

# Challenge - SOH CAH TOA Calculator

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The object of this challenge is to practice adding event bindings to a Tkinter program.

## Mild

Create a program that satisfies the following requirements:

- There is a labeled input field for the **opposite** length of a triangle.
- There is a labeled input field for the **hypotenuse** length of a triangle.
- There is a **SOH** function that uses the **opposite** and **hypotenuse** to calculate the **angle** of the triangle in degrees.
- A button to call the function
- A label to display the **angle**

## Medium

Create **three separate programs**, each focused on a single trigonometric ratio (**SOH**, **CAH**, or **TOA**).

Each program must satisfy the requirements listed for its assigned ratio.

### • Program 1

- There is a labeled input field for the **opposite** length of a triangle.
- There is a labeled input field for the **hypotenuse** length of a triangle.
- There is a **SOH** function that uses the **opposite** and **hypotenuse** to calculate the **angle** of the triangle in degrees.
- There is a button that calls the **SOH** function.
- There is a label to display the calculated **angle**.

### • Program 2

- There is a labeled input field for the **adjacent** length of a triangle.
- There is a labeled input field for the **hypotenuse** length of a triangle.
- There is a **CAH** function that uses the **adjacent** and **hypotenuse** to calculate the **angle** of the triangle in degrees.
- There is a button that calls the **CAH** function.
- There is a label to display the calculated **angle**.

### • Program 3

- There is a labeled input field for the **opposite** length of a triangle.
- There is a labeled input field for the **adjacent** length of a triangle.
- There is a **TOA** function that uses the **opposite** and **adjacent** to calculate the **angle** of the triangle in degrees.
- There is a button that calls the **TOA** function.
- There is a label to display the calculated **angle**.

## Spicy

Create a program that satisfies the following requirements:

- There is a labeled input field for the **opposite** length of a triangle.
- There is a labeled input field for the **hypotenuse** length of a triangle.
- There is a labeled input field for the **adjacent** length of a triangle.
- There is a **SOH** function that uses the **opposite** and **hypotenuse** to calculate the **angle** of the triangle in degrees.
- There is a **CAH** function that uses the **adjacent** and **hypotenuse** to calculate the **angle** of the triangle in degrees.
- There is a **TOA** function that uses the **opposite** and **adjacent** to calculate the **angle** of the triangle in degrees.
- 3 buttons, one to call each function separately
- A label to display the **angle**