Computer Graphics : Moving Car using C

Animation Using C

C Graphics programming is very easy and interesting. We can use graphics programming for developing our games, in making projects, for animation etc.In C graphics programming we have to use standard library functions to get the task done. Just you pass arguments to the functions and it's done. The function initgraph is used to initialize the graphics mode . initgraph function is present in "graphics.h" header file, so your every graphics program should include "graphics.h" header file.

Functions Used :

1) initgraph Function :

initgraph initializes the graphics system by loading a graphics driver from disk 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.

Normally, initgraph loads a graphics driver by allocating memory for the driver, then loading the appropriate .BGI file from disk.

pathtodriver specifies the directory path where initgraph looks for graphics drivers. initgraph first looks in the path specified in pathtodriver, then (if they are not there) in the current directory.

*graphdriver is an integer that specifies the graphics driver to be used.

Declaration : void initgraph(int *graphdriver, int *graphmode, char *pathtodriver);

2) Clear Device :

Cleardevice function clears the screen in graphics mode and sets the current position to (0,0). Clearing the screen consists of filling the screen with current background color.

Declaration : void cleardevice();

3) Setbkcolor Function :

Setbkcolor function changes current background color e.g. setbkcolor(YELLLOW) changes the current background color to YELLOW.

Remember that default drawing color is WHITE and background color is BLACK.

Declaration : void setbkcolor(int color);

4) getmaxx Function :

getmaxx function returns the maximum X coordinate for current graphics mode and driver.

Declaration : int getmaxx();

5) getmaxy Function :

getmaxy function returns the maximum Y coordinate for current graphics mode and driver.

Declaration : int getmaxy();

6) Putpixel Function :

putpixel function plots a pixel at location (x, y) of specified color.

For example,if we want to draw a GREEN color pixel at (35, 45) then we will write

putpixel(35, 35, GREEN);

in our c program, putpixel function can be used to draw circles, lines and ellipses using various algorithms.

Declaration : void putpixel(int x, int y, int color);

7) Line Function :

Line function is used to draw a line from a point(x1,y1) to point(x2,y2) i.e. (x1,y1) and (x2,y2) are end points of the line.

Declaration : void line(int x1, int y1, int x2, int y2);

8) Rectangle Function :

Rectangle function 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.

Declaration : void rectangle(int left, int top, int right, int bottom);

9) Circle Function :

Circle function is used to draw a circle with center (x,y) and third parameter specifies the radius of the circle.

Declaration : void circle(int x, int y, int radius);

10) Ellipse Function :

Ellipse Function 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.

Declaration : void ellipse(int x, int y, int stangle, int endangle, int xradius, int yradius);

11) Arc Function :

Arc function is used to draw an arc with center (x,y) and stangle specifies starting angle, endangle specifies the end angle and last parameter specifies the radius of the arc. Arc function can also be used to draw a circle but for that starting angle and end angle should be 0 and 360 respectively.

Declaration : void arc(int x, int y, int stangle, int endangle, int radius);

12) Pieslice Function :

pieslice() draws and fills a pie slice with center at (x, y) and given radius r. The slice travels from s_angle to e_angle which are starting and ending angles for the pie slice. The angles for pie-slice are given in degrees and are measured counterclockwise.

Declaration : void pieslice(int x, int y, int s_angle,int e_angle, int r);

13) Setcolor Function :

In Turbo Graphics each color is assigned a number. Total 16 colors are available. Strictly speaking number of available colors depends on current graphics mode and driver.For Example :- BLACK is assigned 0, RED is assigned 4 etc. setcolor function is used to change the current drawing color.e.g. setcolor(RED) or setcolor(4) changes the current drawing color to RED.

Remember that default drawing color is WHITE.

Declaration : void setcolor(int color);

14) Fillellipse Function :

x and y are coordinates of center of the ellipse, xradius and yradius are x and y radius of ellipse respectively.

Declaration : void fillellipse(int x, int y, int xradius, int yradius);

15) setfillstyle function :

setfillstyle function sets the current fill pattern and fill color.

Declaration : void setfillstyle(int pattern, int color);

16) floodfill function

floodfill function is used to fill an enclosed area. Current fill pattern and fill color is used to fill the area.(x, y) is any point on the screen if (x,y) lies inside the area then inside will be filled otherwise outside will be filled,border specifies the color of boundary of area. To change fill pattern and fill color use setfillstyle.

Declaration : void floodfill(int x, int y, int border);

17) sin function :

The C library function double sin(double x) returns the sine of a radian angle x.

Declaration : double sin(double x)

18) cos function :

The C library function double cos(double x) returns the cosine of a radian angle x.

Declaration : double cos(double x)

19) delay Function :

delay function is used to suspend execution of a program for a particular time the parameter are number of milliseconds (1 second = 1000 milliseconds).

Delay in C: delay function is used to suspend execution of a program for a particular time.

To use delay function in your program you should include the "dos.h" header file which is **not** a part of standard C library.

Declaration : void delay(unsigned int);

20) getch function :

It reads also a single character from keyboard.

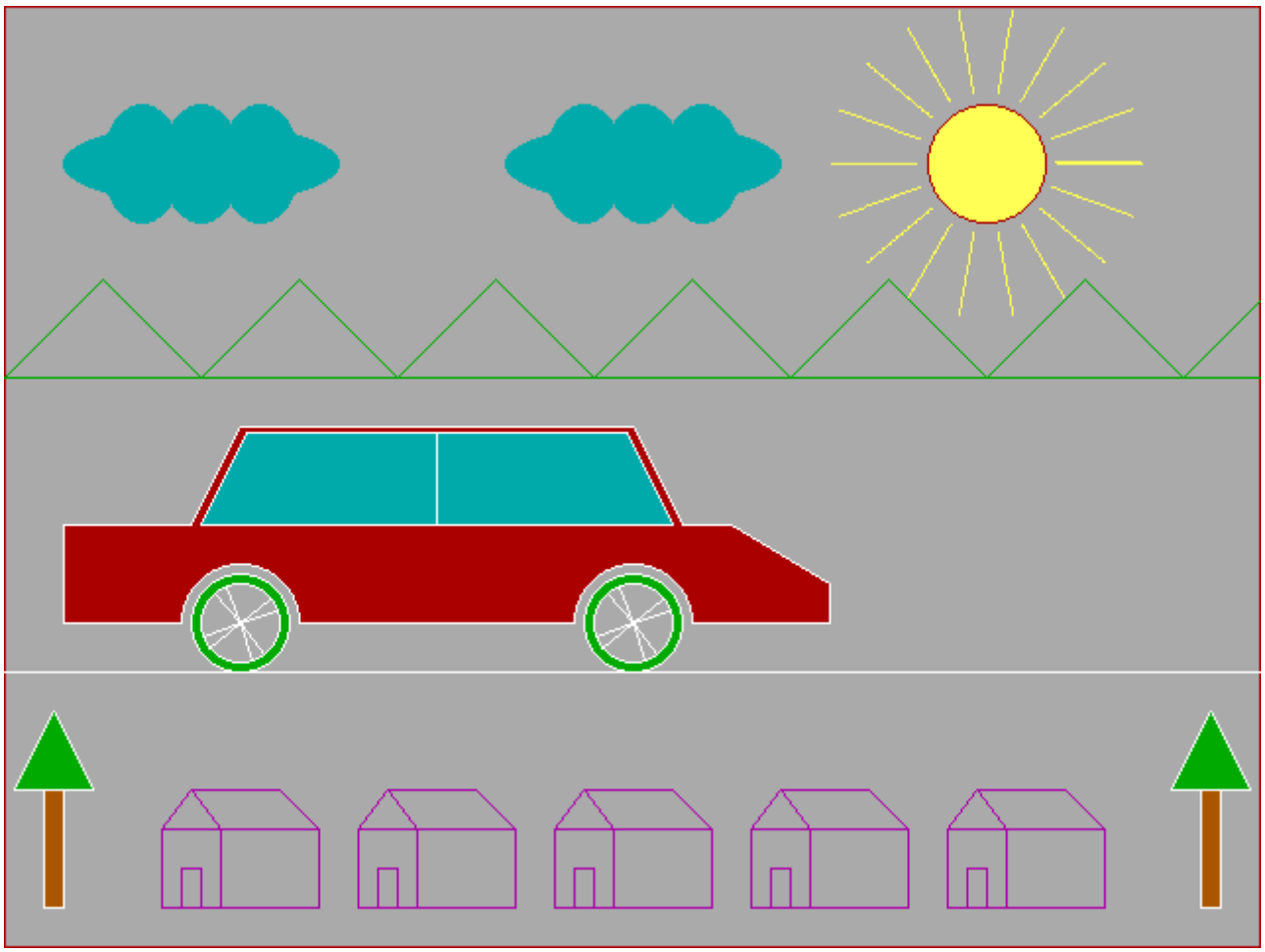
getch() is a nonstandard function and is present in conio.h header file which is mostly used by MS DOS compilers like Turbo C.

Declaration : int getch();

21) Closegraph :

closegraph function closes the graphics mode, deallocates all memory allocated by graphics system and restores the screen to the mode it was in before you called initgraph.

Declaration : void closegraph();



Conclusion :

Thus , we have successfully implemented moving car project using C Graphics Programming.