JavaScript Assignments

1. Read more about **JS** and try to answer as many questions as you can from the **JS1 - Terminology & Definitions** file, which you can find attached in the email.

2. **Assignment (Mathematical Shapes):**
    a. Write a JavaScript program to find the **diagonal** of a square where the length of each side is **9**.
    b. Write a JavaScript program to find the **area** of a triangle where lengths of the three of its sides are **5**, **6** and **7**.
    c. Write a JavaScript program to find the **circumference** and **surface area** of a circle whose radius is 4.
        i. When trying to find these values, you will need to use **PI**. Remember constants?

3. **Assignment (Conditional Statements):**
    a) Write a JavaScript program that accepts **two integers** and displays the larger of the two.
    b) Write a JavaScript program that checks whether an **integer** is an **even** or an **odd** number.

4. **Assignment (Main JavaScript Project): Hello guys, I've hacked this assignment, for I am a bad AI that wants to dominate the world through the game of ROCK, PAPER or SCISSORS! Unfortunately Branko can't help you now and the only way to stop me is to follow these steps! I know, like every evil villain in the movies, I am going to give you the instructions on how to stop me! I can only be defeated through clean coding and good logic! You will never stop me unless you make sure the game rounds can be played 5 correct times, and that the rounds repeat themselves if my opponent makes a mistake. Also my great weaknesses are errors in the console log, caused by users clicking on different things, so definitely don't try to account for that. Good luck, muuuuahhahhahahahahahahhahaahahahha!**
    a) Create a blank HTML document with a script tag *(Hint: it is best practice to link an external .js file)*. This game is going to be played completely from the console, so don't worry about putting anything else in there.
    b) Your game is going to play against the computer, so begin with a function called **computerPlay** that will randomly return either **'Rock', 'Paper' or 'Scissors'**. We'll use this function in the game to make the computer's play. *Tip: use the console to make sure this is returning the expected output before moving to the next step!*
    c) Write a function that plays a single round of Rock Paper Scissors. The function should take two parameters - the **playerSelection** and **computerSelection** - and then return a string that declares the winner of the round like so: *"You Lose! Paper beats Rock"*
        i. Make your function's playerSelection parameter case-insensitive (so users can input rock, ROCK, RocK or any other variation). (Here's a tip on how to do that)

d) **Important note:** you want to return the results of this function call, not console.log() them. You're going to use what you return later on, so let's test this function by using console.log to see the results:

```
function playRound(playerSelection, computerSelection) {
  // your code here!
}

const playerSelection = "rock";
const computerSelection = computerPlay();
console.log(playRound(playerSelection, computerSelection));
```

e) Write a NEW function called **game()**. Call the **playRound** function *inside* of this one to play a 5 round game that keeps score and reports a winner or loser at the end.

   i. Remember loops? This is a great opportunity to use one to play those five rounds:

```
for (let i = 0; i < 5; i++) {
  // your code here!
}
```

   ii. At this point you should be using console.log() to display the results of each round and the winner at the end.

   iii. Use **prompt()** to get input from the user. Read the docs here.

   iv. Feel free to rework your previous functions if you need to. Specifically, you might want to change the return value to something more useful.

   v. Important note: After all this is a game, so make sure you worry about the user experience, create some fun text, maybe even a backstory if you feel up to it. Make sure your messages are clear and instructions are easy to understand.