**Go, Mary Kierine**

**BSIT 32E1**

**Sample Assessment for Introduction to Programming**

This assessment is designed to evaluate your understanding of basic programming concepts in C#, HTML, CSS, and JavaScript.

**Part 1: C# (30 points)**

**(10 points) Write a C# program that calculates the area of a triangle given its base and height. Include user input for both values and display the calculated area.**

using System;

namespace TriangleAreaCalculator

{

    class Calculator

    {

        static void Main(string[] args)

        {

            double baseLength, height, area;

            //get baseLength

            Console.Write("Enter the base Length of the triangle: ");

            if (!double.TryParse(Console.ReadLine(), out baseLength) || baseLength <= 0)

            {

                Console.WriteLine("Please enter a valid POSITIVE number for the base length.");

                return;

            }

            // get height

            Console.Write("Enter the height of the triangle: ");

            if (!double.TryParse(Console.ReadLine(), out height) || height <= 0)

            {

                Console.WriteLine("Please enter a valid POSITIVE number for the height.");

                return;

            }

            // Calculate area

            area = 0.5 \* baseLength \* height;

            Console.WriteLine($"Area of the triangle w/ base {baseLength} and height {height} is: {area}");

            Console.ReadKey();

        }

    }

}

**(10 points) Declare an array of 5 integers and fill it with values based on a user-defined formula (e.g., n^2). Then, print the largest element in the array.**

using System;

namespace LargestElementInArray

{

    class Compare

    {

        static void Main(string[] args)

        {

            int[] Arr1 = { 11, 23, 54, 12, 65 };

            Console.WriteLine("Numbers within the Array: ");

            foreach (int num in Arr1)

            {

                Console.WriteLine(num);

            }

            int bigger = Arr1[0];

            for (int i = 1; i < Arr1.Length; i++)

            {

                if (Arr1[i] > bigger)

                {

                    bigger = Arr1[i];

                }

            }

            Console.WriteLine("The largest element in the array is: " + bigger);

            Console.ReadKey();

        }

    }

}

**(10 points) Implement a simple for loop that iterates from 1 to 10 and prints each number along with its square root.**

using System;

namespace IterationLoop

{

    class Loop

    {

        static void Main(string[] args)

        {

            int num = 1;

            double sqr;

            for (int j = 1; j <= 10; j++)

            {

                sqr = Math.Sqrt(num);

                Console.WriteLine(num + " " + sqr);

                num = num + 1;

            }

        }

    }

}

**Part 2: HTML, CSS, and JavaScript (30 points)**

**HTML (10 points):** You are provided with the following incomplete HTML code snippet:

**<!DOCTYPE html>**

**<html>**

**<head>**

**<title>My Website</title>**

**<style>**

**body {**

**background-color: #F3D7CA;**

**}**

**h1, h2, h3 {**

**padding: 20px;**

**}**

**p {**

**font-size: 14px;**

**}**

**li {**

**list-style-type: disc;**

**}**

**</style>**

**</head>**

**<body>**

**<h1>Welcome to...</h1>**

**<p>This is a paragraph...</p>**

**<img src="bg.jpg">**

**<ol>**

**<li>Roses</li>**

**<li>Tulips</li>**

**<li>Orchids</li>**

**</ol>**

**<p>Visit for a <a href="https://www.flowerchimp.com.ph/collections/flower-bouquets"> Bouquet Shop</a></p>**

**<h3 style="color: #ad9479;">Perfect Flowers for Bouquets!!! </h3>**

**JavaScript (10 points):** Write a JavaScript function that takes a number as input and returns a string indicating whether the number is even or odd. Then, add a button to your HTML page that, when clicked, calls this function and displays the result (even or odd) in a paragraph element below the button.

  <button onclick="checkNumber()">Check Number</button>

  <p id="result"></p>

  <script>

    function checkNumber() {

      var number = prompt("Enter number:");

      if (isNaN(number)) {

        document.getElementById("result").textContent = "Invalid input. Please enter a valid number.";

        return;

      }

      number = Number(number);

      if (number % 2 === 0) {

        document.getElementById("result").textContent = number + " is even.";

      } else {

        document.getElementById("result").textContent = number + " is odd.";

      }

    }

  </script>

</body>

</html>

**Part 3: Essay Question (40 points)**

In software development, object-oriented programming, or OOP, is essential because it facilitates code organization. Code is more manageable because of OOP, which reduces development time and effort. There are four primary principles of object-oriented programming, or OOP: Combining data and the methods that work with it into a single unit called a class is referred to as Encapsulation. This maintains organization. OOP allows for the Inheritance of principles and behaviors from one class to another. Polymorphism is the capacity of a single function or approach function differently for various things. When something is abstracted, the attention is on the result rather than the process. Abstraction makes complicated systems simpler to understand and work with. In practice, object-oriented programming (OOP) aids developers, particularly those working on large-scale projects, by producing software with well-organized, maintainable code. OOP guarantees less hassle, more flexibility, adaptability, and a framework that is representative of the actual world for developers.