

DRAWING GEOMETRIC SHAPES USING THE TURTLE MODULE OF THE PYTHON PROGRAMMING LANGUAGE.

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Abstrakt. *The Python programming language is not limited to solving specific problems. This language allows programmers to enter new and new directions. Python is used in the following areas: Web and Internet programming, database (DB), computer game creation, graphical user interface (GUI), computer vision, rapidly developing Internet of Things (IoT) technology, etc. . This article is about the turtle method, which is a subset of the graphics part of the python programming language.*

Key words: *turtle, forward, left, penup, pendown, goto.*

INTRODUCTION

Most programming languages use controls: windows, text boxes, and buttons to interact with the user. These are commonly called graphical user interfaces (GUI). The window in which all the elements are located is the basis of the GUI. Turtle is a unique Python module that draws geometric shapes of varying complexity without writing code. We can use this module to draw various shapes by writing functions such as `turtle.forward()` and `turtle.right()` or other functions. Below are the common methods of the turtle module:

Table 1. Methods and functions for using the Turtle method.

Methods	Parameter	Task of the method
<code>Turtle()</code>	-	Creates and returns a new turtle object.
<code>forward()</code>	amount	Moves the turtle (the drawn shape) forward by the specified amount.
<code>backward()</code>	amount	Moves the turtle the drawing shape) back by the specified amount
<code>right()</code>	corner	Rotates the turtle (the drawing shape) clockwise
<code>left()</code>	corner	Rotates the turtle (shape being drawn) counterclockwise
<code>color()</code>	Color name	Turtle changes the color of the pen
<code>fillcolor()</code>	Color name	Changing the color of the turtle (the figure being drawn) is used to fill the polygon.
<code>position()</code>	-	Returns the current position
<code>goto()</code>	x, y	Move the turtle (the shape being drawn) to the x, y

Methods	Parameter	Task of the method
		position

Draw different geometric shapes using turtle. To use turtle methods and functions, we need to import turtle. Turtle comes with the Python package by default and does not need to be installed externally. As mentioned above, before we can use turtle, we need to import it. We import it like this:

```
from turtle import *
#or
import turtle
```

After importing the turtle library and giving us all the turtle functions, we need to start a new project and turtle. So, we write the following code: Using Turtle, we draw different shapes using the following programs:

```
import turtle
l = turtle.Turtle() # we use turtle's predefined function
r = 90
l.circle (r)
```

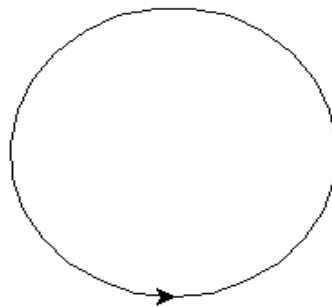


Figure 1. The result of the program

With turtle methods, you can draw different shapes and represent them in different colors. Python has many functions for coding using the Turtles library. From these, we will learn how to draw some basic shapes below.

Turtle erdamida ultiburchakni you will reduce:

```
import turtle
ish= turtle.Screen() # Let's start turtle screen
# Define a Turtle Instance
ko_pburchak = turtle.Turtle()
for i in range(6): # parties are formed
    ko_pburchak.forward(120) # moves forward 120 units per step
    ko_pburchak.left(300) # moves 300 degrees to the left at each step
```

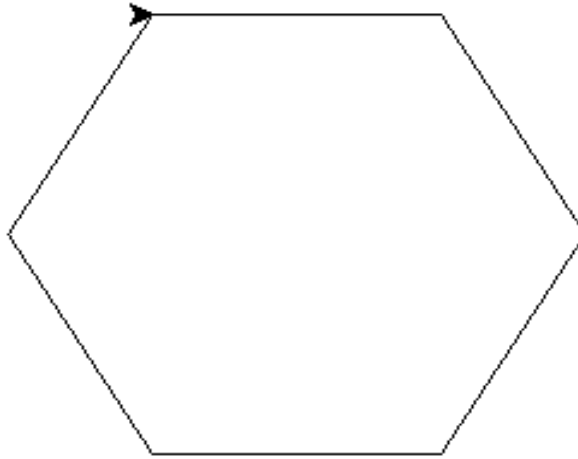


Figure 1.1. The result of the program
Code to draw a rectangle using Turtle:

```
from turtle import *  
shakl=Turtle()  
for i in range(4):  
    shakl.forward(80)  
    shakl.right(90)  
turtle.done()
```

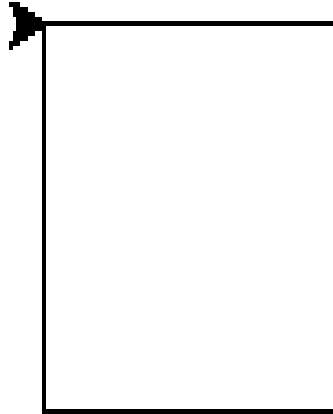


Figure 1.2. The result of the program
Draw a parallelepiped shape:

```
import turtle  
chz = turtle.Screen()  
chz.bgcolor("white")  
# launch the turtle screen  
chz.title("Turtle")  
prlpd_pen = turtle.Turtle()  
# the color of the object to be drawn
```

```
prlpd_pen.color("red")
chz = turtle.Screen()
# front view
for i in range(4):
    prlpd_pen.forward(120)
    prlpd_pen.left(90)
# lower left side
prlpd_pen.goto(70,70)
# back right shape
for i in range(4):
    prlpd_pen.forward(100)
    prlpd_pen.left(90)
# bottom right
prlpd_pen.goto(170,70)
prlpd_pen.goto(120,0)
# upper right side
prlpd_pen.goto(120,120)
prlpd_pen.goto(170,170)
# upper left side
prlpd_pen.goto(70,170)
prlpd_pen.goto(0,120)
```

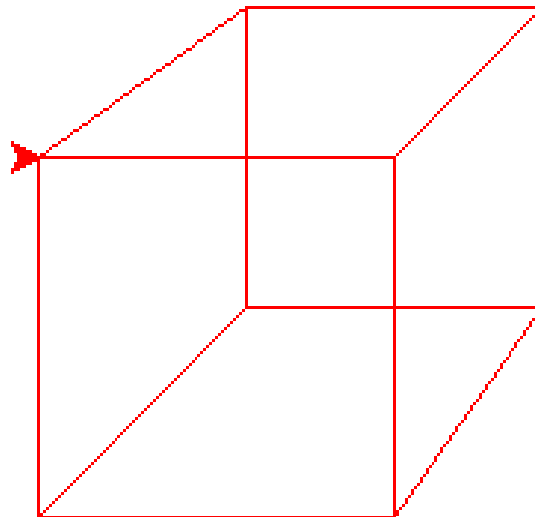


Figure 1.3. The result of the program
Drawing the shape of a parallelogram:
import turtle
paralgrm = turtle.Turtle()

```
paralgrm.speed(3) # shape drawing speed  
for i in range(2):  
    paralgrm.forward(180)  
    paralgrm.left(60) # corresponding angles  
    paralgrm.forward(100)  
    paralgrm.left(120) # corresponding angles
```

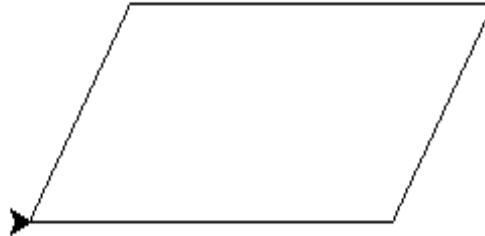


Figure 1.4. The result of the program

CONCLUSION

In general, the Python programming language has much more capabilities. This article gave you a brief idea of the capabilities of the Turtle module, and now you can easily work with it yourself.

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