Javascript Assignment 2

1. Write a Javascript function to check whether a triangle is equilateral,

isosceles or scalene

Ans.

function triangleType(side1, side2, side3) {

if (side1 <= 0 || side2 <= 0 || side3 <= 0) {

return "Invalid input: All sides of the triangle must be greater than zero.";

}

if (side1 === side2 && side2 === side3) {

return "Equilateral triangle";

} else if (side1 === side2 || side1 === side3 || side2 === side3) {

return "Isosceles triangle";

} else {

return "Scalene triangle";

}

}

// Get user input for side lengths

const side1 = parseFloat(prompt("Enter the length of the first side:"));

const side2 = parseFloat(prompt("Enter the length of the second side:"));

const side3 = parseFloat(prompt("Enter the length of the third side:"));

const result = triangleType(side1, side2, side3);

console.log(`The triangle with sides ${side1}, ${side2}, and ${side3} is a ${result}.`);

2. Write a function using switch case to find the grade of a student based

on marks obtained

a. “S grade” if the marks are between 90 and 100.

b. “A grade” if the marks are between 80 and 90.

c. “B grade” if the marks are between 70 and 80.

d. “C grade” if the marks are between 60 and 70.

e. “D grade” if the marks are between 50 and 60.

f. “E grade” if the marks are between 40 and 50.

g. “Student has failed” if the marks are between 0 and 40.

h. Else output “Invalid marks”.

Ans:

function calculateGrade(marks) {

switch (true) {

case marks >= 90 && marks <= 100:

return "S grade";

case marks >= 80 && marks < 90:

return "A grade";

case marks >= 70 && marks < 80:

return "B grade";

case marks >= 60 && marks < 70:

return "C grade";

case marks >= 50 && marks < 60:

return "D grade";

case marks >= 40 && marks < 50:

return "E grade";

case marks >= 0 && marks < 40:

return "Student has failed";

default:

return "Invalid marks";

}

}

// Get user input for marks

const userInput = parseFloat(prompt("Enter the marks obtained:"));

if (!isNaN(userInput)) {

const grade = calculateGrade(userInput);

console.log(`The student's grade is: ${grade}`);

} else {

console.log("Invalid input. Please enter a valid number for marks.");

}

3. Write a JavaScript program to find the sum of the multiples of 3 and 5

under 1000.

Ans:

function sumMultiples3and5(limit) {

let sum = 0;

for (let i = 1; i < limit; i++) {

if (i % 3 === 0 || i % 5 === 0) {

sum += i;

}

}

return sum;

}

const limit = 1000;

const result = sumMultiples3and5(limit);

console.log(`The sum of multiples of 3 and 5 under ${limit} is: ${result}`);

4. Write a program to find the factorial of all prime numbers between a

given range . Range will be passed as 2 values in the function

parameters. eg- if it is needed to find the values for numbers 1-100, then

function declaration can look like - function prime(1,100).

Ans:

function isPrime(n) {

if (n <= 1) {

return false;

}

if (n <= 3) {

return true;

}

if (n % 2 === 0 || n % 3 === 0) {

return false;

}

let i = 5;

while (i \* i <= n) {

if (n % i === 0 || n % (i + 2) === 0) {

return false;

}

i += 6;

}

return true;

}

function factorial(num) {

if (num === 0) {

return 1;

}

let result = 1;

for (let i = 1; i <= num; i++) {

result \*= i;

}

return result;

}

function prime(start, end) {

for (let num = start; num <= end; num++) {

if (isPrime(num)) {

const fact = factorial(num);

console.log(`Factorial of ${num} is ${fact}`);

}

}

}

// Example usage:

prime(1, 100);