Kandahar University

Faculty of Computer Science

Second Year

Shape Creator

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بسم الله الرحمن الرحيم

Shape:

Shape is collations of angles and edges. For example, Tringle, Rectangle and more.

Shape creator:

Is a project in python by which we can draw different type of shapes such as circle, tringle and more

Libraries Which used in this project are:

1. Numpy: by Numpy we can import matrices in our project.
2. Matplotlib: is for draw shapes, graphs, plots and more in our project

```
3. import matplotlib.pyplot as plt
4. import numpy as np
```

our build in functions in my project :

def draw_line function:

This function is for drawing just one line.

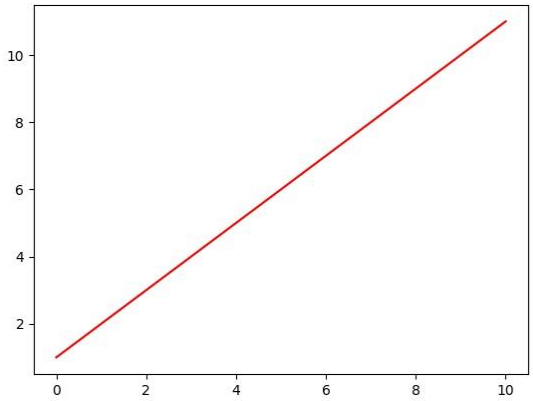
the python language syntax is that you will write def keyword to define a function

x and y is our parameters

plt.plot is used to plot the line

plt.show is used to give a collar to the line

```
def draw_line():
    x = np.linspace(0, 10, 100)
    y =  x + 1
    plt.plot(x, y, color='red')  # Red color
    plt.show()
```



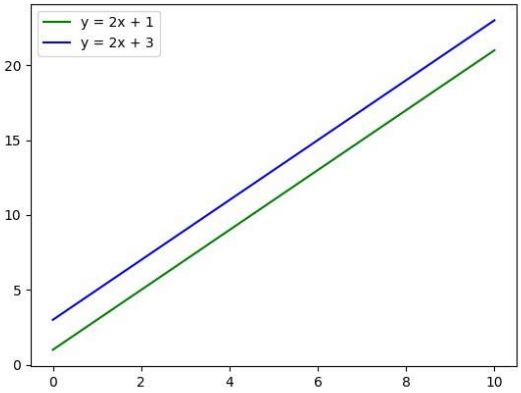
def draw parallel_lines function:

we can use this function for drawing parallel lines.

In this function the y1 and y2 are also the parameters,

the “ colour = to green” give the colour into the lines

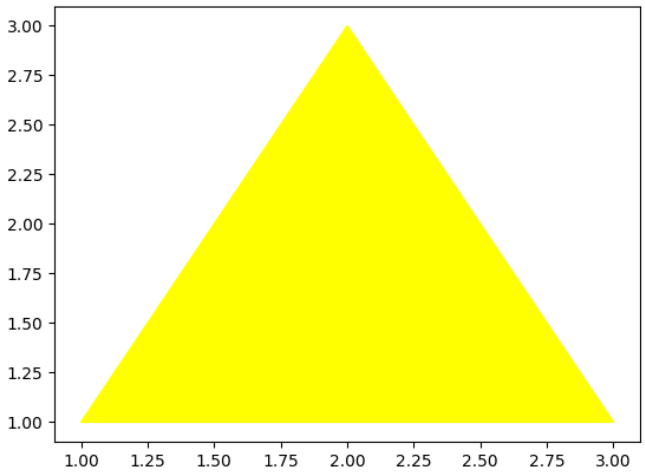
```
def draw_parallel_lines():
    x = np.linspace(0, 10, 100)
    y1 = 2 * x + 1
    y2 = 2 * x + 3
    plt.plot(x, y1, label='y = 2x + 1', color='green')  # Green color
    plt.plot(x, y2, label='y = 2x + 3', color='blue')  # Blue color
    plt.legend()
    plt.show()
```



Def draw_tringle function:

This function is for drawing tringle and give colour to the triangle

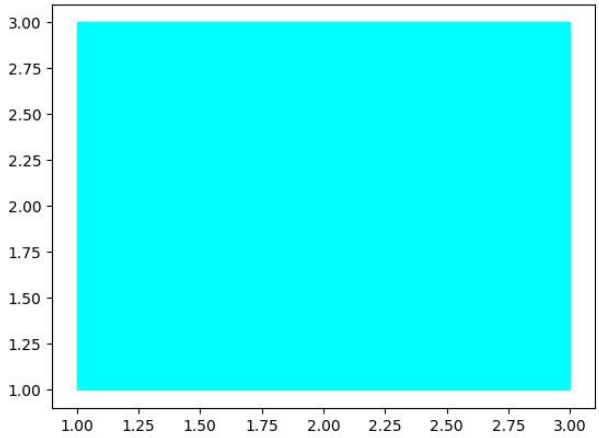
```
def draw_triangle():
    x = [1, 3, 2, 1]
    y = [1, 1, 3, 1]
    plt.fill(x, y, color='yellow')  # Yellow color
    plt.show()
```



Def draw_rectangle function:

By this function we can draw rectangle and give a specific colour to the rectangle.

```
def draw_rectangle():
    x = [1, 3, 3, 1, 1]
    y = [1, 1, 3, 3, 1]
    plt.fill(x, y, color='cyan')  # Cyan color
    plt.show()
```



def draw_polygen function:

this function is for drawing polygens like pentagon Hexagon and more.

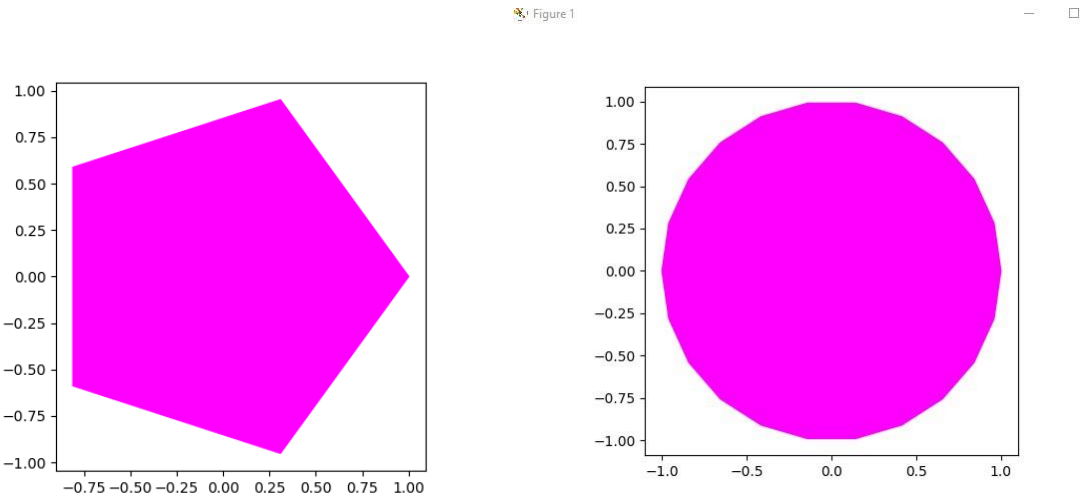
5 for pentagon

6 for hexagon

And so on….

And give a colour to it.

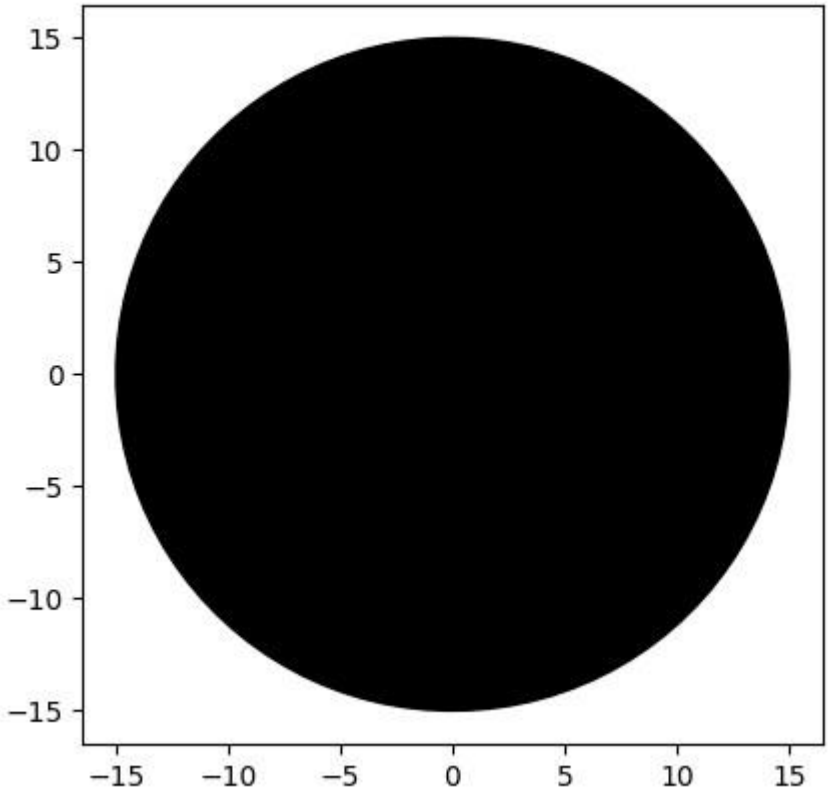
```
def draw_polygon(num_sides):
    angles = np.linspace(0, 2*np.pi, num_sides+1)
    x = np.cos(angles)
    y = np.sin(angles)
    plt.fill(x, y, color='magenta')  # Magenta color
    plt.gca().set_aspect('equal', adjustable='box')
    plt.show()
```



Def daw_circle function:

we make this function for drawing a circle, it require the count of dots of circle and reduce of circle it will print a circle that have a colour and reduce

```
def draw_circle(radius):
    angles = np.linspace(0, 2*np.pi, 100)
    x = radius * np.cos(angles)
    y = radius * np.sin(angles)
    plt.fill(x, y, color='black')  # Black color
    plt.gca().set_aspect('equal', adjustable='box')
    plt.show()
```



Main Function

And finally we called all the functions that we create in the main function we def a function by name main and then we call the main in the python main method

```
def main():
    num_lines = int(input("Enter the number of lines: "))

    if num_lines == 1:
        draw_line()
    elif num_lines == 2:
        draw_parallel_lines()
    elif num_lines == 3:
        draw_triangle()
    elif num_lines == 4:
        draw_rectangle()
    elif num_lines >= 5:
        draw_polygon(num_lines)
    elif num_lines >= 23:
        radius = float(input("Enter the radius of the circle: "))
        draw_circle(radius)
    else:
        print("Invalid number of lines.")

if __name__ == "__main__":
    main()
```

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