NEW HORIZON
COLLEGE OF ENGINEERING
New Horizon Knowledge Park, Ring Road, Marathalli
Autonomous College Permanently Affiliated to VTU, Approved by AICTE & UGC
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"MY PAINT APPLICATION"

A MINI PROJECT REPORT

Submitted by

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Under the guidance of,

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In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

IN

INFORMATION SCIENCE AND ENGINEERING

FOR

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CERTIFICATE

Certified that the project work entitled **MY PAINT APPLICATION** Using Python carried out by **MS.CH RAMYA BHARGAVI**, bearing USN **1NH18IS025**, a bonafide student of 3rd semester in partial fulfillment for the award of Bachelor of Engineering in Information Science & Engineering of the Visveswaraiah Technological University, Belagavi during the year 2019-20. It is certified that all corrections / suggestions indicated for Internal Assessment have been incorporated. The project report has been approved as it satisfies the academic requirements in respect of Mini Project work prescribed for the said Degree.

Name & Signature of Guide	Name & Signature of HOD	Name & Signature of Principal
Mrs.Rafega behum	Dr.Anandhii R J	Dr. Manjunatha

Examiners :

Name	Signature
1. ……	……
2. ……	……

MY PAINT APPLICATION

ORIGINALITY REPORT

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SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	Aswath Suresh, Debrup Laha, Dhruv Gaba, Siddhant Bhambri. "Chapter 19 Design and Development of Innovative Pet Feeding Robot", Springer Science and Business Media LLC, 2019 Publication	2%
2	"Python® Projects", Wiley, 2014 Publication	1%
3	Hasan U. Zaman, Saif Mahmood, Sadat Hossain, Iftekharul Islam Shovon. "Python Based Portable Virtual Text Reader", 2018 Fourth International Conference on Advances in Computing, Communication & Automation (ICACCA), 2018 Publication	1%
4	Gregory Walters. "Chapter 9 Libraries", Springer Science and Business Media LLC, 2014 Publication	1%
5	Aditya Budhwar, Toshihiro Kuboi, Alex Dekhtyar, Foaad Khosmood. "predicting the vote using legislative speech", Proceedings of the 19th Annual International Conference on Digital Government Research Governance in the Data Age - dgo '18, 2018 Publication	1%
6	Sofiane Lagraa, Maxime Cailac, Sean Rivera, Frederic Beck, Radu State. "Real-Time Attack Detection on Robot Cameras: A Self-Driving Car Application", 2019 Third IEEE International Conference on Robotic Computing (IRC), 2019 Publication	<1%
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ABSTRACT:

- The simple paint project helps in drawing paintings. You can draw with the help of simple code snippets available in the python. A paint application is a software graphics program that allows the users to draw or paint bitmapped images on a computer. And it is implemented using python Turtle.The application is an alternative for other professional editing apps.The application is simple to use and can be used by anyone for simple editing and painting process.As per concern, this application is designed for home use as well as for simple graphical designs.It is a light application for basic painting operations. It is a step wise programming thing that is quite easier and it is run time program.Like that you can create your work in an attractive and playful way that and which is very interesting in manner.

ACKNOWLEDGEMENT

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CH RAMYA BHARGAVI

1NH18IS025

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INTRODUCTION

1.1 PROBLEM STATEMENT

The simple paint project helps in drawing paintings. You can draw with the help of simple code snippets available in the python. A paint application is a software graphics program that allows the users to draw or paint bitmapped images on a computer. And it is implemented using python Turtle.

- The application is an alternative for other professional editing apps.
- The application is simple to use and can be used by anyone for simple editing and painting process.
- As per concern, this application is designed for home use as well as for simple graphical designs.
- It is a light application for basic painting operations.

1.2 OBJECTIVES

- The following are some of the main objectives of My Paint Application:
- It creates colorful diagrams with simple python scripts.
- It creates pictures and work with colors.
- Select different shades of colors.
- Create customized graphics.
- Introducing programming to the children in an effective manner.

1.3 METHODOLOGY TO BE FOLLOWED:

- Our current My Paint Application project is user friendly and can be used effortlessly.
- It was implemented by using PYTHON TURTLE and PYTHON GUI(Graphical User Interface).
- It is simple with small commands that are available in python turtle. For example: if you give a command like turtle.forward(90), it turtle goes forward for 90 with respective color we assign in the script and also we can set our python turtle graphics background color by putting the command bgcolor("black") in the python script.
- It is a step wise programming thing that is quite easier and it is run time program.Like that you can create your work in an attractive and playful way that and which is very interesting in manner.

1.4 EXPECTED OUTCOMES

- It shows your obtained output on the screen named "python turtle graphics". It is used to create basic 2D shapes and drawings and is extremely beginner friendly.
- While "saving some lines of your code" and we can reorganize our program to repeat the pattern.
- The program uses a turtle to draw the required shapes and moves accordingly to left, right, forward and the lines are mixed up.
- For drawing the continuous patterns of drawing we use speed function. Which automatically draws your coded diagram.

1.5 SOFTWARE AND HARDWARE REQUIREMENTS

- Software Requirements:
  a. complier: Python 3 , Pythonturtle
  b. OS: Windows 7 or later
- Hardware Requirements:
  a. processor: intel core i5 generation
  b. Ram: 2 GB or more

CHAPTER 2

DATA

Python offers multiple options for developing GUI (Graphical User Interface). ... It is a standard Python interface to the Tk GUI toolkit shipped with Python. Python with tkinter is the fastest and easiest way to create the GUI applications. Creating a GUI using tkinter is an easy task.

Python Modules

- tkinter – tkinter module is an interface to Tcl/Tk for graphical user interfaces.
- csv – csv module is used to write and read tabular data to and from comma delimited files.
- Numpy - NumPy is a module which provides fast and efficient operations on arrays containing homogeneous data. NumPy extends python into a high-level language for manipulating numerical data which is similar to MATLAB.
- PIL - The Python Imaging Library (PIL) provides the Python interpreter with image processing capabilities. This library supports a lot of file formats, and provides powerful image processing and graphics capabilities.
- pandas - *pandas* is an open source python module that provides high-performance, easy-to-use data structures and data analysis tools.
- datetime - The datetime module provides a number of different ways to deal with dates, times, and time intervals. This module replaces the integer/tuple-based time mechanisms in the time module with a more object-oriented interface.
- time – The time module in Python which provides functions for working with times and for converting between representations

PYTHON GUI:

In python, the steps to get started with GUI programming are not terribly complex, but they do require the user to begin making some choices. By its nature as a general purpose programming language with interpreters available across every common operating system, python has to be fairly agnostic as to the choices it presents for creating graphical user interfaces.
Python has a huge number of GUI frameworks (or toolkits) available for it, from TkInter (traditionally bundled with Python, using Tk) to a number of other cross-platform solutions, as well as bindings to platform-specific (also known as "native") technologies.

PYTHON TURTLE:

Turtle graphics is a popular way for introducing programming to kids. It was part of the original Logo programming language. “TURTLE” is a python feature like a drawing board, which lets us a turtle to draw all over it. We can use functions like turtle.forward(…) and turtle.right(…) which can move the turtle around.

The turtle module is a built in module in python, meaning you do not have to install it. It is used to create basic 2D shapes and drawings and is extremely beginner friendly. The main Advantages of turtle is that it is extremely simple and makes it very easy to draw things to the screen.

The turtle module provides turtle graphics primitives, in both object-oriented and procedure-oriented ways. Because it uses tkinter for underlying graphics, it needs a version of python installed with TK support. The procedural interface provides functions which are derived from the methods of the classes Screen and Turtle. They have the same names as the corresponding methods. A screen object is automatically created whenever a function derived from a Screen method is called. An (unnamed) turtle object is automatically created whenever any of the functions derived from a Turtle method is called.

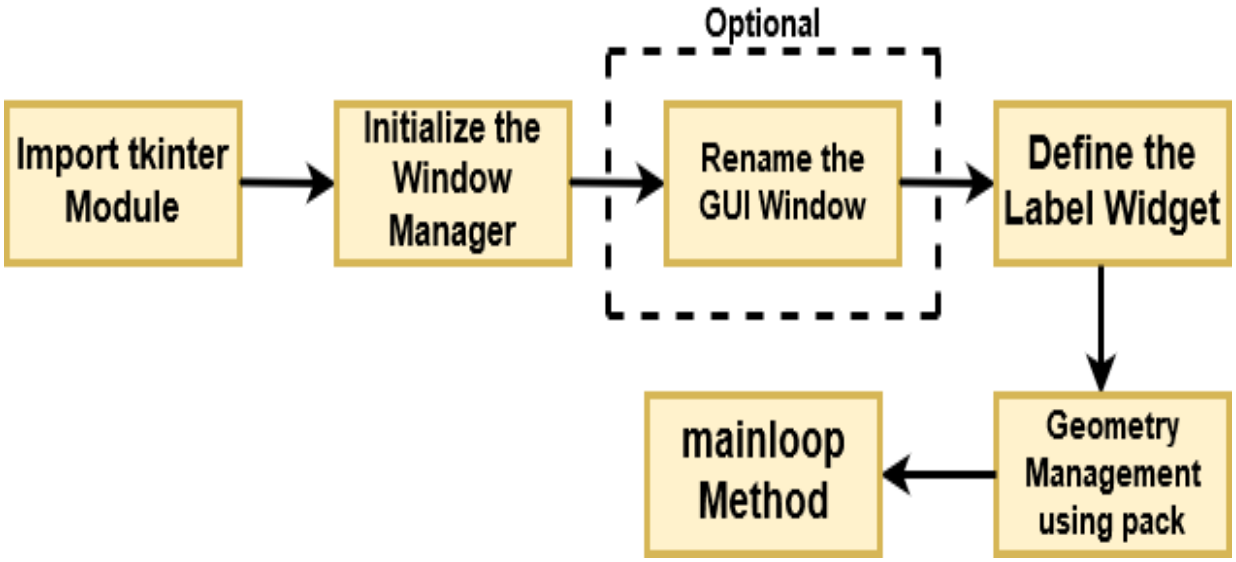
2.1 what is tkinter?

Tkinter is Python's de-facto standard GUI (Graphical User Interface) package. It is a thin object-oriented layer on top of Tcl/Tk.

Tkinter is not the only Gui programming toolkit for Python. It is however the most commonly used one. CameronLaird calls the yearly decision to keep TkInter "one of the minor traditions of the Python world."

Tkinter is the standard GUI library for python. Python when combined with Tkinter provides a fast and easy way to create GUI applications.

Tkinter provides a powerful object-oriented interface to the Tk GUI toolkit.



2.1.a Rendoring the basic GUI

Tkinter commonly comes bundled with Python, using Tk and is Python's standard GUI framework. It is famous for its simplicity and graphical user interface. It is open-source and available under the Python License.

TREES IN PYTHON TURTLE:

To understand how this is going to work it is helpful to think of how we might describe a tree using fractal vocabulary. Fractal is something that looks the same at all the different levels of magnification.
If we translate this to trees and shrubs we might say that even a small twig has the same shape and characteristics as a whole tree. Using this idea we could say that tree is trunk, with a smaller tree going off to the right and another smaller tree going of to the left. If you think of this definition recursively it means that we will apply the recursive definition of a tree to both of the smaller left and right trees.

The following are the pictures of simple factral tree in python turtle,

Fig. The Beginning of a Fractal tree.

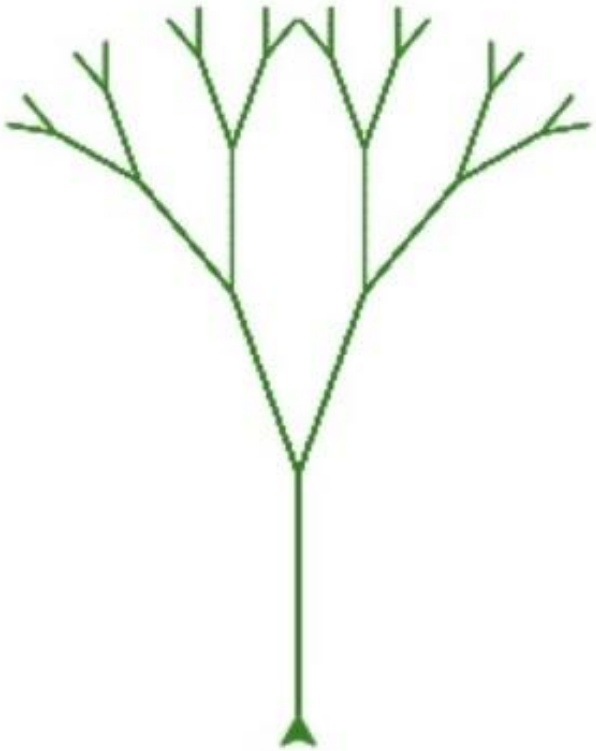


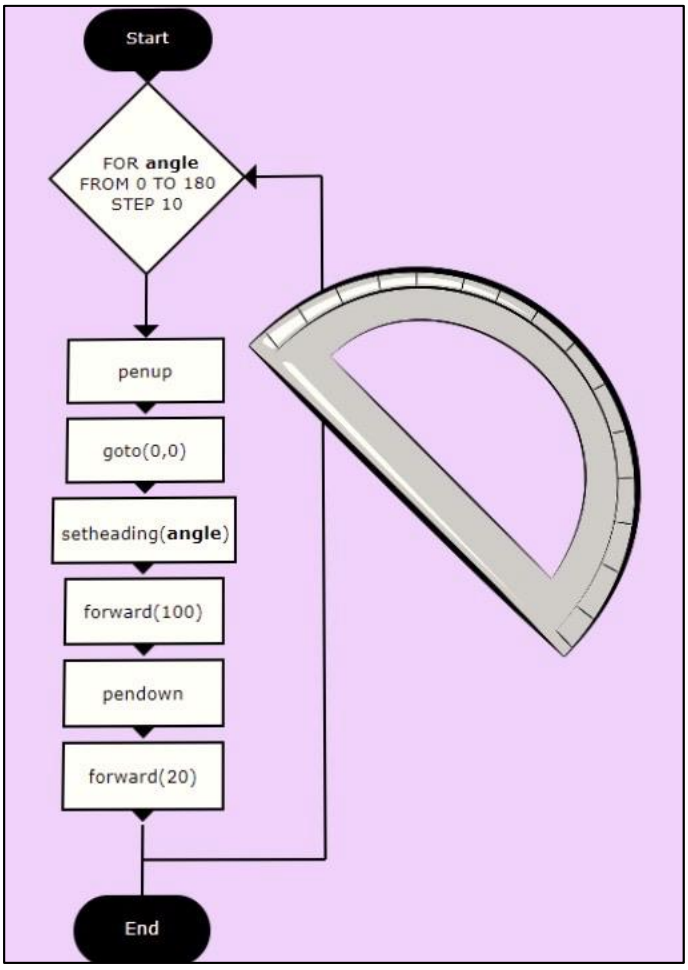
Fig. The simple fractal tree

CHAPTER 3

DESIGN

The project has been developed with python turtle with its extremely diverse and useful modules. Python turtle code is simple, compact, and robust. The code developed with Python makes the implementation of the project extremely efficient.

3.1 FLOW CHART



3.2 ALGORITHM

- The roadmap for executing a turtle program follows the following steps.
- Import the turtle module, create a turtle to control, Draw around using the turtle methods, and Run turtle.done().
- The instructions in your program tell the “turtle” how to move. The turtle draws a line behind it as it moves.
- The turtle.forward(…) function tells the turtle to move forward by the given distance. The turtle.left(…) takes a number of degrees which you want to rotate to the left. There is also turtle.backward(…) and turtle.right(…), too.
- You can modify your shape with the turtle.width(….) and turtle.color(…) functions.
- Changes the color of the turtle will use to fill is fillcolor() function. And position() function returns the current position. goto() function move the turtle to x,y.
- Penup() and pendown() functions picks up and puts down the turtle’s pen respectively. All these functions are included in the python turtle script and does their functionalities.

CHAPTER 4

IMPLEMENTATION

This mini project is divided into various modules having different functionality. The modules are given below:

MODULE 1:

This module function is an important way. First we need to import turtle into our system's python by giving the command import turtle and to import all its dependencies, give the command from turtle import * in your python Run Command.

This is called basic importing of turtle module into our python. wn = turtle.Screen() creates a graphic window. Turtle() is the constructor method of the class Turtle; it returns an instance of the class. If you don't assign the output to a variable, it basically creates an instance that is immediately discarded . There is plethora of functions and programs to be coded using the turtle library in python. You can speed up or slow down the turtle's animation speed. But if you set the speed to 0, it has special meaning that is turn off animation and go as fast as possible.

MODULE 2:

There are certain commands in python turtle which makes the python script run as per the instructions that are coded in the program. Turtle() creates and returns a new turtle object. turtle.forward() moves the turtle forward by the specified amount, turtle.backward() moves the turtle backward by the specified amount. And turtle.heading()_ returns the current heading and position() returns the current position. And begin_fill() remembers the starting point for a filled polygon.

And most importantly stamp() function leaves an impression of a turtle shape at the current location.

MODULE 3:

We need to import random and import time, the random module provides access to functions that support many operations, most importantly it allows you to generate random numbers. For example, we want the computer to pick a random number in a given range, in this time random module comes into picture. The Random module contains some very useful functions, in that randint is the one. If we wanted a random integer , we can use the randint function. Randint accepts two parameters: a lowest and highest number. And the first number should be less then the second number. And Shuffle() function shuffles the elements in list in place, so there are in a random order.

MODULE 4:

You can give shape for the drawing instrument as turtle and it is commonly called as robot turtle which displayed on the Python turtle graphics screen and this command is shape("turtle"). If you don't give the particular name it gives a shape by default, most probably it takes arrow symbolled shape. After writing the one after the other, the turtle keeps working on the python turtle graphics screen. And you can end the program code by using the python turtle commands, turtle.bye() or turtle.exitonclick() functions. These functions make your program easier to get finished in an systematic way.

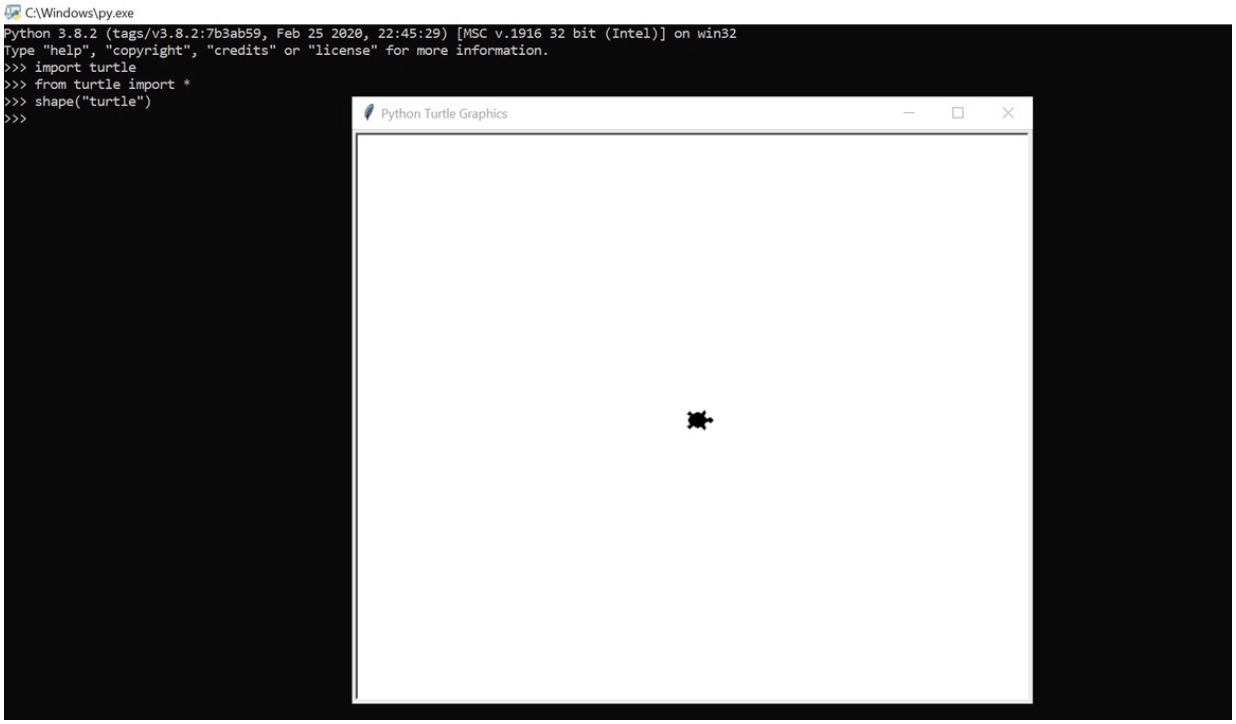
CHAPTER 5

RESULTS

First we need to import turtle that can be run in your python run command. And also import all its dependencies by the command from turtle import * .

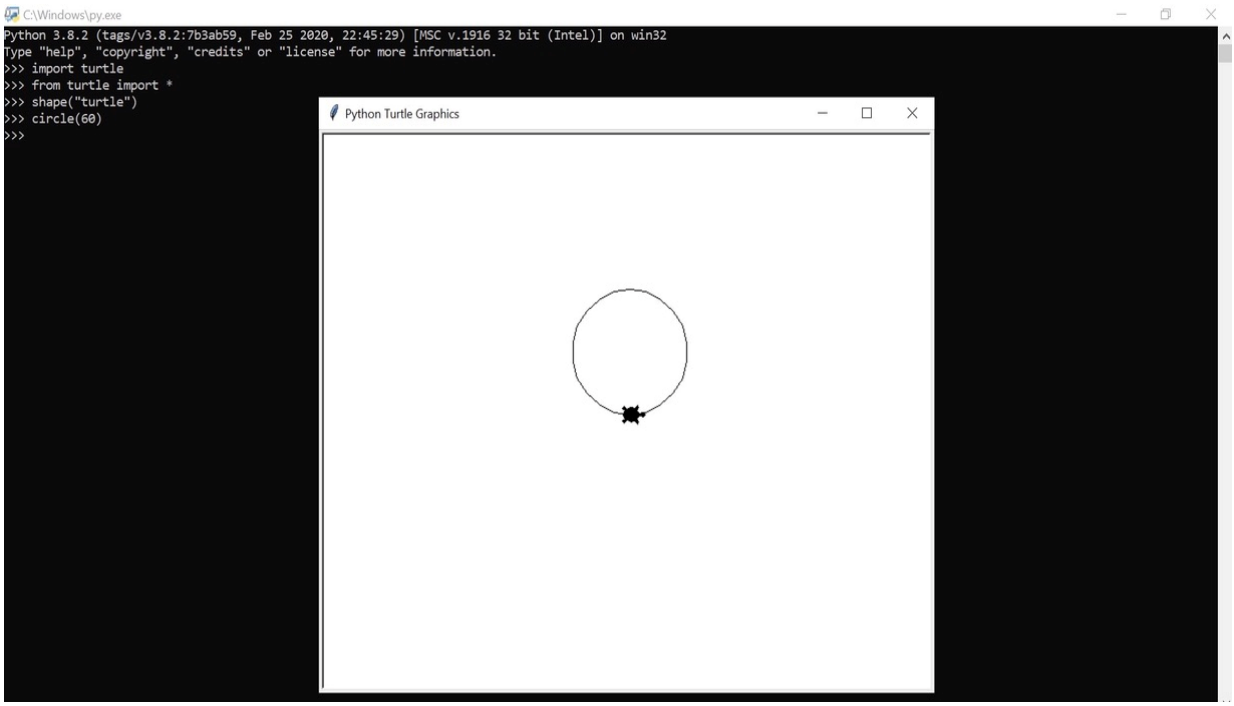
1.And when you give the shape for the python turtle program as shape(“turtle”) it gives as follows.

It displays the screen named **python turtle graphics.** With the turtle shape ready to draw with.

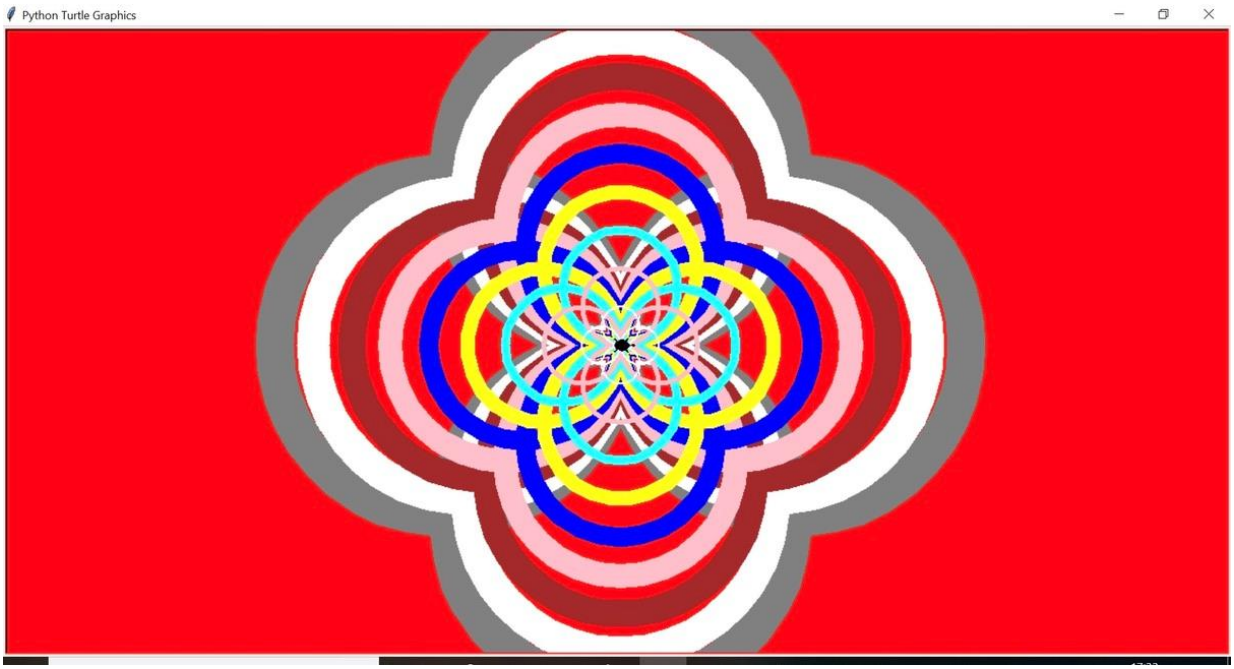


2. And for example when you give the command as turtle.forward(400) and pencolor as pencolor(“red”) , the turtle goes forward for 400 by drawing red color.

3. When you give a command top draw a circle(60), the turtle automatically draws the corresponding command in to picture.



4. After assigning the background color as red and using the input colors as white , gray, brown, red, blue, yellow, and aqua for drawing the 4 symmetric circles one over other with the function rt() and circle(), we get:



5. Dragon curve can be made by using python turtle. By starting importing the turtle, and following the iterations we can make continuous drawing patterns one after the other. And most importantly we need to define curve and circle in the python turtle script.

Then turtle starts printing the dragon curve as follows:

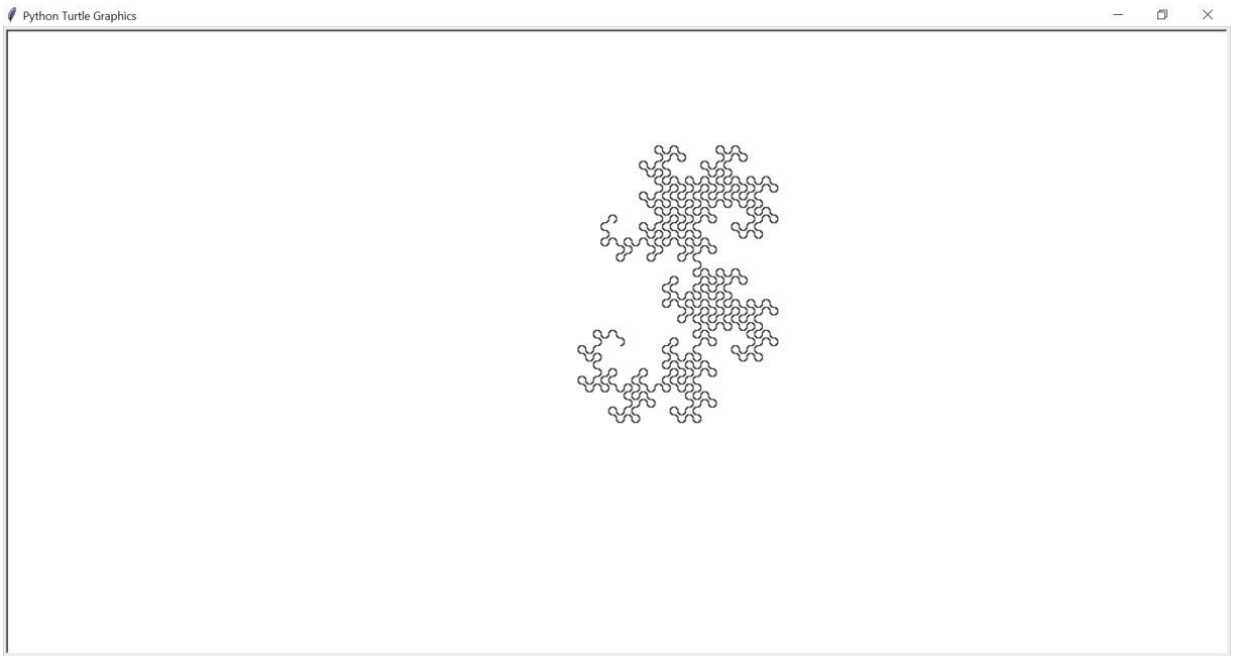


Fig. The Beginning of dragon curve

And the completion of our dragon curve as per our program is as follows.

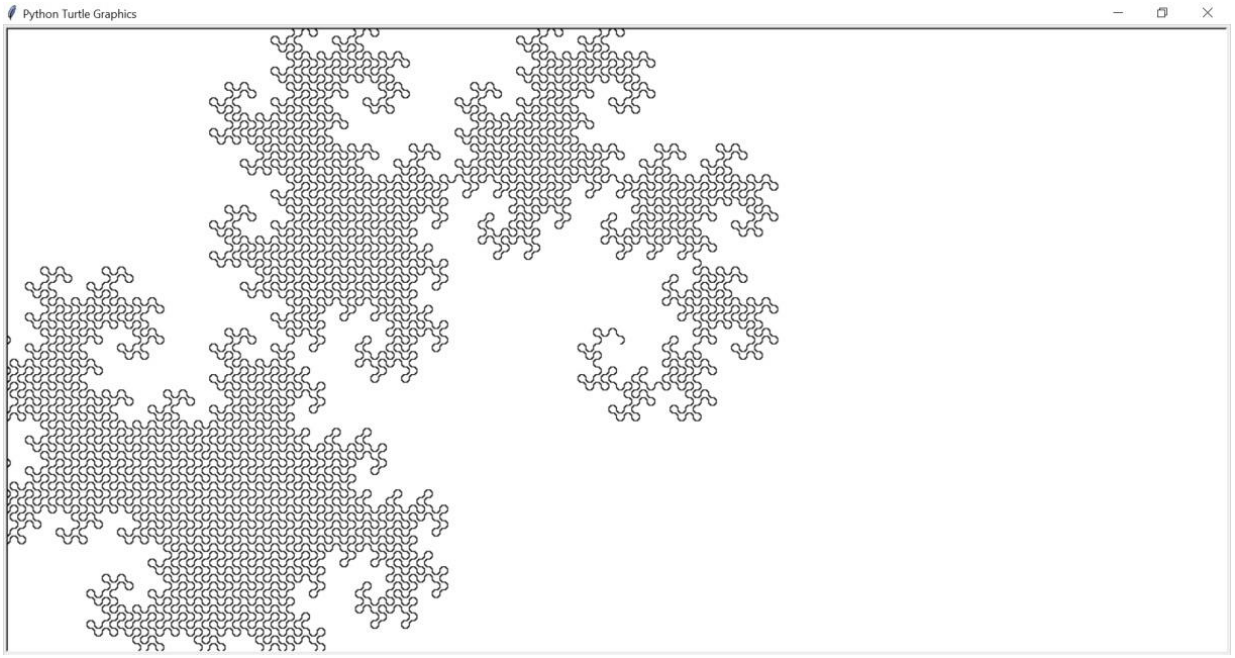


Fig. The final dragon curve

6. We need to import random and time for continuous drawing pattern of your drawings.

When we try to draw the trees with python turtle is much complex and time taken process to draw yet gives the most clean and good output in colors.

The following is the complex Christmas tree drawn with python turtle by setting the background color as black(bgcolor('black') and using the color green as pencolor and yellow for creating the star and red was assigned to draw flowers at the bottom of the tree

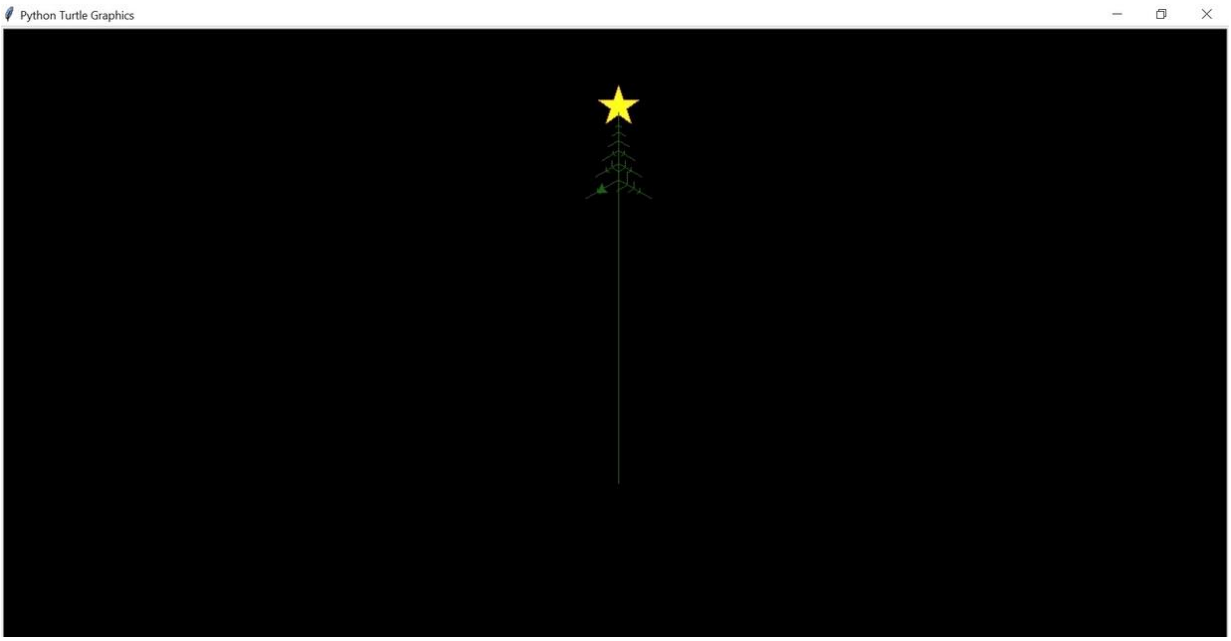


Fig. The beginning of the tree.

Fig.The final complex Christmas tree.

7. We created a spiral structure using python turtle by drawing the circles one over the other and by setting the background color as black i.e., turtle.bgcolor('black') and turtle.pencolor('pink') and by using the speed function as turtle.speed(2) .

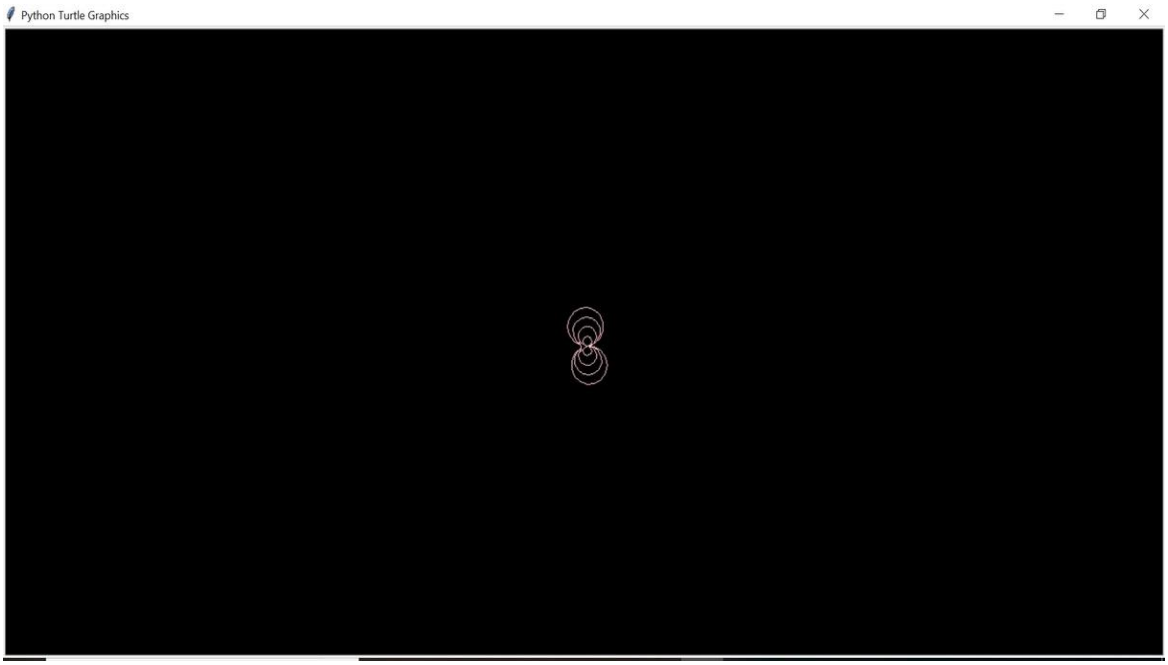


Fig. The beginning of the complex spiral

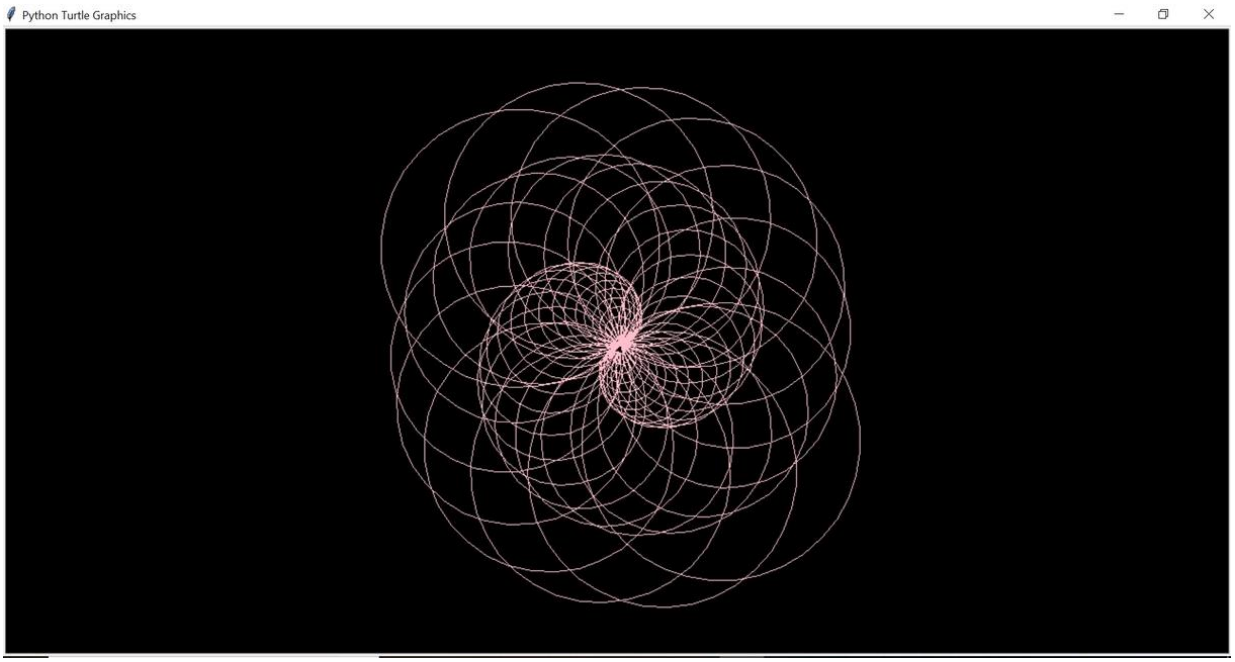


Fig. The complete complex spiral

Conclusion:

Python turtle is much useful in creating the graphical pictures. The python turtle library helps the new programmers get a feel for what programming with python is like in a fun and interactive way. It helps mainly in introducing children to the world of computers.

The main advantage of this mini project is that it is extremely simple and makes it easy to draw things to the screen. With the simple three attributes we can create different graphical diagram they are : a location, an orientation, and a pen.

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Websites:

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And Stack Overflow.