Basics of JavaScript 1 - Assessment

Introduction

This week you will be building small programs in JavaScript to assess your logic building skills.

You will be working with the basic concepts like variables, data types, operators, if else statements, loops and functions.

Housekeeping points

- This is a minimal example and may not follow some standard practices.
- We focus on the main flow, and not much error handling.

Problem Statement

Your task is as following -

1. **Task 1 (3 points each)**
   1.1. Create a variable `isHappy` and using a ternary operator, assign it a boolean value based on the value of the given String variable `action`, whether it is `Smile` or not. (There should be a variable action whose value can be either `Smile` or something else. If the value of action is `Smile`, `isHappy` should be set to true or else it should be set to false. This should be achieved using the ternary operator.)
   1.2. Create a variable `favoriteSubjects` and assign it an array of strings representing your favorite subjects.
   1.3. Write a program to compare two numbers, `num1` and `num2`, and check if `num1` is greater than or equal to `num2`.
   1.4. Write a program to calculate the square of a given number, `num`.
   1.5. Write a program to check if a given number, `num`, is even or odd.
   1.6. Write a program to check if a given year, `year`, is a leap year and divisible by 400 or divisible by 4 but not divisible by 100.
   1.7. Write a program that checks if a given character, `char`, is a vowel or a consonant.
   1.8. Write a program that determines the largest among three numbers, `num1`, `num2`, and `num3`.
   1.9. Write a program that determines the sign of a given number, `num` (positive, negative, or zero), using the ternary operator.
   1.10. Write a program that determines the grade based on a given percentage, `percentage`. Use the following grading scale: A (90-100), B (80-89), C (70-79), D (60-69), F (0-59).

2. **Task 2 (3 points each)**
   2.1. Write a program that determines the type of triangle based on the lengths of its sides (`side1`, `side2`, and `side3`). The types of triangles are equilateral, isosceles, and scalene.

2.2. Write a JavaScript program that counts the number of occurrences of a specific element in an array using a for...of loop.

2.3. Write a function that takes an array of product prices and returns the total price. You can assume that the array contains only numbers.

2.4. Write a function that takes an array of product prices and a discount percentage. Apply the discount to each product price and return the updated prices as an array.

2.5. Write a function that takes an array of product quantities and returns an array of indices for products that are out of stock (quantity is 0).

2.6. Write a program to print the multiplication table of 7.

2.7. Write a function to calculate the factorial of a number.

2.8. Write a function to generate a Fibonacci series. Fibonacci Series is a sequence of numbers in which each number is the sum of the two preceding ones. It starts with 0 and 1.

2.9. Write a function to print a star-pattern triangle. The function should take the number of rows as an argument.

2.10. Write a function to reverse a string.

Program Organization
- You will be getting a zip folder containing a folder named **Basics of JS1 Assessment_For Coders** containing two files **Task1.js** and **Task2.js**.
- All the tasks mentioned above for Task 1 should be completed in Task1.js file.
- All the tasks mentioned above for Task 2 should be completed in Task2.js file.

Evaluation Rubric
Total Project Points: 60
- Correctness:
  Correctness of implementation
  - Problem statement - Task 1 (**50%**)   : **30 Points**
  - Problem statement - Task 2 (**50%**)   : **30 Points**

Program Instructions
- The **Basics of JS1 Assessment_For Coders** folder should have **Task1.js** and **Task2.js** files.
- The **Basics of JS1 Assessment_For Coders** folder should be compressed and submitted as the zip/rar folder.
- Project will not be evaluated if the submitted project is not in the zip/rar format.