**Experiment No.-9**

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

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

1. **Aim/Overview of the practical:** WAP to perform shear transformation on a circle.
2. **Task to be done:** WAP to perform shear transformation on a circle.
3. **Code :**

#include<stdio.h>

#include<graphics.h>

#include<stdlib.h>

#include<math.h>

#include<conio.h>

int x,y,r,midx,midy;

void axis();

int translation()

{

int tx,ty,xn1,yn1,xn2,yn2;

printf("\n Enter the translation:");

scanf("%d%d",&tx,&ty);

cleardevice();

outtextxy(400,100,"TRANSLATION");

axis();

xn1=x+tx;

yn1=y+ty;

circle(xn1,yn1,r);

getch();

}

int scaling()

{

float sc,r1;

printf("Enter the scaling factor");

scanf("%f",&sc);

cleardevice();

outtextxy(300,200,"SCALING");

r1=r\*sc;

axis();

circle(midx,midy,r1);

getch();

}

int rotation()

{

int ang;

float rx,xn1,yn1;

printf("\n enter the angle for rotation");

scanf("%d",&ang);

cleardevice();

outtextxy(500,200,"ROTATION");

rx=(ang\*3.14)/180;

axis();

xn1=x\*cos(rx)-y\*sin(rx);

yn1=y\*cos(rx)+x\*sin(rx);

circle(xn1,yn1,r);

getch();

}

int shearing()

{

float sh,r1;

float xn1,yn1;

printf("\n Enter the value for shearing");

scanf("%f",&sh);

cleardevice();

outtextxy(500,100,"SHEARING");

axis();

xn1=x+sh\*y;

yn1=y;

r1=r+sh\*x;

ellipse(xn1,yn1,0,360,r,r1);

getch();

}

int reflection()

{

int xn1,yn1;

cleardevice();

outtextxy(300,100,"REFLECTION");

axis();

if((x<y)^(x<y))

{

xn1=x+150;

yn1=y;

}

else

{

xn1=x;

yn1=y+150;

}

circle(xn1,yn1,r);

getch();

}

int get()

{

printf("\n Enter the Raidus(r): ");

scanf("%d",&r);

outtextxy(200,100,"ORIGINAL OBJECT");

axis();

getch();

}

int axis()

{

midx=x= getmaxx() / 2;

midy=y= getmaxy() / 2;

line(0,midy,midx\*2,midy);

line(midx,0,midx,midy\*2);

circle(midx,midy,r);

}

int main()

{

int ch,gd=DETECT,gm;

initgraph(&gd,&gm,"c:\\tc\\bgi");

get();

do

{

cleardevice();

outtextxy(10,10,"1)TRANSLATION");

outtextxy(10,20,"2)SCALING");

outtextxy(10,30,"3)ROTATION");

outtextxy(10,40,"4)SHEARING");

outtextxy(10,50,"5)REFLECTION");

outtextxy(10,60,"6)EXIT");

outtextxy(10,70,"ENTER UR CHOICE:");

scanf("%d",&ch);

switch(ch)

{

case 1:

translation();

break;

case 2:

scaling();

break;

case 3:

rotation();

break;

case 4:

shearing();

break;

case 5:

reflection();

break;

case 6:

exit(0);

}

}while(ch<6);

}

4.Output:

