

```
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 drawLine(arr, x1, y1, x2, y2):
```

```
    if x1 != x2:
```

```
        m = (y1 - y2)/(x1 - x2)
```

```
    if y1 == y2:
```

```
        for x in range(x1,x2):
```

```
            arr[y1][x]=1
```

```
    elif x1 == x2:
```

```
        for y in range(y1, y2):
```

```
            arr[y][x1]=1
```

```
    elif m <= 1 and m>= -1:
```

```
        for x in range(x1, x2):
```

```
            y = round(m*(x - x2) + y2)
```

```
            if y <800:
```

```
                arr[y][x]=1
```

```
    else:
```

```
        for y in range(y1, y2):
```

```
x = round((y - y2)/m + x2)

arr[y][x]=1

return arr
```

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

    myfile=open(fileName+".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="DrawLines8"

    intMaxCols=800

    intMaxRows=800

    arrPage = createBackground(intMaxCols,intMaxRows)

    arrPage = drawLine(arrPage,0,400,800,400)

    arrPage = drawLine(arrPage,400,0,400,800)

    arrPage = drawLine(arrPage,0,0,800,800)
```

```
arrPage = drawLine(arrPage,0,800,800,0)
```

```
arrPage = drawLine(arrPage,0,200,800,600)
```

```
arrPage = drawLine(arrPage,0,600,800,200)
```

```
arrPage = drawLine(arrPage,350,0,450,800)
```

```
arrPage = drawLine(arrPage,450,0,350,800)
```

```
saveFile(arrPage,intMaxRows, intMaxCols,strFileName)
```

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

```
    main()
```

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