4COSCO11C: Web Design and Development

Tutorial 08 Extended Math Game with random numbers and functions

Your Web Pages should follow the following specifications:

1. Your page should still consist of the same simple maths game, but this time you should use JavaScript to generate the questions using random numbers.
   - **hint 1:** x = Math.floor(Math.random()*101); will generate a random number between 0 and 100

2. Use a mix of operators (+, -, *). If you like, you may still use fixed operations (e.g. operator for the 1st question will be '+', for the second question will be '-', etc) but the numbers for each question should be random numbers between 0 and 100.
   - **hint 2:** you might find it easier to use random numbers between 0 and 10 while testing

3. Prompt the user to answer the 10 questions, record the answers and compare them to the correct answers, display on the page:
   - the question, the users's answer and a message saying whether the answer was correct or not.
   - In case of incorrect answer, also display the correct answer.

4. This time, you will also score the user (2 marks per correct answer).

5. At the end, you will also display the **score** and change the **page background colour** according to the score. For example, change the background to light red in case of a score below 10.
   - **hint 3:** you will need to change the background within JavaScript using the HTML DOM Style Object. E.g. document.body.style.backgroundColor="purple"

6. Add a button to your webpage and allow the user to start the quiz by clicking the form button.
   - **hint 4:** you will need to place your JavaScript code into a function.
   - **hint 5:** you will need to add the CSS programmatically. For span elements with a particular class, this means selecting all elements with the class name using the getElementsByVlassName method which returns an array or elements and and looping through all these elments to change their text colour.

7. **Additional Challenge** - Consider generating the questions and associated display within a loop. However, you will need to experiment with how you will generate the different operators (+, -, *) within the loop.