1. When is a logical AND operator true? When is it false?
   1. AND operator is true if and only if the conditions is TRUE.
      1. E.g. var x=5; var y=7
      2. Console.log(x<y && x==5) => This statement should return true.
   2. Otherwise, it will return false
   3. Summary:
      1. TRUE && TRUE => TRUE
      2. TRUE && FALSE => FALSE
      3. FALSE && TRUE => FALSE
      4. FALSE && FALSE => FALSE
2. When is a logical OR operator true? When is it false?
   1. OR operator is true if at least one condition is true.
      1. E.g. var x=5; var y=7
      2. Console.log(x<y || x!==5) => This statement should return true despite the 2nd condition is false
   2. OR operator is FALSE if and only if both conditions are FALSE
   3. Summary:
      1. TRUE && TRUE => TRUE
      2. TRUE && FALSE => TRUE
      3. FALSE && TRUE => TRUE
      4. FALSE && FALSE => FALSE
3. Write a line of JavaScript code that will return a random number between 1 and 100
   1. We usually should use Math.random() built in function to generate a random number from 0.0000001 to 0.999999

Graphical user interface, text, application, email

Description automatically generated

* 1. Of course the digits after the decimal point should be infinity because it is considered to be irrational number
  2. Now to get a digit w/n 1 and 100 interval, we will need to put into consideration that the numbers from 1 to 100 are integers so there is no decimal should be there.
  3. To return an integer, we should consider using functions Math.ceil() or Math.floor()

Graphical user interface, text, application, email

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* 1. Since the return value will always be 0 or 1 only if I used the functions stated in point d, therefore the work around should be **multiplying by 100 and add 1 to the value** this is if I decided to use Math.floor() however, Math.ceil() couldn’t be used in this scenario because using Math.random with Math.ceil() can return 0 eventually so the random number will be out of the required interval

Graphical user interface, text, application, email

Description automatically generated

1. What is the value of a variable, if it is not initialized?
   1. I genuinely never tried it, but I used the “Battleship Assignment” and I used the variable “guess” since it was not initialized.

A screenshot of a computer

Description automatically generated with medium confidence

* 1. So after looking at the console, I saw that not initialized variables should return value of undefined.

Graphical user interface, text, application

Description automatically generated

1. What function do you use to get input from a user?
   1. Based on chapter 2 and specially in the battleship assignment, you can take input from a user using the prompt() function.
   2. E.g. prompt( “React, aim, fire! (enter a number from 0-6)” )
   3. This line is a bit away from chapter 2 but you can get user input by using <input /> tag by simply assign an Id to it to use getElementById(“TagId”).value and bam, you got the value.
   4. Thank you Dr. Ian for your advise in the email though, the response to this question could’ve been in only 1 line but I’m still learning and will always learn 😊
2. Compare and contrast the use of equal (=) and the use of double equal (==) in programming.
   1. The use of (=) is only when I assign a value to a specific variable (e.g. var x = 2) which means that the value of x is 2
   2. The use of (==) is a comparative operator and it usually returns a Boolean (true or false).
   3. E.g. var x=2; if(x==2){console.log(true)} else {console.log(false)}
3. Two or more nested if statements can be rewritten using which logic operator?
   1. AND Operator
   2. Example: var x = 5; var y=9
      1. If(x==5) {

If(y==9) {

Console.log(true);

}

};

* 1. The example above could be rewritten as:
     1. If(x==5 && y==9) {

Console.log(true);

};

1. Two or more if-else if statements can be rewritten using which logic operator?
   1. OR Operator.
   2. Example: var x = 7;
      1. If(x==2){

Console.log(true);

} else if (x==7) {

Console.log(true);

} else {

Console.log(false);

};

* 1. The example above could be:
     1. If(x==2 || x==7) {

Console.log(true);

} else {

Console.log(false);

};

1. Write a program that checks to see if it will rain. The user will input the data and the program will decide if it will rain or not. In this universe, it always rains when the temperature is above 60 degrees Fahrenheit and lower than or equal to 80 degrees Fahrenheit. Paste the code here.
   1. Here is a Github repository for the program ().

Text

Description automatically generated

1. Include a screenshot for the above rain program here.

Graphical user interface

Description automatically generated