***Problem - 01 : 2D translation of circle, line, triangle, rectangle, pentagon***

#include<bits/stdc++.h>

#include<graphics.h>

#include<conio.h>

using namespace std;

void find\_circle(){

int h,k,tx,ty,radius;

cout<<"Center coordinate: "; cin>>h>>k;

cout<<"Radius : "; cin>>radius;

circle(h, k, radius);

outtextxy(h+20, k+20, "Circle Before Translation");

cout<<"Enter tx and ty : ";cin>>tx>>ty;

h = h+tx; k = k+ty;

circle(h, k, radius);

outtextxy(h+20, k+20, "Circle After Translation");

}

void find\_line(){

int x1,y1,x2,y2,x3,y3,tx,ty;

cout<<"Enter 1st point x1 and y1 : ";cin>>x1>>y1;

cout<<"Enter 1st point x2 and y2 : ";cin>>x2>>y2;

line(x1,y1, x2,y2);

outtextxy(x1-20, y1-20, "Line Before Translation");

cout<<"Enter tx and ty : ";cin>>tx>>ty;

x1 = x1+tx; y1 = y1+ty;

x2 = x2+tx; y2 = y2+ty;

line(x1,y1, x2,y2);

outtextxy(x1-20, y1-20, "Line After Translation");

}

void find\_triangle(){

int x1,y1,x2,y2,x3,y3,tx,ty;

cout<<"Enter 1st point x1 and y1 : ";cin>>x1>>y1;

cout<<"Enter 1st point x2 and y2 : ";cin>>x2>>y2;

cout<<"Enter 1st point x3 and y3 : ";cin>>x3>>y3;

outtextxy(x1-40, y1-40, "Before Translation: ");

line(x1,y1, x2,y2);

line(x1,y1, x3,y3);

line(x2,y2, x3,y3);

cout<<"Enter tx and ty: "; cin>>tx>>ty;

x1+=tx; x2+=tx; x3+=tx;

y1+=ty; y2+=ty; y3+=ty;

outtextxy(x1-40, y1-40, "After Translation: ");

line(x1,y1, x2,y2);

line(x1,y1, x3,y3);

line(x2,y2, x3,y3);

}

void find\_rectangle(){

int x1,y1,x2,y2,x3,y3,x4,y4,tx,ty;

cout<<"Enter 1st point x1 and y1 : ";cin>>x1>>y1;

cout<<"Enter 1st point x2 and y2 : ";cin>>x2>>y2;

cout<<"Enter 1st point x3 and y3 : ";cin>>x3>>y3;

cout<<"Enter 1st point x4 and y4 : ";cin>>x4>>y4;

outtextxy(x1-40, y1-40, "Before Translation: ");

line(x1,y1, x2,y2);

line(x2,y2, x3,y3);

line(x3,y3, x4,y4);

line(x4,y4, x1,y1);

cout<<"Enter tx and ty: "; cin>>tx>>ty;

x1+=tx;x2+=tx;x3+=tx;x4+=tx;

y1+=ty;y2+=ty;y3+=ty;y4+=ty;

outtextxy(x1-40, y1-40, "After Translation: ");

line(x1,y1, x2,y2);

line(x2,y2, x3,y3);

line(x3,y3, x4,y4);

line(x4,y4, x1,y1);

}

void find\_pentagon(){

int x1,y1,x2,y2,x3,y3,x4,y4,x5,y5,tx,ty;

cout<<"Enter 1st point x1 and y1 : ";cin>>x1>>y1;

cout<<"Enter 1st point x2 and y2 : ";cin>>x2>>y2;

cout<<"Enter 1st point x3 and y3 : ";cin>>x3>>y3;

cout<<"Enter 1st point x4 and y4 : ";cin>>x4>>y4;

cout<<"Enter 1st point x5 and y5 : ";cin>>x5>>y5;

outtextxy(x1-40, y1-40, "Before Translation: ");

line(x1,y1, x2,y2);

line(x2,y2, x3,y3);

line(x3,y3, x4,y4);

line(x4,y4, x5,y5);

line(x5,y5, x1,y1);

cout<<"Enter tx and ty: "; cin>>tx>>ty;

x1+=tx;x2+=tx;x3+=tx;x4+=tx;x5+=tx;

y1+=ty;y2+=ty;y3+=ty;y4+=ty;y5+=ty;

outtextxy(x1-40, y1-40, "After Translation: ");

line(x1,y1, x2,y2);

line(x2,y2, x3,y3);

line(x3,y3, x4,y4);

line(x4,y4, x5,y5);

line(x5,y5, x1,y1);

}

int main(){

///graphics init

int gd = DETECT,gm;

initgraph(&gd, &gm, "C:\\TC\\BGI");

while(1){

cout<<"Press \n1.Circle \n2.Line \n3.Triangle \n4.Rectangle \n5.Pentagon \n6.Clear The Screen \n7.Exit \nChoice = ";

int value; cin>>value;

if(value == 1) {find\_circle(); }

else if(value == 2) find\_line();

else if(value == 3) find\_triangle();

else if(value == 4) find\_rectangle();

else if(value == 5) find\_pentagon();

else if(value == 6) cleardevice();

else return 0;

cout<<endl;

}

///graphics close

getch();

closegraph();

return 0;

}













