```
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):
    startX = min(x1, x2)
    endX = max(x1, x2)
    startY = min(y1, y2)
    endY = max(y1, y2)
    if x1 != x2:
        m = (y1 - y2)/(x1 - x2 )
    if y1 == y2:


        for x in range(startX,endX):
            arr[y1][x]=1
    elif x1 == x2:
        startY = min(y1, y2)
        endY = max(y1, y2)
        for y in range(startY, endY):
            arr[y][x1]=1
```

```
    elif m <= 1 and m>= -1:
        if m <0:
            yVal=y2
        else:
            yVal=endY
        for x in range(startX, endX):
            y = round(m*(x - endX) + yVal)
            if y <800:
                arr[y][x]=1
    else:
        if m < 0:
            xVal = x2
        else:
            xVal = endX
        for y in range(startY, endY):
            x = round((y - endY)/m + xVal)
            arr[y][x]=1
    return arr


def drawShape(arr, shape):
    for intCoords in range(len(shape)-1):
        startX = shape[intCoords][0]
        startY = shape[intCoords][1]
        endX = shape[intCoords+1][0]
        endY = shape[intCoords+1][1]
        arr=drawLine(arr,startX, startY, endX, endY)
    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="Quadrilateral1"
    intMaxCols=800
    intMaxRows=800
    arrPage = createBackground(intMaxCols,intMaxRows)
    arrPage = drawShape(arrPage,[[200,200],[100,500],[400,400],[20,150],[200,200]])
    saveFile(arrPage,intMaxRows, intMaxCols,strFileName)


if __name__ == "__main__":
    main()
```

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