text and videos of the learning content and the clickable buttons and text of the user feedback survey. We consider HTML5 to be a web service because it is a markup language that is processed by the user's web browser and no HTML5 code is executed server-side. It is usable as it is and does not need to be modified.

Javascript	Javascript is a web service that would be used to import the CAD data from CAD files as well as giving our application its usability in the form of its buttons. We consider Javascript to be a web service because it is also processed by the user's web browser even though some of it may be executed server-side. The importing of CAD data requires a library from JS but other than that it will work without modification.
PHP	PHP is a web service that would be used to contact and store data in MySQL as well as accessing it later. We consider PHP to be a web service because it is another online coding language and even though most of it would be server side it is still its own language and is not exactly an application. It will work without modification.
Caliper Information	The caliper information is a collection of objects that will be used in teaching the user the proper way to use a caliper. It consists of the list of parts of the caliper and the video showing the proper use of the caliper. It is a collection of objects because it is similar pieces of information that will be used as part of our application. They will need to be modified to better fit into our program but they have all of the information needed.
MySQL	MySQL is a Web Service that is used to store all data we give and receive from the user. MySQL will not need to be modified. This is a web service because it is an online database that will be accessed by the server but serves no purpose besides holding the data.

Core Requirements Solutions: Numbers correspond to requirements listed above

1. We would use a CAD file viewing library to import CAD data into our simulation: https://cadviewerjs.com/cv-js_api/index_cvjs_24_getting_started.html
2. In order to provide the user with our application-specific learning content, we would create a web application using an HTML5 front end. Through this front end, the user would be able to navigate through our learning content in the form of text and videos related to the use of the caliper. HTML5 supports embedded video and vector graphics. We can also create HTML5 surveys to collect user feedback on the course.

3. Javascript can be used in conjunction with HTML5 to create the simulations that will test users on their caliper skills before and after the learning content is delivered.
4. The user will be subject to a Javascript simulation in which they will assemble a CNC drill using virtual parts. The user is provided with several options for parts which they might include in the drill, however each part only has one option to choose that has the correct measurements. During the simulation, the user's mouse movement is analyzed to determine their perceived level of difficulty during each stage of the assembly process. All software for the simulation is written in Javascript, and user performance data is recorded in a MySQL database.
5. The user will be able to provide feedback when finished with the course, to help further develop the applications ease of learning for others as well as spot any bugs that might have been overlooked. Feedback would be gathered in a form created using HTML5 and Javascript. This data would then be saved into the MySQL database, and to access the data we would use PHP.
6. Prior to the learning experience we would have the user take a test to assess their knowledge on a Caliper, using HTML5 and Javascript. Then after teaching the user to use a Caliper correctly, we would have them repeat the same test from the beginning to show their results before and after to provide the user confidence in their skills and have diagnostics for the web application. All this data will also be stored in the MySQL database.

Is Submitted