

Practice Exercises

Arrays Method and Modules (Continued)

INDIVIDUAL EXERCISES (Walk through with Instructor)

Exercise 1: Draw a Pentagon

- Step 1: Install ColabTurtle: This command will install the ColabTurtle package in your Google Colab environment.

```
!pip install ColabTurtle
```

- Step 2: Import Turtle Module: After installing the package, you need to import the Turtle module from ColabTurtle.Turtle. This module provides functionalities to create and control turtles for drawing.

```
from ColabTurtle.Turtle import *
```

- Step 3: Define Function to Draw a Single Side: Now, you need to define a function that will draw a single side of the Pentagon. This function will move the turtle forward by a certain distance (the length of each side) and then turn it by 72 degrees (the angle between sides).

```
def draw_side():  
    forward(100) # Length of each side  
    right(72)   # Angle between sides
```

This function, `draw_side()`, will draw one side of the Pentagon.

- Step 4: Initialize the Turtle: Before drawing anything, you need to initialize the turtle. This is done by calling the `initializeTurtle()` function.

```
initializeTurtle()
```

This function initializes the turtle graphics window.

- Step 5: Loop to Draw the Pentagon: Now, you'll use a loop to draw the complete Pentagon. Since a Pentagon has five sides, you'll call the `draw_side()` function five times.

```
for _ in range(5):  
    draw_side()
```

This loop iterates five times, drawing each side of the Pentagon.

- Step 6: Display the Drawing: Finally, you need to display the drawing. After drawing the Pentagon, you can call the `input()` function. To end

```
end= input()
```

→ The complete code looks like this:

```
!pip install ColabTurtle  
from ColabTurtle.Turtle import *  
  
def draw_side():  
    forward(100) # Length of each side  
    right(72) # Angle between sides  
  
initializeTurtle()  
  
for _ in range(5):  
    draw_side()  
  
end= input()
```

Exercise 2: Draw another geometric shape of your choice

→ Step 1: Installing the Modules, assuming you have already installed it in the previous example, we will move to Defining the function `draw_triangle()` that will draw an equilateral triangle. Inside this function, you'll use a loop to draw three sides of equal length and angles of 120 degrees.

```
def draw_triangle():  
    for _ in range(3):  
        forward(100) # Length of each side  
        right(120) # Angle between sides
```

→ Step 2: Initialize the Turtle: Before drawing anything, initialize the turtle. This is done by calling the `initializeTurtle()` function.

```
initializeTurtle()
```

→ Step 3: Draw the Triangle: Call the `draw_triangle()` function to draw the equilateral triangle.

```
draw_triangle()
```

→ Step 4: Display the Drawing: Finally, you need to display the drawing. After drawing the Pentagon, you can call the `input()` function. To end

```
end= input()
```

→ The complete code looks like this:

```
!pip install ColabTurtle  
from ColabTurtle.Turtle import *  
  
def draw_triangle():
```

```
for _ in range(3):  
    forward(100) # Length of each side  
    right(120)  # Angle between sides  
  
initializeTurtle()  
  
draw_triangle()  
  
end= input()
```

Exercises 3&4 : Using any LLM, complete the following exercises, making sure to include best practices when interacting with AI such as:

- Descriptive prompts
- Iterative Prompting
- etc