PYTHON DASTURLASH TILINING TURTLE MODULIDAN FOYDALANIB GEOMETRIK SHAKLLARNI CHIZISH

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Annotatsiya. Python dasturlash tili ma'lum bir masalalarni yechish bilan chegaralanmagan. Bu til dasturchilarga yangi va yangi yo'nalishlarga kirish imkonini beradi. Python quyidagi sohalarda qo'llaniladi: Web va Internet dasturlash, kompyuter o'yinlarini yaratish, ma'lumotlar bazasi bilan ishlash (DB), computer vision, foydalanuvchilar uchun grafik interfeys (GUI), juda tez rivojlanayotgan buyumlar interneti (IoT) texnologiyasi va hokazo. Ushbu maqola python dasturlash tilining grafika bilan ishlash qismining kichik bir tarkibi bo'lgan turtle metodi haqida.

Kalit so'zlar: turtle, forward, left, penup, pendown, goto.

РИСОВАНИЕ ГЕОМЕТРИЧЕСКИХ ФИГУР С ПОМОЩЬЮ МОДУЛЯ ЧЕРЕПАХИ ЯЗЫКА ПРОГРАММИРОВАНИЯ PYTHON.

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Аннотация. Язык программирования Python не ограничивается решением конкретных задач. Этот язык позволяет программистам выходить на все новые и новые направления. Python используется в следующих областях: веб- и интернет-программирование, базы данных (БД), создание компьютерных игр, графический интерфейс пользователя (GUI), компьютерное зрение, быстро развивающаяся технология Интернета вещей (IoT) и т. д. Эта статья о методе черепахи(turtle), который является подмножеством графической части языка программирования Python.

Ключевые слова: turtle, forward, left, penup, pendown, goto.

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.

Kirish. Aksariyat dasturlash tillarida foydalanuvchi bilan o‘zaro aloqani o‘rnatish uchun boshqaruv elementlari: oyna, matnlar maydoni va tugmachalar ishlatiladi. Bular umumiy nom bilan foydalanuvchining grafik interfeysi (GUI – graphical user interface) deb ataladi. Barcha elementlar joylashadigan oyna GUIning asosi hisoblanadi. “Turtle” - bu turli murakkablikdagi hamda geometrik shakllarni kod yozgan xolda chizib beruvchi Pythonning o‘ziga xos modulidir. Bu modulni turtle.forward() va turtle.right() kabi funksiyalardan yoki boshqa funksiyalarni yozib, turli shakllarni chizish uchun ishlatishimiz mumkin. Quyida turtle modulining keng tarqalgan metodlari keltirilgan:

1-jadval. Turtle metodidan foydalanish uchun metod va funksiyalar.

Metodlar	**Parametr**	**Bajaruvchi vazifasi**
Turtle()	-	Yangi tutrle ob'ektini yaratadi va qaytaradi
forward()	miqdori	Turtleni(yani chizilayotgan shakl) belgilangan miqdorda oldinga siljitadi
backward()	miqdori	Turtleni(yani chizilayotgan shakl) belgilangan miqdorda orqaga siljitadi
right()	burchak	Turtleni(yani chizilayotgan shakl) soat yo'nalishi bo'yicha aylantiradi
left()	burchak	Turtleni(yani chizilayotgan shakl) soat sohasi farqli o'girib
color()	Rang nomi	Toshbaqa (Turtle) qalamining rangini o'zgartiradi
fillcolor()	Rang nomi	Turtlening(yani chizilayotgan shakl) rangini o'zgartirish ko'pburchakni to'ldirishda ishlatiladi
position()	-	Joriy pozitsiyani qaytaradi
goto()	x, y	Turtleni(yani chizilayotgan shakl) x, y holatiga o'tkazish

Turtle yordamida turli shakllarni chizish

Turtle metodlari va funksiyalaridan foydalanish uchun biz turtleni import qilishimiz kerak. Turtle standart bo‘lib Python to‘plami bilan birga keladi va uni tashqaridan o‘rnatish shart emas.

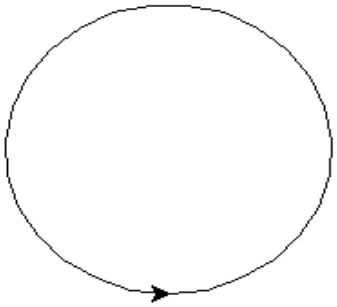
Yuqorida aytib o‘tilganidek, turtleni ishlatishdan oldin, biz uni import qilishimiz kerak. Biz uni quyidagicha import qilamiz:

```
from turtle import *
#yoki
import turtle
```

Turtle kutubxonasini import qilib, turtlening barcha funksiyalarini bizga taqdim etgandan so‘ng, biz yangi loyiha va turtleni ishga tushirishimiz kerak. Shunday qilib, biz kodni quyidagicha yozamiz:

Turtle yordamida turli xil shakllarni quyidagi dasturlar yordamida chizamiz:

```
import turtle
l = turtle.Turtle() #turtlening oldindan belgilangan funksiyasidan foydalamiz
r = 90
l.circle(r)
```

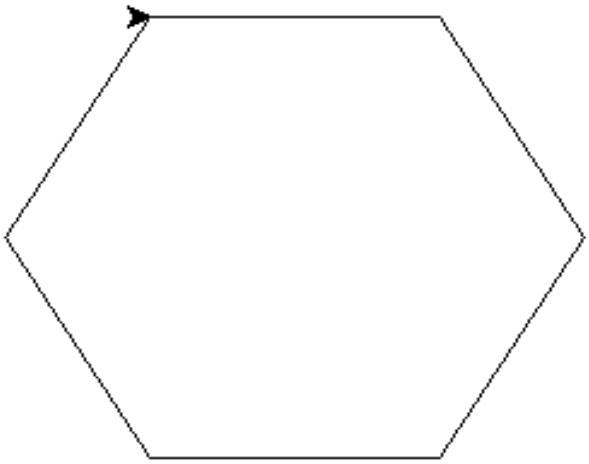


1-rasm. Dasturning natijasi

Turtle metodlari yordamida har xil shakllarni va ularni turli ranglar bilan ifodalab chizish mumkin. Pythondagi Turtlelar kutubxonasi yordamida kodlash uchun ko‘plab funksiyalar mavjud. Shulardan, quyida ba’zi asosiy shakllarni chizishni o‘rganamiz.

Turtle yordamida oltiburchakni chizish:

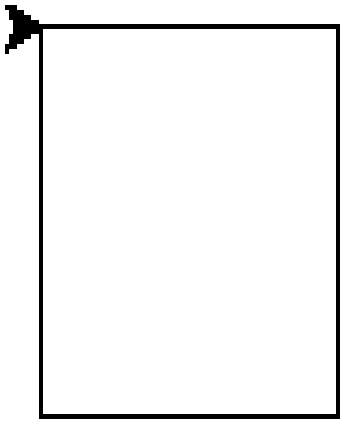
```
import turtle
ish= turtle.Screen()  #turtle screen ishga tushirib olamiz
# Define a Turtle Instance
ko_pburchak = turtle.Turtle()
for i in range(6):  # tomonlarni shakllantiriladi
ko_pburchak.forward(120)  # har bir qadamda 120 birlik oldinga siljitadi
ko_pburchak.left(300)  # har bir qadamda 300 gradus chapga siljitadi
```



1.1-rasm. Dasturning natijasi

Turtle yordamida to‘g‘ri to‘rtburchakni chizish uchun kod:

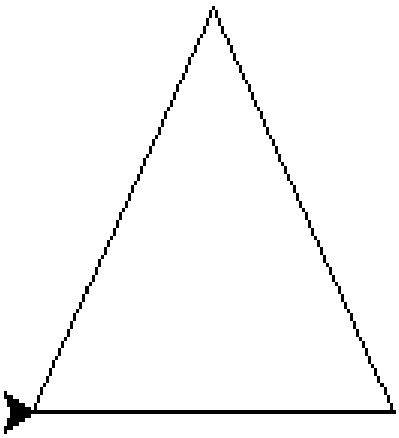
```
from turtle import *
shakl=Turtle() # to‘g‘ri to‘rtburchakni chizish
for i in range(4):
shakl.forward(80)
shakl.right(90)
turtle.done()
```



1.2-rasm. Dastur natijasi

Turtle yordamida naqsh chizish:

```
import turtle
ish= turtle.Screen()  #turtle screen ishga tushirib olamiz
uch_burchak = turtle.Turtle()
for i in range(3):  # tomonlarni shakllantiriladi
ko_pburchak.forward(90)  # har bir qadamda 120 birlik oldinga siljitadi
ko_pburchak.left(120)  # har bir qadamda 300 gradus chapga siljitadi
```

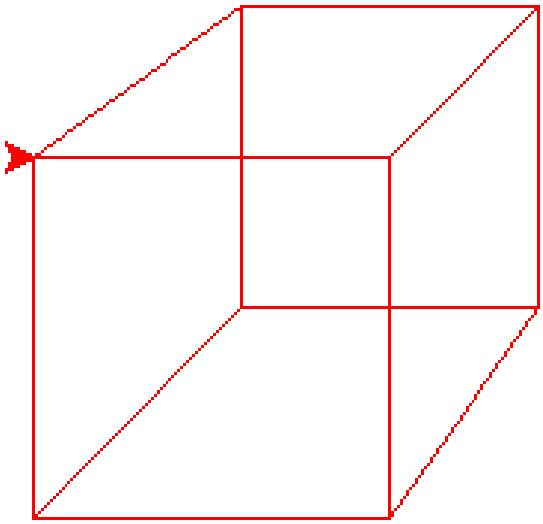


1.3-rasm. Dastur natijasi

Parallelapiped shaklini chizish:

```
import turtle
chz = turtle.Screen()
chz.bgcolor("white")
# turtle ishchi oynasini ishga tushirish
chz.title("Turtle")
prlpd_pen = turtle.Turtle()
# chiziladigan obyekt rangi
prlpd_pen.color("red")
chz = turtle.Screen()
# old tomon ko‘rinishi
for i in range(4):
prlpd_pen.forward(120)
prlpd_pen.left(90)
# pastki chap tomon
prlpd_pen.goto(70,70)
# orqa o‘ng tomon  shakli
for i in range(4):
prlpd_pen.forward(100)
prlpd_pen.left(90)
# pastki o‘ng tomon
prlpd_pen.goto(170,70)
prlpd_pen.goto(120,0)
# yuqori o‘ng tomon
prlpd_pen.goto(120,120)
prlpd_pen.goto(170,170)
# yuqori chap tomon
prlpd_pen.goto(70,170)
```

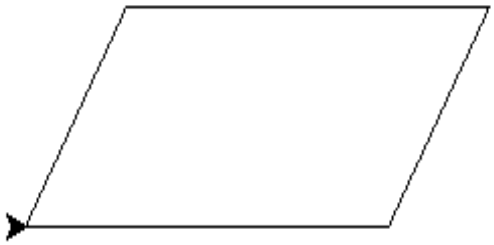
prlpd_pen.goto(0,120)



1.4-rasm. Dastur natijasi

Parallelogram shaklini chizish :

```
import turtle
paralgrm = turtle.Turtle()
paralgrm.speed(3) # shaklni chizish tezligi
for i in range(2):
paralgrm.forward(180)
paralgrm.left(60) # mos ravishdagi burchaklar
paralgrm.forward(100)
paralgrm.left(120) # mos ravishdagi burchaklar
```



1.5-rasm. Dastur natijasi

Xulosa. Umuman olganga python dasturlash tilining imkoniyatlari bundam kengroq hisoblanadi. Ushbu maqola orqali Turtle modulining imkoniyatlari haqida qisqacha tasavvurga ega bo‘ldingiz va endi, o‘zinguiz bemalol bu modul bilan ishlashingiz mumkin.

FOYDALANILGAN ADABIYOTLAR.

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