Report of Mini-project On

Title

Submitted in partial fulfillment of the requirements of the Mini project in the
Computer Graphics Lab
of
Semester III, Second Year Artificial Intelligence and Data Science

By

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CERTIFICATE

This is to certify that the Mini Project entitled **"Ganpati Bappa"** is submitted by

Aniruddh Sawant(Roll No-52),Siddhi Gaikwad(Roll No-10),Ninad Patil(Roll No-42) for the subject of Computer Graphics Lab in the Department of Artificial Intelligence and Data Science as a record of work done by him/her under our supervision and guidance.

Internal Examiner

Guide
Deputy HOD: Sejal D'mello

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• Introduction:

To display a picture of any size on a computer screen is a difficult process. Computer graphics are used to simplify this process. Various algorithms and techniques are used to generate graphics in computers.

The title of our project is Ganpati Bappa which consists of a rectangular frame with graphics generated picture of bappa. It also contains our group members name.

We are using graphics to create the lord ganesha's picture . In this project we did use different different graphics function for drawing, for rectangular frame we used rectangle function for drawing bappa ellipse function is used.

• CG Concepts:

a. Output primitives:

The Primitives are the simple geometric functions that are used to generate various Computer Graphics required by the User. Some most basic Output primitives are point-position(pixel), and a straight line. However different Graphic packages offers different output primitives like a rectangle, conic section, circle, spline curve or may be a surface.

Once it is specified what picture is to be displayed, various locations are converted into integer pixel positions within the frame buffer and various functions are used to generate the picture on the two- dimensional co-ordinate system of output display.

The different output primitive used in our graphic animations are as follows:

- line() : A line in computer graphics is illumination of different pixels in between two specified points or pixels. There are various line drawing algorithm in computer graphics like DDA algorithm, Bresenahem's line drawing algorithm. But in our code, we are not using any algorithm to draw line but we are using a function called line() to draw a line, we specify the points (or pixels) in the function itself as you can see in the program.

Syntax: Let the points be A(x1, y1) and point B(x2,y2), then the line can be drawn as line(x1,y1,x2,y2);

- ellipse():Ellipse is used to draw an ellipse (x,y) are coordinates of center of the ellipse, stangle is the starting angle, end angle is the ending angle, and fifth and sixth parameters specifies the X and Y radius of the ellipse. To draw a complete ellipse strangles and end angle should be 0 and 360 respectively.

b. Graphic functions:

There are some predefined graphic functions used in a program. These functions are present in the graphics library. It is imported in the program with import<graphics.h>. We can use them to make our programs easy. So here are the list of Computer Graphics functions present in our program.

- line(): It is used to draw line on the screen
  Syntax: line(x1,y1,x2,y2) Example: In this program, this function is used very often.

- rectangle(): It is used to draw a rectangle. Coordinates of left top and right bottom corner are required to draw the rectangle. left specifies the X-coordinate of top left corner, top specifies the Y-coordinate of top
  left corner, right specifies the X-coordinate of right bottom corner, bottom specifies the Y-coordinate of right bottom corner.

- ellipse():The header file graphics.h contains ellipse() function which is described below :

void ellipse(int x, int y, int start_angle, int end_angle, int x_radius, int y_radius)
In this function x, y is the location of the ellipse. x_radius and y_radius decide the radius of form xandy.start_angle is the starting point of angle and end_angle is the ending point of angle. The value of angle can vary from 0 to 360 degree.

- setcolor(): This function is used to set color of the objects which is to be drawn after this setcolor line.
  Syntax: setcolor(COLOR);
  Example: In this program to draw the line we for the ground we have used setcolor(GREEN);

- initgraph():initgraph initializes the graphics system by loading a graphics driver from disk (or validating a registered driver), and putting the system into graphics mode.To start the graphics system, first call the initgraph function. initgraph loads the graphics driver and puts the system into graphics mode. You can tell initgraph to use a particular graphics driver and mode, or to autodetect the attached video adapter at run time and pick the corresponding driver.

- closegraph(): It is used to close the graphics mode. Syntax: closegraph();

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d. Stages in the program:

There are different stages in the output of this program. They are as follows:

- 1st stage: The 1st stage of the program is making the rectangular frame of the screen. In this stage we create a frame of three colours and also we write our name in the bottom of the frame .In this stage we used rectangle function to make the frame and we used red ,green and yellow colour

- 2nd stage: The 2nd stage of the program is to create the tummy and trunk of bappa. To do so we have used the ellipse function which creates the curved ellipse as a tummy and trunk . In this stage we used yellow colour for the tummy and trunk .

- 3rd stage: The 3rd stage of the program is to create the leg and. To do so we have used the ellipse function which creates the curved ellipse as a leg and head . In this stage we used yellow colour for the leg and head.

- 4th stage: The 4th stage of the program is to create the leg and crown and eye. To do so we have used the ellipse function which creates the curved ellipse as a crown and eye . In this stage we used yellow colour for the crown and eye.

- 5th stage: The 5th stage of the program is for making the background text . We did use red for "**GANPATI**" , yellow for "**BAPPA**" ,red for "**MORYA**".

- **3. Code**

a. Source code:

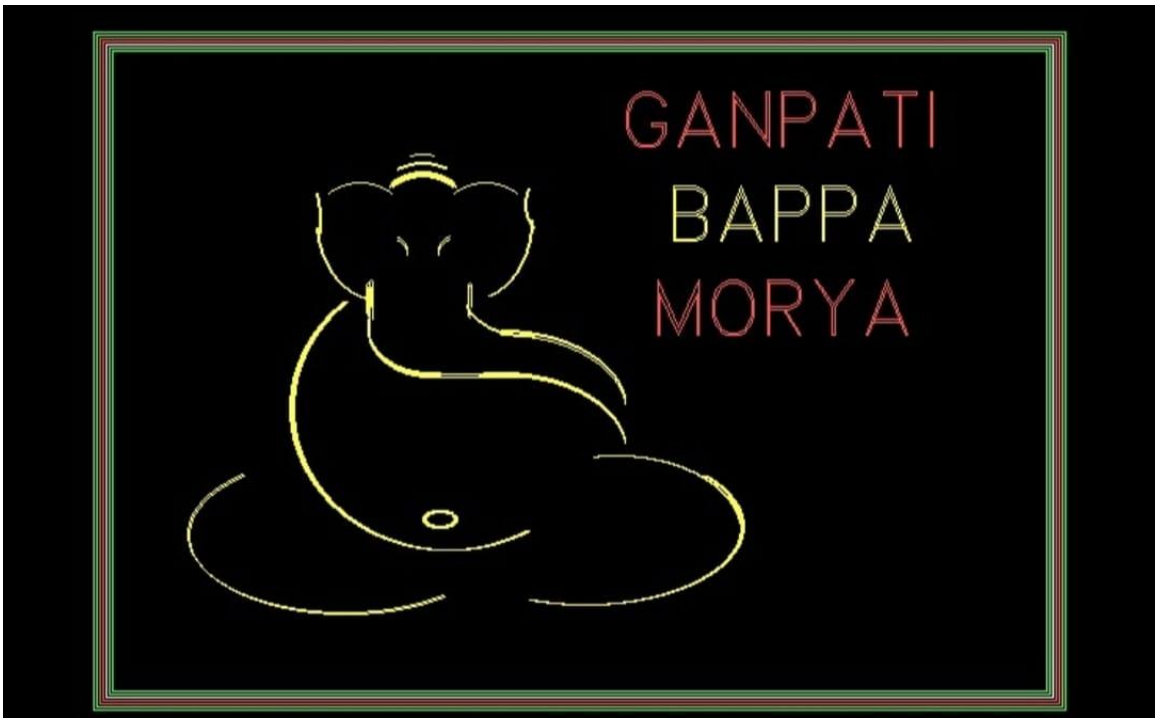
```
#include<dos.h>
#include<conio.h>
#include<graphics.h>
#include<stdio.h>
void main()
{
clrscr();
int gm,gd=DETECT;
initgraph(&gd,&gm,"c:\\turboc3\\bgi");
//-------------full body rectangle frame----------//
setcolor(10);
rectangle(10,10,630,442);
rectangle(12,12,628,440);
delay(300);

setcolor(12);
rectangle(14,14,626,438);
rectangle(16,16,624,436);
delay(300);

setcolor(15);
rectangle(18,18,622,434);

setcolor(10);
rectangle(20,20,620,432);
rectangle(22,22,618,430);
delay(300);

setcolor(10);
```

```
settextstyle(7,0,2);
outtextxy(300,450,"-:-siddhi aniruddh ninad");

setcolor(YELLOW);
//--------------tummy-------------//
ellipse(235,250,130,300,100,90);
ellipse(236,250,130,300,100,90);
ellipse(237,250,130,300,100,90);
ellipse(238,250,130,300,100,90);
delay(300);
//-------------trunk--------------//
ellipse(185,180,550,290,0,10);
ellipse(186,182,550,290,0,10);
ellipse(187,188,550,290,0,20);

ellipse(225,200,170,280,40,30);
ellipse(225,199,170,280,40,30);
ellipse(225,198,170,280,40,30);
ellipse(225,197,170,280,40,30);

ellipse(250,180,550,290,0,10);
ellipse(250,182,550,290,0,10);
ellipse(270,250,6,90,80,50);
ellipse(270,251,6,90,80,50);
ellipse(270,253,6,90,80,50);
ellipse(285,173,200,280,40,30);
ellipse(285,174,200,280,40,30);

ellipse(260,229,0,360,40,1);
ellipse(270,277,9,100,80,50);
ellipse(270,278,9,100,80,50);
ellipse(270,279,9,100,80,50);
delay(500);
//_____________________________________//
//----------------ears----------------//
ellipse(192,130,545,260,40,51);
ellipse(193,130,545,260,40,51);
delay(500);

ellipse(114,130,350,380,40,51);
```

```
ellipse(115,130,350,380,40,51);
ellipse(180,157,420,480,40,51);
delay(500);

ellipse(250,130,290,360,40,51);
ellipse(249,130,290,360,40,51);
delay(500);

ellipse(326,120,160,210,40,30);
ellipse(325,120,160,210,40,30);
ellipse(260,157,420,480,40,51);
delay(500);
//_____legs_____//
ellipse(170,330,130,310,100,50);
ellipse(171,331,130,310,100,50);
delay(500);


ellipse(343,330,9,100,80,50);
ellipse(344,330,9,100,80,50);
delay(500);
//----------tummy point----------//
ellipse(325,325,250,400,100,50);
ellipse(324,325,250,400,100,50);
ellipse(323,325,250,400,100,50);
delay(500);

//----------CROWN----------//
ellipse(230,320,40,30,10,5);
ellipse(230,321,40,30,10,5);
ellipse(231,320,40,30,10,5);
ellipse(231,321,40,30,10,5);
ellipse(232,320,40,30,10,5);
ellipse(232,321,40,30,10,5);
delay(500);

ellipse(220,150,420,480,40,51);
ellipse(220,151,420,480,40,51);
ellipse(219,152,420,480,40,51);
ellipse(219,153,420,480,40,51);
```

```
ellipse(221,152,420,480,40,51);
ellipse(221,153,420,480,40,51);
delay(500);
//_____________eyes_____________//
ellipse(200,150,0,70,10,10);
ellipse(200,152,0,70,10,10);
ellipse(240,150,98,180,10,10);
ellipse(240,152,98,180,10,10);
delay(400);
//_____________________________//
ellipse(220,155,430,470,45,61);
delay(500);
ellipse(220,154,430,470,45,61);
delay(500);
ellipse(220,149,440,460,45,61);
delay(500);

//_____________write text_____________//
setcolor(12);
settextstyle(SANS_SERIF_FONT,HORIZ_DIR,6);
outtextxy(350,30,"GANPATI");
delay(200);

setcolor(14);
settextstyle(SANS_SERIF_FONT,HORIZ_DIR,6);
outtextxy(380,90,"BAPPA");
delay(200);

setcolor(12);
settextstyle(SANS_SERIF_FONT,HORIZ_DIR,6);
outtextxy(370,150,"MORYA");
delay(250);

getch();
```

b. Output:


GANPATI
BAPPA
MORYA

4.Conclusion

In this project, first we created a rectangular frame of red , green & yellow colour and then we used ellipse function for create the body of the bappa .We have already given the coordinates to ellipse and rectangle in the program . When we compile and run the program first we can see the frame and then the bappa's images generated by graphics .And at the end we can see the text as " **GANPATI BAPPA MORYA** " .