**Chapter 4 - worksheet**

Quick Check 1

1. **Describe the three types of program errors. - 5 points  
   Syntax Error/Load-Time Error:** This is when the JavaScript interpreter fails to read the code due to typos or forgetting characters.  
   **Runtime Error:** While the program is executing, runtime errors happen when the code can no longer run due to an error such as referencing functions that don’t exist or illegal math operations.  
   **Logic Error:** A flaw in your programs design that causes the program to give the wrong result or goal usually due to missing a step in your logic or performing steps in the wrong order.
2. **What is the error in the following code and what type of error is it? – 5 points**

**let firstValue = 10;  
let secondValue = 20;  
let result = firstvalue + secondValue;**This is a runtime error because line 1 declares the ‘firstValue’ variable with a capital ‘V’, then tries to perform addition during runtime using ‘firstvalue,’ which is an undeclared variable.

1. **If the browser console reports a single syntax error, does that mean there is only one syntax error in the code?**There could be more syntax errors in the code because the interpreter will stop at the first error it encounters and not report any further errors until the current one is fixed.

Quick Check 2

1. **Provide code to write the value of orderCost to the console log.**console.log(“Value of orderCost: “ + orderCost);
2. **What are three reasons to use the console log approach over the alert box approach?**Using alert boxes can impede the normal flow of the program and will need to be deleted after. If you need to debug in a loop, having an alert box come up potentially thousands of times is not ideal. You will not be able to use the contents of the alert box to compare with other data because closing the alert box removes it from the browser window.

Quick Check 3

1. **What is a breakpoint?**A breakpoint is used to pause the program execution at a specific line in the code so you can view the status of the program at that point.
2. **Explain the difference between stepping into, stepping over, and stepping out of the program execution.**You can step into a function one step at a time, step over it if you don’t need to see each step of the function, or step out of the function to execute the remaining code within the function without pausing.
3. **What is the call stack? How do you use it to aid in debugging a program?**Each time the program calls a function or procedure, it is added to the top of the call stack then removes it once that function finishes executing, continuing down the call stack to other functions. This can help you debug a program by tracking variables as they are passed across several functions, making it easier to find the problem.

Quick Check 4

1. **Under what circumstances will the catch command block be run by the browser?**The browser will run the ‘catch’ command block after it runs the ‘try’ command block and encounters the first error.
2. **Under what circumstances will the finally command block be run by the browser?**The ‘finally’ command is always run by the browser after the ‘try’ and ‘catch’ commands. This is used for tasks that are necessary to run even when there is an error.
3. **What must be included within an error handling function to replace the browser’s default error reporting methods?**For an error handling function to replace the browser’s default error reporting method it must return true. If the error handling function return is false or omitted, then it will supplement the browser’s error reporting but not replace it.