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.

using System;

public class Area

{

static double FindArea(double b, double h)

{

return (b \* h) / 2;

}

public static void Main()

{

Console.WriteLine("Enter the base value:");

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

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

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

Console.WriteLine("Area: " + FindArea(baseValue, heightValue));

}

}

**(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;

public class Array

{

public static void Main()

{

int i = 0;

int large = 0;

int[] arr = new int[5];

Console.WriteLine("Enter the formula (ex. n^2): ");

string formula = Console.ReadLine();

for (i = 0; i < arr.Length; i++)

{

int n = i + 1;

arr[i] = EvaluateFormula(formula, n);

}

large = arr[0];

for (i = 1; i < arr.Length; i++)

{

if (large < arr[i])

large = arr[i];

}

Console.WriteLine("Largest element in the array: " + large);

}

}

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

using System;

public class Loop

{

public static void Main()

{

int maxValue = 10;

for (int i = 1; i <= maxValue; i++)

{

double squareRoot = Math.Sqrt(i);

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

}

}

}

**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>**

**<img src="image.jpg" alt="Image">**

**<h1 style=”color: red;”>Welcome to...</h1>**

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

**<ul>**

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

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

**</ul>**

**<ol>**

**<li>First item</li>**

**<li>Second item</li>**

**<li>Third item</li>**

**</ol>**

**<p><a href=”externalwebsite.com”>Other Website</a></p>**

**</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.

**CSS (10 points):** Create a CSS stylesheet that defines the following styles:

**Body{**

**Background-color: lightblue;**

**}**

**h1{**

**padding: 20px;**

**}**

**h2{**

**padding: 20px;**

**}**

**h3{**

**padding: 20px;**

**}**

**p{**

**font-size: 14px;**

**}**

**li {**

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

**}**

Change the background color of the body element to light blue.

Apply a padding of 20px to all headings (h1, h2, h3).

Set the font size of the <p> tag to 14px.

Make the list items (li) have a bullet point style instead of the default numbers.

**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 EvenOrOdd(num) {**

**if (num % 2 === 0) {**

**return "Even";**

**} else {**

**return "Odd";**

**}**

**}**

**<!DOCTYPE html>**

**<html>**

**<head>**

**<title>HTML</title>**

**</head>**

**<body>**

**<button onclick="checkNum()">Check if Odd or Even</button>**

**<p id="result"></p>**

**</body>**

**</html>**

**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.

**The importance of OOP in software development is it provides clear structure for the programs and avoids repetitions that makes the code easier to modify or debug. The Encapsulation groups instance variables and methods into a class and combines data and actions into a single item. The inheritance allows object of class take on the properties of object from another class and used to avoid the repetition of programming instructions. The polymorphism allows objects of different classes to be treated as objects of a common superclass and allows multiple methods with the same name but different parameter lists to coexist within the same class. The abstraction simplifies complex systems by focusing on essential properties while hiding unnecessary details.**

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.