



### Experiment No. 10

Aim: To develop programs for making animations such as

#### Objective:

Draw an object and apply various transformation techniques to this object. Translation, scaling and rotation is applied to object to perform animation.

#### Theory:

- ☐ For moving any object, we incrementally calculate the object coordinates and redraw the picture to give a feel of animation by using for loop.
- ☐ Suppose if we want to move a circle from left to right means, we have to shift the position of circle along x-direction continuously in regular intervals.
- ☐ The below programs illustrate the movement of objects by using for loop and also using transformations like rotation, translation etc.
- ☐ For windmill rotation, we use 2D rotation concept and formulas.

#### Program:

```
#include <graphics.h>
```

```
#include <stdlib.h>
```

```
#include <stdio.h>
```

```
#include <malloc.h>
```

```
#include <dos.h>
```

```
#include <conio.h>
```

```
int xasp,yasp,gdriver = VGA, gmode=VGAMED, errorcode;
```

```
struct pos
```

```
{
```

```
int x;
```

```
int y;
```

```
};
```

```
struct face
```

```

{
    int radius;

    struct pos posiΘon;

    int mood;

};

typedef struct face face;

face *face1;

void getposiΘon()
{
    printf("Enter X Co-ordinate:");

    scanf("%d",&face1->posiΘon.x);

    printf("Enter X Co-ordinate:");

    scanf("%d",&face1->posiΘon.y);

}

void drawface()
{
    char ch='x';

    int i=0,x,y,color,r,imgsize,dif;

    x=face1->posiΘon.x=320;

    y=face1->posiΘon.y=180;

    face1->radius=150;

    color=15;

    r=face1->radius;

    setbkcolor(0);

    getaspectraΘo(&xasp,&yasp);

    setcolor(8);

```

```

circle(x,y,face1->radius);

setfillstyle(1,color);

floodfill(x,y,getcolor());

draweyes(face1);

drawhair(face1);

drawmouth(face1);

drawnose(face1);
}

drawnose()
{
int i,x,y,r;

x=face1->position.x;

y=face1->position.y;

r=face1->radius;

setcolor(0);

for(i=0;i<2;i++)
{
arc(x-160-i,y-r/4,340-i,10,r);

line(x-20,y+4+i,x+20,y+10+i);

}

}

draweyes()
{
int i,x1,x2,y1,y2,r;

setcolor(0);

r=face1->radius;

```

```

x1=face1->posiΘon.x-r/2;

y1=face1->posiΘon.y-r/4;

x2=face1->posiΘon.x+r/2;

y2=face1->posiΘon.y-r/4;

setaspectraΘo(xasp/2,yasp);

arc(x1,y1-r/8,40,140,r/4);//leŌ eyebrow

arc(x1,y1-r/8+1,40,140,r/4);//leŌ eyebrow

arc(x1,y1-r/8+2,40,140,r/4);//leŌ eyebrow

setaspectraΘo(xasp,yasp);

for(i=0;i<2;i++)

{

arc(x1,y1+i+5,40,140,r/4); //upper leŌ eye

arc(x1,y1-r/5+i,220,320,r/4); //lower leŌ eye

}

circle(x1,y1-r/12,r/10);//leŌ pupul

señillstyle(1,0);

floodfill(x1,y1-r/10,getcolor());

señillstyle(1,WHITE);

floodfill(x1-15,y1-r/6,getcolor());

setaspectraΘo(xasp/2,yasp);

arc(x2,y2-r/8,40,140,r/4);//right eyebrow

arc(x2,y2-r/8+1,40,140,r/4);//right eyebrow

arc(x2,y2-r/8+2,40,140,r/4);//right eyebrow

setaspectraΘo(xasp,yasp);

for(i=0;i<2;i++)

{

```

```

arc(x2,y2+i+5,40,140,r/4);//upper right eye

arc(x2,y2-r/5+i,220,320,r/4);//lower right eye

}

circle(x2,y2-r/12,r/10);//right pupil

señillstyle(1,0);

floodfill(x2,y2-r/12,getcolor());

señillstyle(1,WHITE);

floodfill(x2-15,y2-r/6,getcolor());

}

drawmouth()

{

int x,y,r,i;

x=face1->posiΘon.x;

y=face1->posiΘon.y+(face1->radius/1.5);

r=face1->radius;

setcolor(BLACK);

if((face1->mood)==1)

for(i=0;i<4;i++)

arc(x,y-r/2+i,220,320,r/2);//make happy

if((face1->mood)==0)

for(i=0;i<4;i++)

arc(x,y-i,40,140,r/2);//make sad

}

drawhair()

{ int x,y,r;

setcolor(8);

```

```

setaspectraTheta(xasp,yasp/1.5);

r=face1->radius;

x=face1->posiTheta.x-r/2;

y=face1->posiTheta.y-r/3;

arc(x,y,34,225,100);

arc(x+r,y,314,138,100);

setfillstyle(1,RED);

floodfill(x,y-70,getcolor());

floodfill(x+r,y-70,getcolor());

setaspectraTheta(xasp,yasp);

}

void main(void)

{

int i=0;

initgraph(&gdriver, &gmode,"C:\\TC\\BGI");

while(!kbhit())

{

if((i%2)==1)

{

setvisualpage(1);

setactovepage(0);

clearviewport();

face1->mood=0;

drawface();

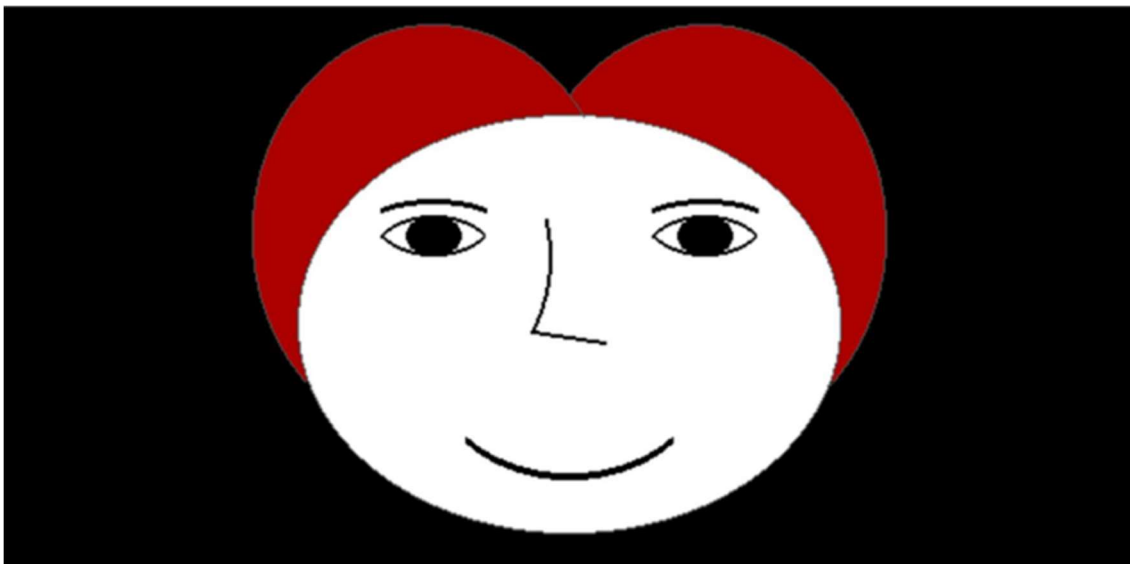
delay(1000);

}

```

```
else  
{  
    setvisualpage(0);  
    setacθvepage(1);  
    clearviewport();  
    face1->mood=1;  
    drawface();  
    delay(300);  
}  
i++;  
}  
getch();  
closegraph();  
}
```

### **Results and Conclusion:**



## Conclusion - Comment on :

### 1. Importance of story building:

Creating a smiley face using C graphics is a fun and creative way to explore the importance of story building in a visual context. Story building can apply to graphic representations just as it does to written or spoken narratives. This visual representation of a smiley face illustrates the importance of story building in a graphical context. Even a simple image like a smiley face can convey emotions and engage the viewer.

### 2. Defining the basic character of story:

Setting: The setting for this story is a computer graphics environment where we can create visual representations. It could be a programming environment or a canvas where you can draw and display graphics.

Protagonist: In this context, the protagonist is the programmer or graphic artist who is using C graphics to build a smiley face. They are the ones creating the graphical representation.

Objective/Goal: The objective or goal of the story is to convey the importance of storytelling and creative expression through visual elements, specifically by drawing a smiley face.

Conflict/Challenge: The primary challenge in this story may be the creative process itself. The protagonist needs to use their skills and creativity to craft an engaging and expressive smiley face using C graphics.

Resolution: The resolution comes when the protagonist successfully creates the smiley face, effectively conveying a positive and engaging message. The smiley face represents the importance of storytelling through visual art.

Themes: The central themes of this story are creativity, expression, and the power of visual communication. It highlights how even a simple graphical representation can tell a story and evoke emotions.

Moral/Lesson: The moral or lesson of the story could be that creativity knows no bounds, and even simple graphics can be used to convey a message or story. It emphasizes the importance of artistic expression and creative communication.

Audience: The story is targeted at individuals interested in graphic design, programming, and storytelling through visual art. It may also appeal to those who appreciate the simplicity and universality of smiley faces as a form of communication. These basic character elements can serve as a foundation for developing a story that effectively conveys the importance of storytelling through a smiley face created using C graphics.



