Graphics (graphics.h) - C Programming

C Graphics programming is very easy and interesting. You can use graphics programming for developing your games, in making projects, for animation etc. It's not like traditional C programming in which you have to apply complex logic in your program and then you end up with a lot of errors and warnings in your program. Graphics programming in C used to drawing various geometrical shapes (rectangle, circle eclipse etc.), use of mathematical function in drawing curves, coloring an object with different colors and patterns and simple animation programs like jumping ball and moving cars.

Set Up in Code Blocks

Go through the following link to see how to set up code blocks to run graphics programs.

https://www.youtube.com/watch?v=eP44vFIWYws

This link below is to download various files as shown in the video like graphics.h etc

https://drive.google.com/file/d/0B3gwyEPS7LFmR3NyRTBmUlZzS00/view

In C graphics programming you have to use standard library functions to get your task done. Just you pass arguments to the functions and it's done.

Firstly, you should know the function initgraph which is used to initialize the graphics mode. To initialize graphics mode, we use initgraph function in our program.

initgraph function is present in "graphics.h" header file, so your every graphics program should include "graphics.h" header file.

We will discuss initgraph with the help of the following sample program:

Sample graphics code

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

```
#include<conio.h>
int main()
{
  int gd = DETECT, gm;

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

  getch();
  closegraph();
  return 0;
}
```

This program initializes graphics mode and then closes it after a key is pressed.

To begin with we have declared two variables of int type gd and gm for graphics driver and graphics mode respectively, you can choose any other variable name as well. DETECT is a macro defined in "graphics.h" header file, then we have passed three arguments to initgraph function first is the address of gd, second is the address of gm and third is the path where your BGI files are present (you have to adjust this accordingly where you Turbo C compiler is installed).

Initgraph function automatically decides an appropriate graphics driver and mode such that maximum screen resolution is set, getch helps us to wait until a key is pressed, closegraph function closes the graphics mode, and finally return statement returns a value 0 to main indicating successful execution of the program.

Functions of graphics.h

Click on any function to check how it works

arc
bar
bar3d

circle
cleardevice
closegraph
drawpoly
ellipse
fillellipse
fillpoly
floodfill
getarccords
getbkcolor
getcolor
getdrivername
getimage
getmaxcolor
getmaxx
getmaxy
getpixel
getx
gety
graphdefaults
grapherrormsg
imagesize
line
lineto
linerel
moveto
moverel
outtext
outtextxy
pieslice
putimage
putpixel
rectangle
sector
setbkcolor
setcolor
setfillstyle
setlinestyle
settextstyle
setviewport
textheight
textwidth

Colors in C Graphics Programming

There are 16 colors declared in graphics.h header file. We use colors to set the current drawing color, change the color of background, change the color of text, to color a closed shape etc (Foreground and Background Color). To specify a color, we

can either use color constants like setcolor(RED), or their corresponding integer codes like setcolor(4). Below is the color code in increasing order.

CONSTANT	VALUE	BACKGROUND?	FOREGROUND?
BLACK	0	Yes	Yes
BLUE	1	Yes	Yes
GREEN	2	Yes	Yes
CYAN	3	Yes	Yes
RED	4	Yes	Yes
MAGENTA	5	Yes	Yes
BROWN	6	Yes	Yes
LIGHTGRAY	7	Yes	Yes
DARKGRAY	8	NO	Yes
LIGHTBLUE	9	NO	Yes
LIGHTGREEN	10	NO	Yes
LIGHTCYAN	11	NO	Yes
LIGHTRED	12	NO	Yes
LIGHTMAGENTA	13	NO	Yes
YELLOW	14	NO	Yes
WHITE	15	NO	Yes
BLINK	128	NO	*

***** To display blinking characters in text mode, add BLINK to the foreground color. (Defined in conio.h)

C graphics programs

- C graphics functions
- draw shapes
- Moving car
- Smiling face animation
- Paint program in c
- Press me button game
- bar chart
- pie chart
- 3d bar chart
- captcha
- Circles in circles
- Countdown
- Web browser program
- Traffic Light Simulation
- Mouse pointer restricted in circle
- Captcha program

Assignment Questions

1. Write a Program in C to draw the various shapes like line, circle, rectangle, square, arc, semi-circle, pie chart and bar chart using Switch statement.

2. Draw a Nature Scenery using C graphics functions which should contain different objects like Sun, Mountains tress etc. as per your choice.

3. Using different graphics functions available for text formatting in C-Language, write a C program for displaying text in different sizes, different colors and different font styles.

4. Different graphic Functions are available in C-Language for filling a given object with colors. Using the graphic functions, write a C program for filling various closed objects with different colors.

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