

```

import math

def createBackground(maxWidth,maxHeight):

    #initialises image to white

    arrAll=[]

    arrRow=[]

    for intRows in range(maxWidth):

        for intCols in range(maxWidth):

            arrRow.append(0)

        arrAll.append(arrRow)

        arrRow=[]

    return arrAll

def drawCircle(arrPage, centreX, centreY, radius):

    for x in range(radius * -1, radius + 1):

        for y in range(radius * -1, radius + 1):

            if radius >round(math.sqrt(x**2+y**2)) :

                arrPage[round(x+centreX+400)][round(y+centreY+400)]=1

    return arrPage

def saveFile(arrAll, maxRows, maxCols,fileName,versionNum):

    myfile=open(fileName+str(versionNum)+".pbm",'w')

    myfile.write('P1' +"\n")

    myfile.write(str(maxRows)+" "+str(maxCols)+"\n")

    for intRows in range(maxRows):

        myfile.write(getArray(arrAll[intRows])+"\n")

    myfile.close()

def getArray(passedValue):

```

```
strOutString=""  
for intVal in passedValue:  
    strOutString=strOutString+str(intVal)  
return strOutString
```

```
def main():  
    arrPage = []  
    strFileName="RotatingCircle"  
    intVersionNumber = 0  
    intMaxCols=800  
    intMaxRows=800  
    for counter in range(0, 180,3):  
        arrPage = createBackground(intMaxCols,intMaxRows)  
        angle = counter  
        angleR = math.radians(angle)  
        xCoord = round(math.cos(angleR) * 240)  
        yCoord = round(math.sin(angleR) * 240)  
        xCoord1 = xCoord * -1  
        yCoord1 = yCoord * -1  
        arrPage = drawCircle(arrPage, xCoord,yCoord, 30)  
        arrPage = drawCircle(arrPage, xCoord1,yCoord1, 30)  
        saveFile(arrPage,intMaxRows, intMaxCols,strFileName, intVersionNumber)  
        intVersionNumber+=1  
        arrPage=[]  
  
if __name__ == "__main__":  
    main()
```

```
print("Programme finished")
```