Program:

```
import numpy as np
import matplotlib.pyplot as plt
from numpy.random import random
def Pi_MonteCarlo(maxItr):
    ## Square
    sqrX = [1,-1,-1,1,1]
    sqrY = [1,1,-1,-1,1]
    ## Circle
    cirX,cirY = [],[]
    for i in range(361):
        cirX.append(np.cos(np.pi*i/180))
        cirY.append(np.sin(np.pi*i/180))
    ## Inside and outside cricle
    insideX,insideY,outsideX,outsideY = [],[],[],[]
    insideCount = 0
    for i in range(maxItr):
        x = 2*(random()-0.5)
        y = 2*(random()-0.5)
        r = np.sqrt(x**2+y**2)
        if r <= 1:
            insideCount +=1
            insideX.append(x)
            insideY.append(y)
        else:
            outsideX.append(x)
            outsideY.append(y)
    piValue = 4*insideCount / maxItr
    plt.figure(figsize=(5, 5))
    plt.scatter(insideX,insideY,color='g',marker=".",s=5)
```

```
        plt.scatter(outsideX,outsideY,color='b',marker=".",s=5)
        plt.plot(sqrX,sqrY,color='y')
        plt.plot(cirX,cirY,color='r')
        plt.xlabel('x')
        plt.ylabel('y')
        plt.show()
        print(f'Approximate value of pi is {piValue}')
Pi_MonteCarlo(100000)
```

Output:

Approximate value of pi is 3.14472