

```
import math

def createBackground(maxWidth,maxHeight,r,g,b):

    arrAll=[]

    arrRow=[]

    colourByte=[]

    red=r

    green=g

    blue=b

    for intRows in range(maxHeight):

        colourByte.append(red)

        colourByte.append(green)

        colourByte.append(blue)

        for intCols in range(maxWidth):

            arrRow.append(colourByte)

        arrAll.append(arrRow)

        arrRow=[]

        colourByte = []

        if intRows < 255:

            green += 1

        elif intRows >= 255 and intRows <511:

            if intRows == 255:

                red = 255

                blue = 0

            else:

                blue += 1

                red -= 1
```

```

elif intRows >= 512 and intRows < 764:
    green -=1
else:
    blue -=1
arrRow=[]
colourByte = []
return arrAll

```

```

def drawCircle(arrPage, centreX, centreY, radius, r, g, b):
    colourByte=[]
    colourByte.append(r)
    colourByte.append(g)
    colourByte.append(b)
    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[int(x)+centreX][int(y+centreY)] = colourByte
    return arrPage

```

```

def saveToFile(Page,NameOfFile,VNum,cols,rows):
    myfile=open(NameOfFile+str(VNum)+".ppm",'w')
    myfile.write('P3' + "\n")
    myfile.write(str(cols)+" "+str(rows)+"\n")
    myfile.write(str(255)+"\n")
    for row in Page:
        for cVal in row:
            for c in cVal:

```

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        myfile.write(str(c)+' ')
    myfile.write('\n')
myfile.close()
```

```
def main():
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    strFileName="CentralCircle"
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    intFileFrame=1
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```
    intMaxCols=800
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```
    intMaxRows=800
```

```
    arrPage=createBackground(intMaxCols,intMaxRows, 255,0,0)
```

```
    arrPage = drawCircle(arrPage, int(intMaxCols/2), int(intMaxRows/2), 80, 60, 60, 160)
```

```
    saveToFile(arrPage,strFileName,intFileFrame, intMaxRows, intMaxCols)
```

```
if __name__ == "__main__":
```

```
    main()
```

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