**Experiment No.-6**

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**Branch: BCA Section/Group: 20BCA5-B**

**Semester: 5th Date of Performance: 25.10.22**

**Subject Name: COMPUTER GRAHICS LAB Subject Code: 20CAP-316**

1. **Aim/Overview of the practical:** WAP to draw a line and rotate it by angle 45 degree about X-axis.
2. **Task to be done:**To rotate line by 45 degrees.
3. **Concept Used:**

This rotation is achieved by using the following rotation equations-

* Xnew = Xold x cosθ – Yold x sinθ
* Ynew = Xold x sinθ + Yold x cosθ

1. **Code**

**#include<graphics.h>**

**#include<stdio.h>**

**#include<conio.h>**

**#include<math.h>**

**int main()**

**{**

**int gd=DETECT,gm;**

**int pivot\_x,pivot\_y,x,y;**

**double degree,radian;**

**int rotated\_point\_x,rotated\_point\_y;**

**initgraph(&gd,&gm,"C://TURBOC3//BGI");**

**cleardevice();**

**printf("\t\t\*\*\*\*\*\*\*\*\*\*\* ROTATION \*\*\*\*\*\*\*\*\*\*\* \n");**

**printf("\n Enter an initial coordinates of the line = ");**

**scanf("%d %d",&pivot\_x,&pivot\_y);**

**printf("\n Enter a final coordinates of the line = ");**

**scanf("%d %d",&x,&y);**

**line(pivot\_x,pivot\_y,x,y);**

**printf("\n\n Now, Enter a degree = ");**

**scanf("%lf",&degree);**

**radian=degree\*0.01745;**

**rotated\_point\_x=(int)(pivot\_x +((x-pivot\_x)\*cos(radian)-(y-pivot\_y)\*sin(radian)));**

**rotated\_point\_y=(int)(pivot\_y +((x-pivot\_x)\*sin(radian)+(y-pivot\_y)\*cos(radian)));**

**setcolor(RED);**

**line(pivot\_x,pivot\_y,rotated\_point\_x,rotated\_point\_y);**

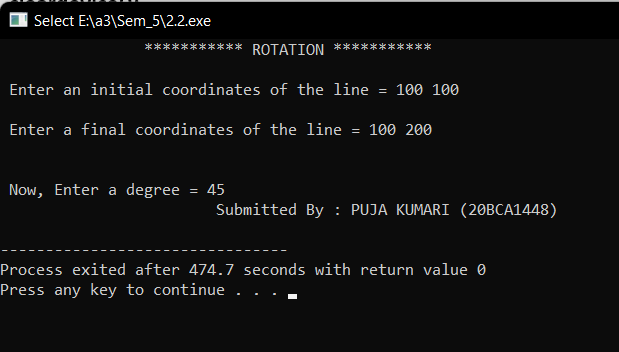
**printf("\t\t\tSubmitted By : PUJA KUMARI (20BCA1448) \n");**

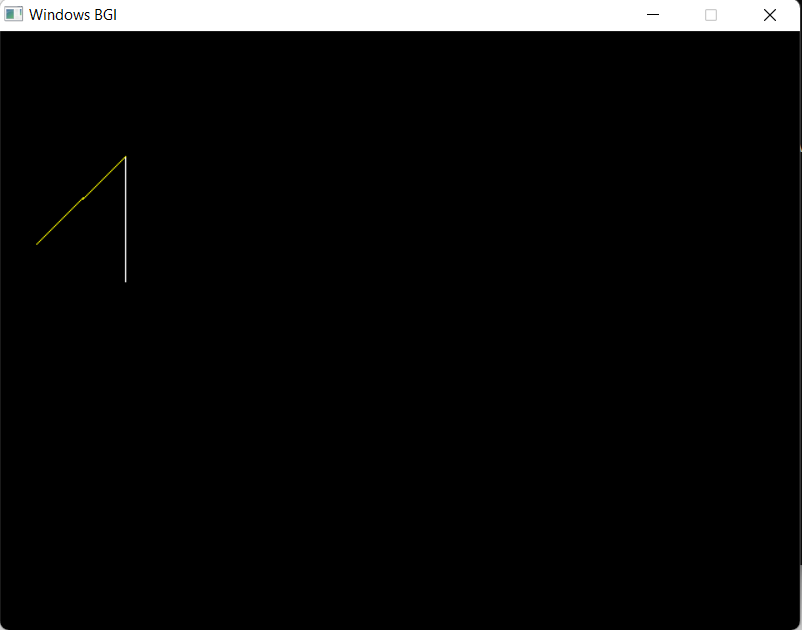
**getch();**

**closegraph();**

**}**

**4.Output**

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