رفیده عزت منصور

20221453055

```
import matplotlib.pyplot as plt

r=int(input("enter radius:"))
p=1-r
x=0
y=r
x_coordinates=[]
y_coordinates=[]

list1=[]
while y>x:
  if p<0:
    x=x+1
    y=y
    p=p+2*x+1
    x_coordinates.append(x)
    y_coordinates.append(y)
    l=(x,y)
    list1.append(l)


  else:
    x=x+1
    y=y-1
    p=p-2*y+2*x+1
    x_coordinates.append(x)
    y_coordinates.append(y)
    l=(x,y)
    list1.append(l)



for i in reversed(list1):
   list1.append((i[1],i[0]))
print(list1)
print("second quadrant")
list2=[]
while y>x:
  if p<0:
    x=x+1
```

```
    y=y
    p=p+2*x+1
    x_coordinates.append(x)
    y_coordinates.append(y)
    l=(-x,y)
    list2.append(l)


  else:
    x=x+1
    y=y-1
    p=p-2*y+2*x+1
    x_coordinates.append(x)
    y_coordinates.append(y)
    l=(-x,y)
    list2.append(l)



for i in reversed(list1):
   list2.append((-i[1],i[0]))
print(list2)

print("third quadrant")
list3=[]
while y>x:
  if p<0:
    x=x+1
    y=y
    p=p+2*x+1
    x_coordinates.append(x)
    y_coordinates.append(y)
    l=(-x,-y)
    list3.append(l)


  else:
    x=x+1
    y=y-1
    p=p-2*y+2*x+1
    x_coordinates.append(x)
    y_coordinates.append(y)

    l=(-x,-y)
    list3.append(l)
```

```
for i in reversed(list1):
   list3.append((-i[1],-i[0]))
print(list3)
print ("forth quadrant")
list4=[]
while y>x:
  if p<0:
    x=x+1
    y=y
    p=p+2*x+1
    x_coordinates.append(x)
    y_coordinates.append(y)
    l=(x,-y)
    list4.append(l)


  else:
    x=x+1
    y=y-1
    p=p-2*y+2*x+1
    x_coordinates.append(x)
    y_coordinates.append(y)
    l=(x,-y)
    list4.append(l)



for i in reversed(list1):
   list4.append((i[1],-i[0]))
print(list4)

plt.scatter (x_coordinates,y_coordinates,marker="o",markersize=1,
                  markerfacecolor="green")
plt.show()
```

Code + Text

```
enter radius:10
[(1, 10), (2, 10), (3, 10), (4, 9), (5, 9), (6, 8), (7, 7), (7, 7), (8, 6), (9, 5), (9, 4), (10, 3), (10, 2), (10, 1)]
second quadrant
[(-1, 10), (-2, 10), (-3, 10), (-4, 9), (-5, 9), (-6, 8), (-7, 7), (-7, 7), (-8, 6), (-9, 5), (-9, 4), (-10, 3), (-10, 2), (-10, 1)]
third quadrant
[(-1, -10), (-2, -10), (-3, -10), (-4, -9), (-5, -9), (-6, -8), (-7, -7), (-7, -7), (-8, -6), (-9, -5), (-9, -4), (-10, -3), (-10, -2), (-10, -1)]
forth quadrant
[(1, -10), (2, -10), (3, -10), (4, -9), (5, -9), (6, -8), (7, -7), (7, -7), (8, -6), (9, -5), (9, -4), (10, -3), (10, -2), (10, -1)]
```

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