**IT5016 ASSESSMENT 3**

1. `Import turtle`: This line imports the Turtle graphics library, which allows you to create drawings and shapes on the screen using a turtle graphics concept.
2. `t = turtle.Turtle()`: This line creates a Turtle object named t. The turtle is like a virtual pen that you can control to draw on the screen.
3. `s = turtle.Screen().bgcolor('black')` : This line creates a Screen object and sets its background color to black. The bgcolor method sets the background color of the drawing canvas to black.
4. `t.speed(25)`: This line sets the drawing speed of the turtle t to 25. The speed determines how fast the turtle moves when drawing.
5. `n = 70`: This line defines a variable n with a value of 70. This variable will be used later in the code.
6. `h = 0`: This line initializes a variable h to 0. It will be used to control the hue of the colors used in the pattern.
7. `for i in range(360):`: This line starts a loop that will repeat 360 times, creating a full circle.
8. Inside the loop:

`c = colorsys.hsv\_to\_rgb(h, 1, 0.8)`: This line uses the colorsys module to convert the current hue value (h) to an RGB color. It creates a color with full saturation (1) and a brightness of 0.8. This line effectively generates a sequence of colors as the loop progresses.

`h += 1 / n`: This line increments the hue value by a small amount, effectively changing the color for the next iteration of the loop.

`t.color(c)`: This line sets the turtle's pen color to the color generated in the previous step.

`t.left(1)`: This line turns the turtle left by 1 degree, gradually forming the circular pattern.

`t.fd(1)`: This line moves the turtle forward by 1 unit, drawing a line.

1. Inside the outer loop, there's another loop:

`for j in range(2):`: This inner loop repeats twice, allowing the turtle to draw two small circles in each iteration of the outer loop.

`t.left(2)`: This line turns the turtle left by 2 degrees, making it draw a small circle.

`t.circle(200)`: This line makes the turtle draw a circle with a radius of 200 units.

The combination of the outer and inner loops creates a mesmerizing pattern of colorful circles on a black background. The hue of the colors changes gradually as the turtle moves in a circle, resulting in a visually appealing design. The final result is a beautiful, circular, and colorful pattern.

References: <https://github.com/Daman999999/turtle.git>

**How the code works:**

* Here's a brief overview of how the code works:
* The script starts by importing the turtle and colorsys libraries.
* It creates a Turtle object named t and sets up the drawing screen with a black background.
* The drawing speed of the turtle is set to 25, making it draw relatively quickly.
* A variable n is defined with a value of 70. This variable controls the number of colors used in the pattern.
* A variable h is initialized to 0, which will be used to control the hue of the colors.
* The code then enters a loop that iterates 360 times, creating a full circle. In each iteration
* The colorsys.hsv\_to\_rgb function is used to generate a color based on the current hue value (h). The color has full saturation and a brightness of 0.8.
* The hue value h is incremented to change the color for the next iteration.
* The turtle's pen color is set to the generated color.
* The turtle turns left by 1 degree and moves forward by 1 unit, effectively drawing a colorful line.
* Inside the outer loop, there's another loop that repeats twice, creating two small circles.
* The turtle turns left by 2 degrees.
* The turtle draws a circle with a radius of 200 units.
* The combination of these loops and color changes results in a stunning circular pattern.