LEARN PYTHON

Area Calculator

Python is especially useful for doing math and can be used to automate many calculations. In this project, we'll create a calculator that can compute the area of the following shapes:

- Circle
- Triangle

The program should do the following:

1. Prompt the user to select a shape.
2. Calculate the area of that shape.
3. Print the area of that shape to the user.

Let's begin!

1. Begin by writing a multi-line comment that describes what this program does, starting on line 1.

2. Let's inform the user that the program is running.

   Print a message to let the user know the calculator is starting up.

3. Next, ask the user what shape to calculate the area of using `raw_input()`, which works like:

   ```
   name = raw_input("What's your name? ")
   ```

   Prompt the user for input with the following message: `"Enter C for Circle or T for Triangle: "`.

   Store their input into a variable called `option`.

4. Great! Now it's time to calculate the area of the shape that the user specifies.

   Write an `if` statement that will check if the option the user entered is `'C'` for circle.

5. For the next few steps, we will be writing code *inside* the `if` statement.

   Prompt the user to input the radius.

   Store their input into a variable called `radius`.

6. Using `raw_input()` alone will store the user's input as a string. Since we want to do some calculations with the user's input, we need numbers, not strings.

   Python has a built-in method called `float()` that converts a string to a floating point number.

   Put the `raw_input("Enter radius: ")` part of your code inside `float()` parenthesises like this:

   ```
   radius = float(raw_input("Enter radius: "))
   ```

7. Calculate the area of a circle now that you have the radius.

   area = π r^2

   - Use `3.14159` for the value of pi.
   - Use exponentiation `**` to square.

   Store the result in a variable called `area`.

8. Finally, on the next line, print the area using string formatting.

9. You've completed the part of the program that calculates the area of a circle – it's a good time to test the code!

   First, click Save. Then, in the terminal, type the following command and press `enter`:

   ```
   python AreaCalculator.py
   ```

10. Great! It's time to move on to the next shape: the triangle.

    Add a corresponding `elif` statement to your `if` statement.

    The `elif` statement should check if the option the user entered is `'T'` for triangle.

11. For the next few steps, you will be staying inside the `elif` statement.

    To calculate the area of a triangle, first ask the user to enter the base of the triangle.

    Store the user's input in a variable called `base`.

    Convert the user's input from a string to a number by using `float()`.

12. The height of the triangle is also needed to calculate its area.

    Ask the user to enter the height of the triangle and store the input in a variable called `height`.

    Convert the user's input from a string to a number by using `float()`.

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13. Next, calculate the area and store it in a variable called `area`.

    area = ½ b h

14. Finally, print the area using string formatting.

15. Fantastic! The user can now specify `C` for circle or `T` for triangle.

    But what if the user enters something else?

    Add an `else` block to handle this possible case.

    Inside the `else` block, print a message to inform the user that they entered an invalid shape.

16. Last line of the program!

    Outside of the `if` statement, inform the user that the program is exiting.

17. Now we're ready to try the program out!

    First, click Save. Then, in the terminal, type the following command and press enter:

    ```
    python AreaCalculator.py
    ```

    Congratulations!