Before reading past below instructions:

1. Create an account in Github using your name in this format: lastname\_firstname\_section
2. Request access to [Lycevm<3Alabang · GitHub](https://github.com/Lycevm-3Alabang)
3. Upload this file ON YOUR GITHUB ACCOUNT with answer under the title / file name : E3\_Assessment\_\_[Section]\_[LastnameFirstName]  
   example: E3\_Assessment\_\_BSCS32E1\_AlamoNinoFrancisco

Help: [Get started with GitHub documentation - GitHub Docs](https://docs.github.com/en/get-started)

**Sample Assessment for Introduction to Programming**

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

Instructions: Read each question carefully and provide complete and clear answers. Avoid multiple-choice format responses. Focus on demonstrating your understanding through code, explanations, and discussions.

**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.

**(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.**

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

using System;

class Program

{

static void Main(string[] args)

{

// Calculate the area of a triangle

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

double baseLength = Convert.ToDouble(Console.ReadLine());

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

double height = Convert.ToDouble(Console.ReadLine());

double area = 0.5 \* baseLength \* height;

Console.WriteLine($"The area of the triangle is: {area}");

// Declare an array of 5 integers and fill it with values based on a user-defined formula

Console.WriteLine("\nEnter a formula to populate the array (e.g., n^2):");

string formula = Console.ReadLine();

int[] array = new int[5];

for (int i = 0; i < array.Length; i++)

{

int n = i + 1;

array[i] = CalculateValue(n, formula);

}

// Find the largest element in the array

int max = array[0];

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

{

if (array[i] > max)

max = array[i];

}

**Console.WriteLine($"The largest element in the array is: {max}");**

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

**Console.WriteLine("\nPrinting numbers along with their square roots:");**

**for (int i = 1; i <= 10; i++)**

**{**

**double squareRoot = Math.Sqrt(i);**

**Console.WriteLine($"Number: {i}, Square Root: {squareRoot}");**

**}**

**}**

**static int CalculateValue(int n, string formula)**

**{**

**// Evaluates the user-defined formula**

**int value = 0;**

**switch (formula)**

**{**

**case "n^2":**

**value = n \* n;**

**break;**

**// Add more cases for other formulas as needed**

**default:**

**Console.WriteLine("Invalid formula!");**

**break;**

**}**

**return value;**

**}**

**}**

**Output**

A screenshot of a computer

Description automatically generated

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

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

**HTML**

**<!DOCTYPE html>**

**<html>**

**<head>**

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

**</head>**

**<body>**

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

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

**<ul>**

**<li>Item 1</li>**

**<li>Item 2</li>**

**</ul>**

**</body>**

**</html>**

Complete the code snippet by adding the following elements:

An image within the <body> tag with a relevant src attribute.

An ordered list (<ol>) with three items.

A hyperlink within a <p> tag that points to an external website.

A CSS styling rule using an inline style attribute to change the font color of the <h3> heading.

**FILE NAME “WEBSITE 1.HTML”**

**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.

function checkEvenOrOdd(number) {

if (number % 2 === 0) {

return "Even";

} else {

return "Odd";

}

}

<!DOCTYPE html>

<html>

<head>

<title>Even/Odd Checker</title>

</head>

<body>

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

<p id="resultParagraph"></p>

<script>

function checkNumber() {

var inputNumber = parseInt(prompt("Enter a number:"));

var result = checkEvenOrOdd(inputNumber);

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

}

function checkEvenOrOdd(number) {

if (number % 2 === 0) {

return "even";

} else {

return "odd";

}

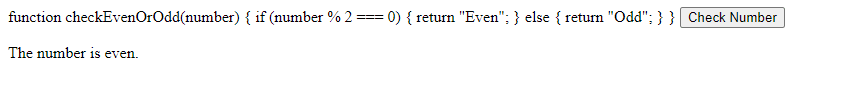
}

</script>

</body>

</html>

**Output**



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

Discuss the importance of object-oriented programming (OOP) concepts in software development. Explain the key principles of OOP (encapsulation, inheritance, polymorphism, abstraction) and provide examples of how they can be used to create more efficient, maintainable, and reusable code. Include real-world scenarios or cases where OOP is particularly valuable.

Points Distribution:

Each part carries equal weight (30 points).

Code clarity, functionality, and explanations will be considered in grading.

The essay question focuses on understanding and application of OOP concepts.