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.

A screenshot of a computer

Description automatically generated

**EPLANATION:**

First is prompt the user to enter the base of the triangle then enter the height of the triangle. After that calculate the area of the triangle by multiplying the 0.5, base and height.

**(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.**

**A screenshot of a computer

Description automatically generated**

**EXPLNATION:**

This program first prompts the user to input values for 'n' and calculates the square of 'n', which is then assigned to each element of the array. After filling the array, it iterates through the array to find the largest element. Finally, it prints out the largest element.

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

**A screenshot of a computer

Description automatically generated**

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

**EPLANATION:**

In this, it uses a for loop to iterate from 1 to 10. For each iteration, it calculates the square root of the current number using the Math.Sqrt function and then prints the current number along with its square root.

**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.

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

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.

A screenshot of a computer code

Description automatically generated

**A close-up of a computer code

Description automatically generated**

**RESULT:**

**A blue screen with black text

Description automatically generated**

**EXPLANATION**

I'll start by saying I'm sorry, sir, for not including a picture in it. My computer was formatted earlier, so I was only able to use a compiler.

An image tag <img> is added within the <body> tag with a placeholder src attribute. Replace "example.jpg" with the actual path to your image.

An ordered list <ol> with three items is added.

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

An inline style attribute is used to change the font color of the <h3> heading to red.

CSS styles are defined within a <style> tag in the <head> section to meet the specified requirements. These styles change the background color of the body, apply padding to all headings, set the font size of paragraphs, make list items have bullet point style, and change the font color of h3 to blue.

**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.

**HTML**

**A screen shot of a computer code

Description automatically generated**

**JAVASCRIPT**

**A screenshot of a computer

Description automatically generated**

**RESULTS**

**A screenshot of a login box

Description automatically generatedA screenshot of a computer

Description automatically generated**

**A screenshot of a computer

Description automatically generated**

**EPLANATION:**

This code creates a button in the HTML page. When the button is clicked, it calls the checkEvenOrOdd() function. This function prompts the user to enter a number, determines whether the number is even or odd, and displays the result in a paragraph below the button.

**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 object-oriented programming (OOP) concepts in software development and explain each principle with simple examples:**

**Encapsulation:** It's like a box where you put things together. For example, a car hides its engine inside and only shows you buttons and pedals to use.

**Inheritance:** It's like passing traits from parents to children. A "Dog" inherits traits like "bark" and "walk" from the "Animal" class.

**Polymorphism**: It's like different shapes but all fit into the same hole. A "Circle" and a "Square" both have a "draw" method, but they draw different shapes.

**Abstraction:** It's like using a TV remote without knowing how it works inside. You press buttons without needing to understand the electronics.

**These principles make code:**

**Efficient:** They help keep things organized and prevent mistakes.

**Maintainable:** Changes can be made without breaking other parts of the code.

**Reusable:** Code can be used again in different ways without rewriting it.

In real life, OOP is useful in making things like video games, websites, and software where organizing and reusing code is important.

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.