

**University of Dhaka**

**Department of Computer Science and Engineering**

**CSE – 1211: Fundamentals of Programming Lab**

**1st Year, 2nd Semester**

**Project Name:** SortAlgo

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|  | **Table of Contents** |  |
|  |  |  |
| **No.** | **Contents** | **Pages** |
|  |  |  |
| 1. | Introduction | 03 |
|  |  |  |
| 2. | Project Name | 03 |
|  |  |  |
| 3. | Project Objective | 03 |
|  |  |  |
| 4. | Project Outline | 03 |
|  |  |  |
| 5. | Main Features | 04 |
|  |  |  |
| 6. | Visual Simulation of the sorting algorithms | 04 |
|  |  |  |
| 7. | Special Features | 05 |
|  |  |  |
| 8. | Additional Features | 05 |
|  |  |  |
| 9. | Coding Challenges | 06 |
|  |  |  |
| 10. | Graphical Interface | 06 |
|  |  |  |
| 11. | Project Layout and Coding Algorithm | 12 |
|  |  |  |
| 12. | User defined Functions | 13 |
|  |  |  |
| 13. | Source Code | 16 |
|  |  |  |
| 14. | Conclusion | 114 |
|  |  |  |
| 15. | References | 114 |
|  |  |  |

**Introduction:**

The aim of the given project was to learn the implementation of basic knowledge of C programming language and basic graphics operations in a practical manner. C programming lab was designed to teach the implementation of a programming language as well as enhancing our knowledge of the programming language C. This project was an introduction to a different side of the world of programming where we implement our c programming knowledge to make something deferent.

**Project name:**

SortAlgo

**Project objective:**

The purpose of the project is nothing but to provide the users with a platform to understand the sorting algorithms easily through animation. We have been working in C language for almost a year. This project was given to implement the ideas we have learnt of C programming language. This project was chosen to fulfill this aim in an attractive way. Almost all beginners face difficulty to understand the sorting algorithms. So we decided to build something which helps them in a better way.

In this project you will see the visualization of three sorting algorithms with pseudocode through animation. The options to sort manually were added to increase user interaction and practice. The project aims at using our C programming knowledge and implementing it to create something attractive and interactive.

**Project outline:**

The project is mainly a platform to understand the sorting algorithms properly. It has some additional features which add more spontaneity to the project. The users not only can observe the visualization of the algorithms but also can manually try to sort the given elements implementing the sorting algorithms. Here three types of popular sorting algorithms are used. These are:

1. Bubble sort

2. Selection Sort

3. Insertion Sort

In the visualization mode the users can observe the animation of sorting with the pseudocode. In the manually sort mode the users are given some rectangles and users can manually sort the rectangles according to their values. Here User uses the mouse to click on the given rectangles to swap and sort. This option allow them have a different experience.

**Main features:**

1. **Welcome Screen:**

The users have to click on the “NEXT” option from the screen to proceed to main menu.

1. **Main Menu:**
   1. **BUBBLE SORT:** When the user put a mouse click on this Tab, another page loads with the following options:
   2. **Visual Simulation:** By clicking this tab the user can start the visual simulation of the bubble sort.
   3. **Manually Sort:** By clicking this tab the user can start the level 1 of the manual sort using bubble sort algorithm.
   4. **SELECTION SORT:** When the user put a mouse click on this Tab, another page loads with the following options:
   5. **Visual Simulation:** By clicking this tab the user can start the visual simulation of the selection sort.
   6. **Manually Sort:** By clicking this tab the user can start the level 1 of the manual sort using selection sort algorithm.
   7. **INSERTION SORT:** When the user put a mouse click on this Tab, another page loads with the following options:
   8. **Visual Simulation:** By clicking this tab the user can start the visual simulation of the insertion sort.
   9. **Manually Sort:** By clicking this tab the user can start the level 1 of the manual sort using insertion sort algorithm.
2. **Exit Game Tab :**

User can simply exit the game by clicking on this tab.

1. **Visual Simulation of the sorting algorithms:**

In the project three sorting algorithms (Bubble sort, Selection sort and Insertion sort) are visualized through animation. User will also be provided with pseudocode during visualization. In the visualization mode, we use some rectangles with different heights according to their values. When two rectangles are swapping they are marked with different color which helps to notice it easily. We use animation to show the swapping between two rectangles. After a period of time, rectangles will be sorted using the desired algorithm and then user will be directed to main menu.

1. **Variance of options:**

The project can be run in both visualization and manually sort mode which gives the users more freedom to choose. The manually sort mode option also introduces two different levels – Level 1 and Level 2.

While users can sharpen their sorting algo knowledge in the visualization mode, the manually sort mode gives them an opportunity to implement his algorithm knowledge in a practical manner.

1. **Existence of levels:**

The project allows the users to advance to different levels in manually sort mode which ensure the gradual change of difficulty. If user can succeed in the first level then he will be directed to second level.

1. **Variance of difficulties:**

The gradual increase of difficulties is introduced as the gradual development of levels. The number of rectangles increases which are to be sorted with the advancement of levels.

**Special features:**

1. **Manually Sort Mode:**

This mode is mainly a user friendly mode where user can implement his sorting algorithm knowledge of bubble sort, selection sort and insertion sort. In this mode, we use some rectangles with different heights according to their values. There are two levels in this mode. In first level, users are given 5 rectangles and they are to be sorted using algorithm according to their values. User will be asked to click on the rectangles which he wants to swap. If one moves wrong then he will be directed to main menu. If one succeeds on the first level then he will be directed to level 2. In level 2, there are 10 rectangles and they are to be sorted. If he will succeeds on level 2 then he will be congratulated and will be directed to main menu.

**Additional features:**

**1.** **Denoting the swap between two rectangles:** The rectangles that are swapping are marked with different colors. It helps the user to notice the swapping between the rectangles easily.

**2. Exit option:**

The users can exit the game by simply clicking on the exit option displayed in the Main Menu tab.

**Coding Challenges:**

* **Swapping of two rectangles:**

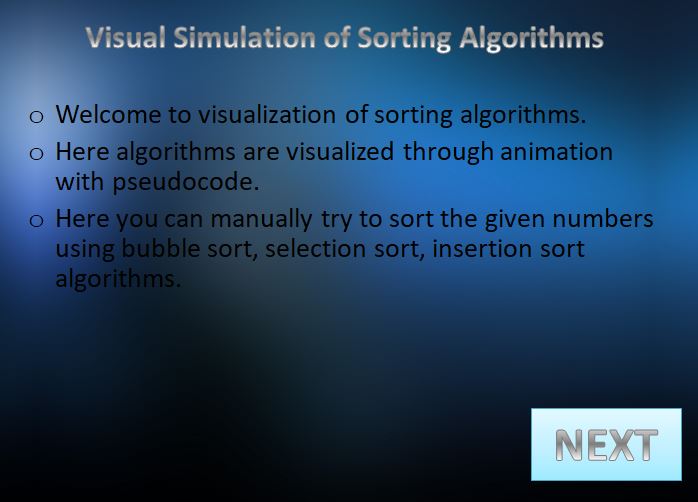
As we use animation to show the swapping of two rectangles so we had to use cleardevice function which removes everything from the screen. But we needed to keep the other rectangles on the screen. So, we had to write a lot of line to control it.

* **Get click from the user on the manually sort:**

As in the manual sort mode user will click on the rectangles to swap, so user can randomly click on any rectangles to swap. If he wants to swap rectangle 1 and rectangle 2, at first he can click on rectangle 1 and then rectangle 2 or vice-versa. So, we needed to ensure the user friendliness so that he won’t face any problem while using this project.

**Graphical Interface:**

**1.** **Welcome Screen:**



**2. Main Menu :**



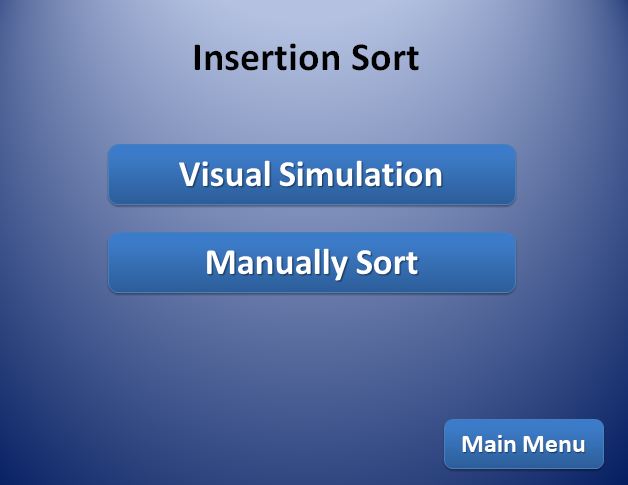
**2. BUBBLE SORT Tab:**



**3. SELECTION SORT Tab:**



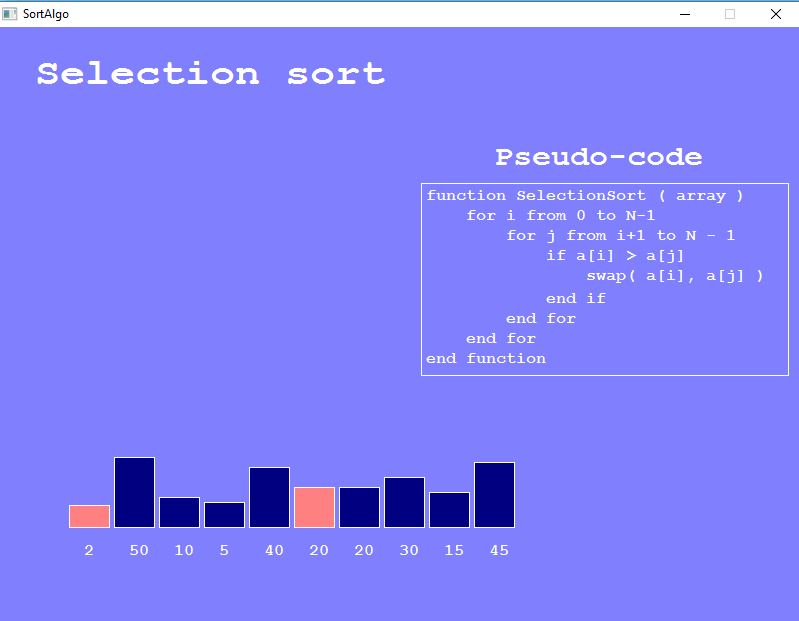
**4. INSERTION SORT Tab:**



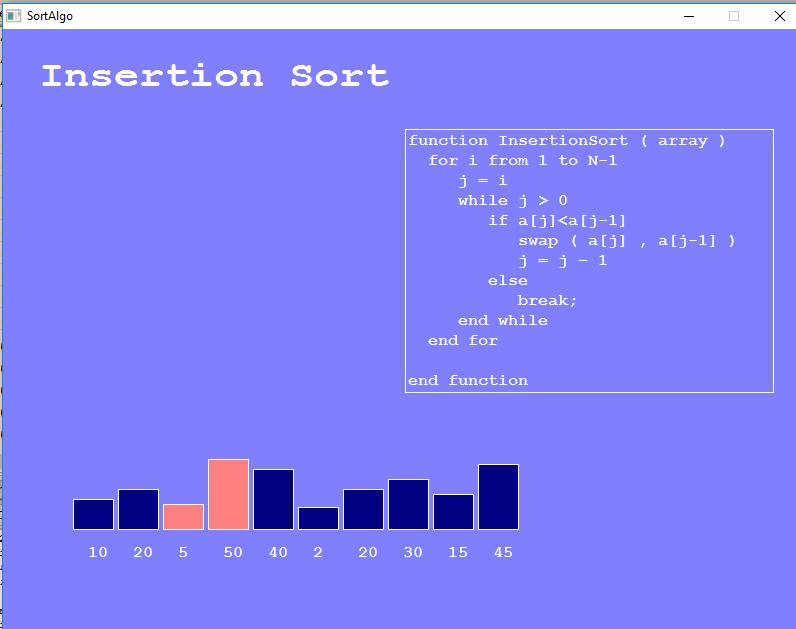
**5. Visual simulation of Bubble sort:**



**6. Visual simulation of Selection sort:**



**7. Visual simulation of Insertion sort:**



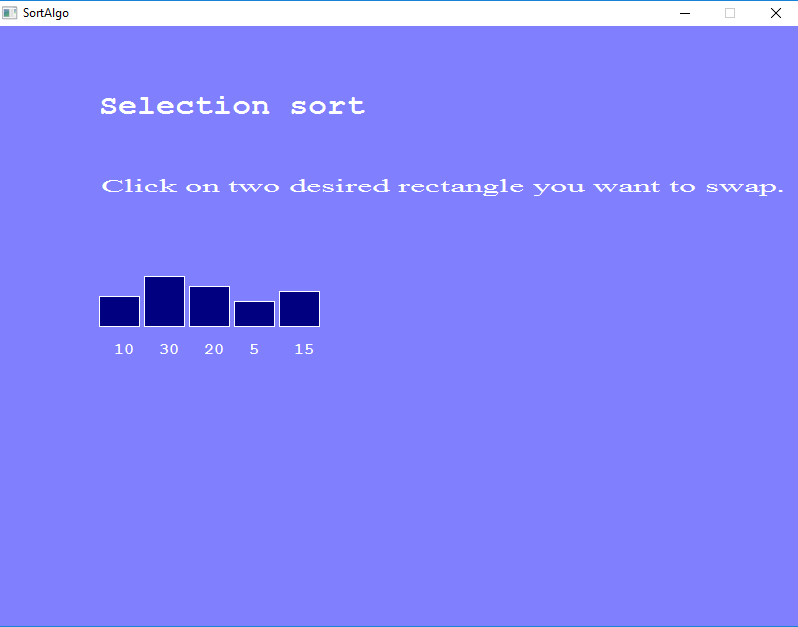
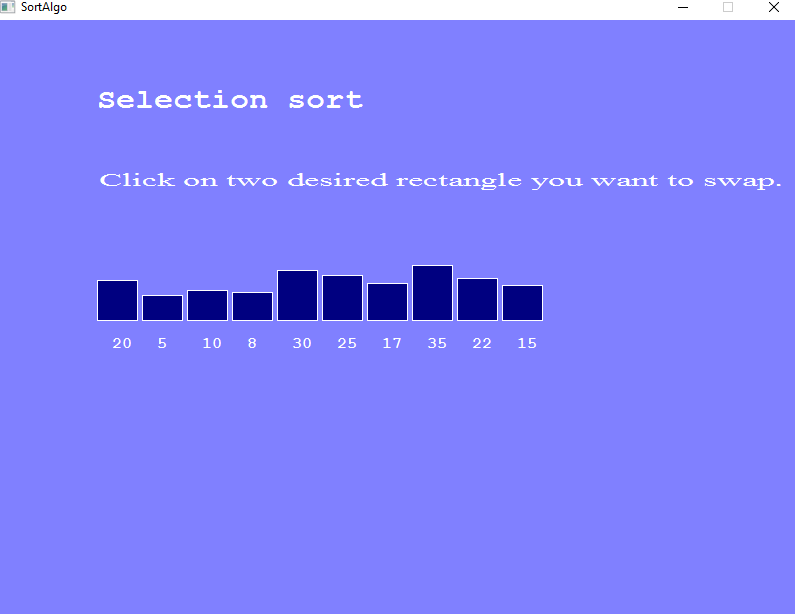
**8. Manual sort of Bubble sort:**



Level 2

Level 1

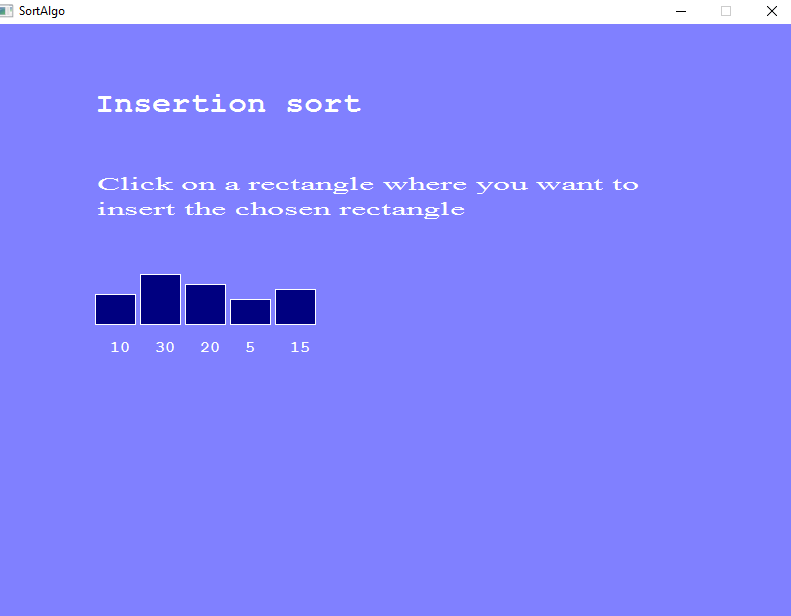
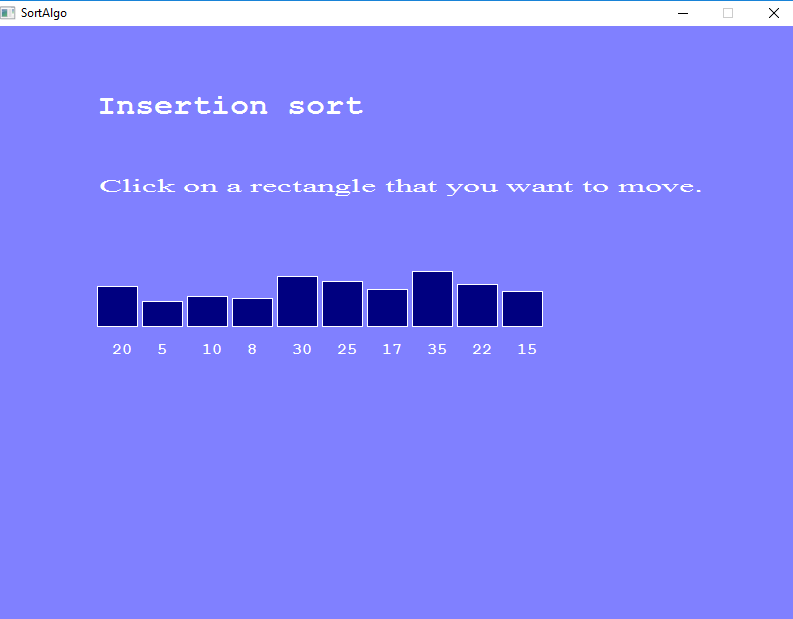
**9. Manual sort of Selection sort:**



LEVEL 2

LEVEL 1

**10. Manual sort of Insertion sort:**



LEVEL 2

LEVEL 1

**Project Layout and Coding Algorithm:**

**Project overview:**

Though there are some limitations in BGI, we tried to make the project as realistic and beautiful as possible. Many algorithms are difficult to understand from the source code. So, in our project we visualized every step of three sorting algorithms (Bubble, Selection and Insertion sort) through animation. We also create a platform for users where user can exercise and try to implement their sorting algorithm knowledge properly.

**Functions of the header file “graphics.h”:**

1. int [initwindow](https://www.cs.colorado.edu/~main/bgi/doc/initwindow.html) (int width, int height, const char\* title="Windows BGI", int left=0, int top=0, bool dbflag=false, bool closeflag=true);

- create the graphics window.

2. void [rectangle](https://www.cs.colorado.edu/~main/bgi/doc/rectangle.html) (int left, int top, int right, int bottom);

- draws a rectangle on the screen.

3. void [outtextxy](https://www.cs.colorado.edu/~main/bgi/doc/outtextxy.html) (int x, int y, char \*textstring);

- prints a string on the screen.

4. void [floodfill](https://www.cs.colorado.edu/~main/bgi/doc/floodfill.html) (int x, int y, int border);

-fill the shape enclosed with a fixed border.

5. void [delay](https://www.cs.colorado.edu/~main/bgi/doc/delay.html) (int millisec);

- Pauses the computation for the specified number of milliseconds.

6.void [closegraph](https://www.cs.colorado.edu/~main/bgi/doc/closegraph.html) (int window=ALL\_WINDOWS);

-Closes the graphics window.

7.bool [ismouseclick](https://www.cs.colorado.edu/~main/bgi/doc/ismouseclick.html)(int kind);

-It waits for the mouse click.

8.int [getch](https://www.cs.colorado.edu/~main/bgi/doc/getch.html) (void);

-Waits for user input as characters.

9.void [readimagefile](https://www.cs.colorado.edu/~main/bgi/doc/readimagefile.html) ( const char\* filename=NULL,int left=0, int top=0, int right=INT\_MAX, int bottom=INT\_MAX);

- Takes only JPEG and BITMAP images.

10.void [setbkcolor](https://www.cs.colorado.edu/~main/bgi/doc/setbkcolor.html) (int color);

-Fixes the background color of the graphics window.

11.void [setcolor](https://www.cs.colorado.edu/~main/bgi/doc/setcolor.html) (int color);

- Fixes the color of texts and figures.

12.void [setfillstyle](https://www.cs.colorado.edu/~main/bgi/doc/setfillstyle.html) (int pattern, int color);

-Imposes the color and pattern of filling.

13.void [settextstyle](https://www.cs.colorado.edu/~main/bgi/doc/settextstyle.html) (int font, int direction, int charsize);

-Fixes the current text style.

14.void [getmouseclick](https://www.cs.colorado.edu/~main/bgi/doc/getmouseclick.html)(int kind, int& x, int& y);

-It returns the coordinates of the point where mouse is clicked.

15.void [cleardevice](https://www.cs.colorado.edu/~main/bgi/doc/cleardevice.html) (void);

- Refreshes the graphical screen.

**User-Defined Functions:**

1.void bubble\_sort();

-Visualizes the bubble sort algorithm.

2.void selection\_sort();

-Visualizes the selection sort algorithm.

3.void insertion\_sort();

-Visualizes the insertion sort algorithm.

4.void bubble\_manual\_1();

- (Manually sort Level 1) Allows user to sort 5 rectangles using bubble sort.

5.void bubble\_manual\_2();

- (Manually sort Level 2) Allows user to sort 10 rectangles using bubble sort.

6.void selection\_manual\_1();

- (Manually sort Level 1) Allows user to sort 5 rectangles using selection sort.

7.void selection\_manual\_2();

- (Manually sort Level 2) Allows user to sort 10 rectangles using selection sort.

8.void insertion\_manual\_1();

-(Manually sort Level 1) Allows user to sort 5 rectangles using insertion sort.

9.void insertion\_manual\_2();

- (Manually sort Level 2) Allows user to sort 10 rectangles using insertion sort.

10.void bubble\_pseudocode();

-Writes the pseudocode of bubble sort in the right of the visualization screen.

11.void selection\_pseudocode();

-Writes the pseudocode of selection sort in the right of the visualization screen.

12.void insertion\_pseudocode();

-Writes the pseudocode of insertion sort in the right of the visualization screen.

**Use of Structure and File:**

1. struct coordinate

{

int x1;

int y1;

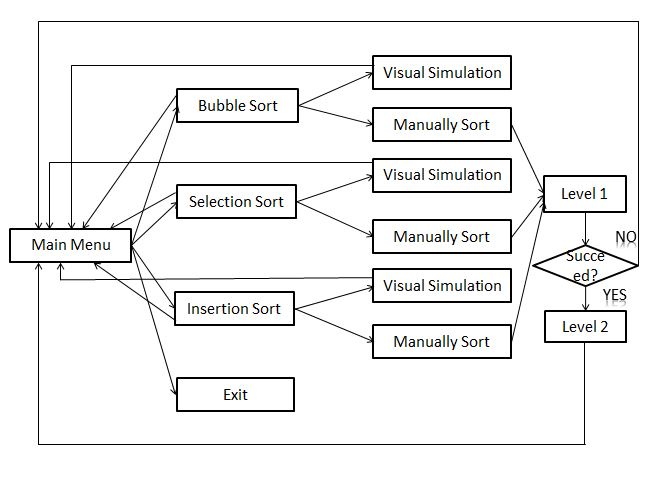
int x2;

int y2;

};

2. Uses three text files to get the height of the rectangles in various modes and 5 jpeg image files.

**Flow chart:**

****

**Source Code:**

**#include<graphics.h>**

**#include<stdlib.h>**

**#include<string.h>**

**#include<stdio.h>**

**#include<conio.h>**

**#include<math.h>**

**#include<dos.h>**

**#include<iostream>**

**#include<ctime>**

**#include<algorithm>**

**using namespace std;**

**struct coordinate**

**{**

**int x1;**

**int y1;**

**int x2;**

**int y2;**

**};**

**struct coordinate bubble[20];**

**FILE \*f;**

**int n,a[20],flag=1;**

**char c[6];**

**int maxx,maxy,maxx1,maxy1;**

**void bubble\_sort();**

**void selection\_sort();**

**void insertion\_sort();**

**void bubble\_manual\_1();**

**void bubble\_manual\_2();**

**void selection\_manual\_1();**

**void selection\_manual\_2();**

**void insertion\_manual\_1();**

**void insertion\_manual\_2();**

**void bubble\_pseudocode();**

**void selection\_pseudocode();**

**void insertion\_pseudocode();**

**int main()**

**{**

**initwindow(800,600,"SortAlgo",50,50);**

**readimagefile("First.jpg",0,0,800,600);**

**do**

**{**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**}**

**while(maxx<=611 && maxx>=781 && maxy<=489 && maxy>=575);**

**if(maxx>=611 && maxx<=781 && maxy>=489 && maxy<=575)**

**{**

**delay(50);**

**cleardevice();**

**again:**

**readimagefile("Main menu.jpg",0,0,800,600);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**if(maxx>=171 && maxx<=608 && maxy>=166 && maxy<=234)**

**{**

**delay(50);**

**cleardevice();**

**readimagefile("Bubble1.jpg",0,0,800,600);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**if(maxx>=141 && maxx<=650 && maxy>=184 && maxy<=247)**

**{**

**bubble\_sort();**

**delay(1000);**

**goto again;**

**}**

**else if(maxx>=141 && maxx<=650 && maxy>=290 && maxy<=355)**

**{**

**bubble\_manual\_1();**

**if(flag!=0)**

**{**

**delay(1000);**

**bubble\_manual\_2();**

**}**

**delay(1000);**

**cleardevice();**

**goto again;**

**}**

**else if(maxx>=571 && maxx<=772 && maxy>=520 && maxy<=574)**

**{**

**delay(50);**

**cleardevice();**

**goto again;**

**}**

**}**

**else if(maxx>=174 && maxx<=610 && maxy>=276 && maxy<=348)**

**{**

**delay(50);**

**cleardevice();**

**readimagefile("Selection1.jpg",0,0,800,600);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**if(maxx>=135 && maxx<=649 && maxy>=182 && maxy<=247)**

**{**

**selection\_sort();**

**delay(1000);**

**goto again;**

**}**

**else if(maxx>=141 && maxx<=649 && maxy>=290 && maxy<=358)**

**{**

**selection\_manual\_1();**

**if(flag!=0)**

**{**

**delay(1000);**

**selection\_manual\_2();**

**}**

**delay(1000);**

**cleardevice();**

**goto again;**

**}**

**else if(maxx>=565 && maxx<=763 && maxy>=515 && maxy<=575)**

**{**

**delay(50);**

**cleardevice();**

**goto again;**

**}**

**}**

**else if(maxx>=171 && maxx<=608 && maxy>=383 && maxy<=458)**

**{**

**delay(50);**

**cleardevice();**

**readimagefile("Insertion1.jpg",0,0,800,600);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**if(maxx>=141 && maxx<=649 && maxy>=177 && maxy<=247)**

**{**

**insertion\_sort();**

**delay(1000);**

**goto again;**

**}**

**else if(maxx>=141 && maxx<=649 && maxy>=287 && maxy<=355)**

**{**

**insertion\_manual\_1();**

**if(flag!=0)**

**{**

**delay(1000);**

**insertion\_manual\_2();**

**}**

**delay(1000);**

**cleardevice();**

**goto again;**

**}**

**else if(maxx>=565 && maxx<=763 && maxy>=519 && maxy<=575)**

**{**

**delay(50);**

**cleardevice();**

**goto again;**

**}**

**}**

**else if(maxx>=627 && maxx<=763 && maxy>=533 && maxy<=573)**

**{**

**closegraph();**

**}**

**}**

**}**

**void bubble\_sort()**

**{**

**f=fopen("inputx.txt","r");**

**fscanf(f,"%d",&n);**

**setbkcolor(LIGHTBLUE);**

**for(int i=0; i<n; i++)**

**{**

**fscanf(f,"%d",&a[i]);**

**}**

**int t=75;**

**for(int i=0; i<n; i++)**

**{**

**bubble[i].x1=t;**

**bubble[i].y1=480-a[i];**

**bubble[i].x2=t+40;**

**bubble[i].y2=500;**

**t+=45;**

**}**

**delay(50);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**for(int i=0; i<n; i++)**

**{**

**settextstyle(BOLD\_FONT,0,5);**

**outtextxy(36,27,"Bubble Sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[i].x1,bubble[i].y1,bubble[i].x2,bubble[i].y2);**

**setfillstyle(1,BLUE);**

**floodfill(bubble[i].x1+5,bubble[i].y1+5,WHITE);**

**sprintf(c,"%d",a[i]);**

**outtextxy(bubble[i].x1+15,515,c);**

**}**

**bubble\_pseudocode();**

**delay(50);**

**for(int k=0; k<n-1; k++)**

**{**

**for(int i=0; i<n-k-1; i++)**

**{**

**if(a[i]>a[i+1])**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**bubble\_pseudocode();**

**settextstyle(BOLD\_FONT,0,5);**

**outtextxy(36,27,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[i].x1+j,bubble[i].y1,bubble[i].x2+j,bubble[i].y2);**

**setfillstyle(1,LIGHTRED);**

**floodfill(bubble[i].x1+5+j,bubble[i].y1+5,WHITE);**

**rectangle(bubble[i+1].x1-j,bubble[i+1].y1,bubble[i+1].x2-j,bubble[i+1].y2);**

**setfillstyle(1,LIGHTRED);**

**floodfill(bubble[i+1].x1+5-j,bubble[i+1].y1+5,WHITE);**

**setfillstyle(1,BLUE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=i && l!=i+1)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,515,c);**

**}**

**}**

**sprintf(c,"%d",a[i]);**

**outtextxy(bubble[i].x1+15+j,515,c);**

**sprintf(c,"%d",a[i+1]);**

**outtextxy(bubble[i+1].x1+15-j,515,c);**

**}**

**swap(bubble[i].y1,bubble[i+1].y1);**

**swap(bubble[i].y2,bubble[i+1].y2);**

**swap(a[i],a[i+1]);**

**}**

**delay(500);**

**}**

**}**

**settextstyle(BOLD\_FONT,0,3);**

**outtextxy(65,550,"Rectangles are sorted according to numbers.");**

**settextstyle(0,0,0);**

**}**

**void selection\_sort()**

**{**

**int i, j, min\_indx;**

**f=fopen("inputx.txt","r");**

**fscanf(f,"%d",&n);**

**setbkcolor(LIGHTBLUE);**

**for(int i=0; i<n; i++)**

**{**

**fscanf(f,"%d",&a[i]);**

**}**

**int t=70;**

**for(int i=0; i<n; i++)**

**{**

**bubble[i].x1=t;**

**bubble[i].y1=480-a[i];**

**bubble[i].x2=t+40;**

**bubble[i].y2=500;**

**t+=45;**

**}**

**delay(50);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**for(i=0; i<n; i++)**

**{**

**settextstyle(BOLD\_FONT,0,5);**

**outtextxy(26,27,"Selection Sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[i].x1,bubble[i].y1,bubble[i].x2,bubble[i].y2);**

**setfillstyle(1,BLUE);**

**floodfill(bubble[i].x1+5,bubble[i].y1+5,WHITE);**

**sprintf(c,"%d",a[i]);**

**outtextxy(bubble[i].x1+15,515,c);**

**}**

**selection\_pseudocode();**

**delay(50);**

**for (i = 0; i < n-1; i++)**

**{**

**min\_indx = i;**

**for (j = i+1; j < n; j++)**

**{**

**if (a[j] < a[min\_indx])**

**{**

**min\_indx = j;**

**}**

**}**

**for( j=1; j<=((min\_indx-i)\*45); j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**selection\_pseudocode();**

**rectangle(bubble[i].x1+j,bubble[i].y1,bubble[i].x2+j,bubble[i].y2);**

**setfillstyle(1,LIGHTRED);**

**floodfill(bubble[i].x1+5+j,bubble[i].y1+5,WHITE);**

**rectangle(bubble[min\_indx].x1-j,bubble[min\_indx].y1,bubble[min\_indx].x2-j,bubble[min\_indx].y2);**

**setfillstyle(1,LIGHTRED);**

**floodfill(bubble[min\_indx].x1+5-j,bubble[min\_indx].y1+5,WHITE);**

**setfillstyle(1,BLUE);**

**settextstyle(BOLD\_FONT,0,5);**

**outtextxy(36,27,"Selection sort");**

**settextstyle(0,0,0);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=i && l!=min\_indx)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,515,c);**

**}**

**}**

**sprintf(c,"%d",a[i]);**

**outtextxy(bubble[i].x1+15+j,515,c);**

**sprintf(c,"%d",a[min\_indx]);**

**outtextxy(bubble[min\_indx].x1+15-j,515,c);**

**}**

**swap(bubble[i].y1,bubble[min\_indx].y1);**

**swap(bubble[i].y2,bubble[min\_indx].y2);**

**swap(a[min\_indx], a[i]);**

**delay(500);**

**}**

**settextstyle(BOLD\_FONT,0,3);**

**outtextxy(65,550,"Rectangles are sorted according to numbers.");**

**settextstyle(0,0,0);**

**}**

**void insertion\_sort()**

**{**

**int i, key,k,j,l;**

**f=fopen("inputx.txt","r");**

**fscanf(f,"%d",&n);**

**setbkcolor(LIGHTBLUE);**

**for(int i=0; i<n; i++)**

**fscanf(f,"%d",&a[i]);**

**int t=70;**

**for(int i=0; i<n; i++)**

**{**

**bubble[i].x1=t;**

**bubble[i].y1=480-a[i];**

**bubble[i].x2=t+40;**

**bubble[i].y2=500;**

**t+=45;**

**}**

**delay(100);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**for(int i=0; i<n; i++)**

**{**

**settextstyle(BOLD\_FONT,0,5);**

**outtextxy(36,27,"Insertion Sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[i].x1,bubble[i].y1,bubble[i].x2,bubble[i].y2);**

**setfillstyle(1,BLUE);**

**floodfill(bubble[i].x1+5,bubble[i].y1+5,WHITE);**

**sprintf(c,"%d",a[i]);**

**outtextxy(bubble[i].x1+15,515,c);**

**}**

**insertion\_pseudocode();**

**delay(100);**

**for(int k=0; k<n; k++)**

**{**

**int i = k;**

**while(i)**

**{**

**if(a[i]<a[i-1])**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**insertion\_pseudocode();**

**settextstyle(BOLD\_FONT,0,5);**

**outtextxy(36,27,"Insertion Sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[i].x1-j,bubble[i].y1,bubble[i].x2-j,bubble[i].y2);**

**setfillstyle(1,LIGHTRED);**

**floodfill(bubble[i].x1+5-j,bubble[i].y1+5,WHITE);**

**rectangle(bubble[i-1].x1+j,bubble[i-1].y1,bubble[i-1].x2+j,bubble[i-1].y2);**

**setfillstyle(1,LIGHTRED);**

**floodfill(bubble[i-1].x1+5+j,bubble[i-1].y1+5,WHITE);**

**setfillstyle(1,BLUE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=i && l!=i-1)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,515,c);**

**}**

**}**

**sprintf(c,"%d",a[i]);**

**outtextxy(bubble[i].x1+15-j,515,c);**

**sprintf(c,"%d",a[i-1]);**

**outtextxy(bubble[i-1].x1+15+j,515,c);**

**}**

**swap(bubble[i].y1,bubble[i-1].y1);**

**swap(bubble[i].y2,bubble[i-1].y2);**

**swap(a[i],a[i-1]);**

**sprintf(c,"%d",a[i]);**

**outtextxy(bubble[i].x1+15,515,c);**

**sprintf(c,"%d",a[i-1]);**

**outtextxy(bubble[i-1].x1+15,515,c);**

**delay(500);**

**}**

**else break;**

**i--;**

**}**

**if(k==n-1)**

**delay(1000);**

**}**

**settextstyle(BOLD\_FONT,0,3);**

**outtextxy(65,550,"Rectangles are sorted according to numbers.");**

**settextstyle(0,0,0);**

**}**

**void bubble\_manual\_1()**

**{**

**f=fopen("level 1.txt","r");**

**fscanf(f,"%d",&n);**

**setbkcolor(LIGHTBLUE);**

**for(int i=0; i<n; i++)**

**{**

**fscanf(f,"%d",&a[i]);**

**}**

**int t=100;**

**for(int i=0; i<n; i++)**

**{**

**bubble[i].x1=t;**

**bubble[i].y1=280-a[i];**

**bubble[i].x2=t+40;**

**bubble[i].y2=300;**

**t+=45;**

**}**

**delay(50);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,5);**

**outtextxy((getmaxx()/2)-100,getmaxy()/2,"LEVEL 1");**

**settextstyle(0,0,0);**

**delay(1000);**

**cleardevice();**

**for(int i=0; i<n; i++)**

**{**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[i].x1,bubble[i].y1,bubble[i].x2,bubble[i].y2);**

**setfillstyle(1,BLUE);**

**floodfill(bubble[i].x1+5,bubble[i].y1+5,WHITE);**

**sprintf(c,"%d",a[i]);**

**outtextxy(bubble[i].x1+15,315,c);**

**}**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on two desired rectangle you want to swap.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[1].x1 && maxx<=bubble[1].x2 && maxy>=bubble[1].y1 && maxy<=bubble[1].y2 && maxx1>=bubble[2].x1 && maxx1<=bubble[2].x2 && maxy1>=bubble[2].y1 && maxy1<=bubble[2].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[1].x1+j,bubble[1].y1,bubble[1].x2+j,bubble[1].y2);**

**floodfill(bubble[1].x1+5+j,bubble[1].y1+5,WHITE);**

**rectangle(bubble[2].x1-j,bubble[2].y1,bubble[2].x2-j,bubble[2].y2);**

**floodfill(bubble[2].x1+5-j,bubble[2].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=1 && l!=2)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[1]);**

**outtextxy(bubble[1].x1+15+j,315,c);**

**sprintf(c,"%d",a[2]);**

**outtextxy(bubble[2].x1+15-j,315,c);**

**}**

**swap(bubble[1].y1,bubble[2].y1);**

**swap(bubble[2].y2,bubble[2].y2);**

**swap(a[1],a[2]);**

**}**

**else if(maxx>=bubble[2].x1 && maxx<=bubble[2].x2 && maxy>=bubble[2].y1 && maxy<=bubble[2].y2 && maxx1>=bubble[1].x1 && maxx1<=bubble[1].x2 && maxy1>=bubble[1].y1 && maxy1<=bubble[1].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[1].x1+j,bubble[1].y1,bubble[1].x2+j,bubble[1].y2);**

**floodfill(bubble[1].x1+5+j,bubble[1].y1+5,WHITE);**

**rectangle(bubble[2].x1-j,bubble[2].y1,bubble[2].x2-j,bubble[2].y2);**

**floodfill(bubble[2].x1+5-j,bubble[2].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=1 && l!=2)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[1]);**

**outtextxy(bubble[1].x1+15+j,315,c);**

**sprintf(c,"%d",a[2]);**

**outtextxy(bubble[2].x1+15-j,315,c);**

**}**

**swap(bubble[1].y1,bubble[2].y1);**

**swap(bubble[1].y2,bubble[2].y2);**

**swap(a[1],a[2]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on two desired rectangle you want to swap.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[2].x1 && maxx<=bubble[2].x2 && maxy>=bubble[2].y1 && maxy<=bubble[2].y2 && maxx1>=bubble[3].x1 && maxx1<=bubble[3].x2 && maxy1>=bubble[3].y1 && maxy1<=bubble[3].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[2].x1+j,bubble[2].y1,bubble[2].x2+j,bubble[2].y2);**

**floodfill(bubble[2].x1+5+j,bubble[2].y1+5,WHITE);**

**rectangle(bubble[3].x1-j,bubble[3].y1,bubble[3].x2-j,bubble[3].y2);**

**floodfill(bubble[3].x1+5-j,bubble[3].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=3 && l!=2)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[2]);**

**outtextxy(bubble[2].x1+15+j,315,c);**

**sprintf(c,"%d",a[3]);**

**outtextxy(bubble[3].x1+15-j,315,c);**

**}**

**swap(bubble[3].y1,bubble[2].y1);**

**swap(bubble[3].y2,bubble[2].y2);**

**swap(a[3],a[2]);**

**}**

**else if(maxx>=bubble[3].x1 && maxx<=bubble[3].x2 && maxy>=bubble[3].y1 && maxy<=bubble[3].y2 && maxx1>=bubble[2].x1 && maxx1<=bubble[2].x2 && maxy1>=bubble[2].y1 && maxy1<=bubble[2].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[2].x1+j,bubble[2].y1,bubble[2].x2+j,bubble[2].y2);**

**floodfill(bubble[2].x1+5+j,bubble[2].y1+5,WHITE);**

**rectangle(bubble[3].x1-j,bubble[3].y1,bubble[3].x2-j,bubble[3].y2);**

**floodfill(bubble[3].x1+5-j,bubble[3].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=3 && l!=2)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[2]);**

**outtextxy(bubble[2].x1+15+j,315,c);**

**sprintf(c,"%d",a[3]);**

**outtextxy(bubble[3].x1+15-j,315,c);**

**}**

**swap(bubble[3].y1,bubble[2].y1);**

**swap(bubble[3].y2,bubble[2].y2);**

**swap(a[3],a[2]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on two desired rectangle you want to swap.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[3].x1 && maxx<=bubble[3].x2 && maxy>=bubble[3].y1 && maxy<=bubble[3].y2 && maxx1>=bubble[4].x1 && maxx1<=bubble[4].x2 && maxy1>=bubble[4].y1 && maxy1<=bubble[4].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[3].x1+j,bubble[3].y1,bubble[3].x2+j,bubble[3].y2);**

**floodfill(bubble[3].x1+5+j,bubble[3].y1+5,WHITE);**

**rectangle(bubble[4].x1-j,bubble[4].y1,bubble[4].x2-j,bubble[4].y2);**

**floodfill(bubble[4].x1+5-j,bubble[4].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=3 && l!=4)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[3]);**

**outtextxy(bubble[3].x1+15+j,315,c);**

**sprintf(c,"%d",a[4]);**

**outtextxy(bubble[4].x1+15-j,315,c);**

**}**

**swap(bubble[3].y1,bubble[4].y1);**

**swap(bubble[3].y2,bubble[4].y2);**

**swap(a[3],a[4]);**

**}**

**else if(maxx>=bubble[4].x1 && maxx<=bubble[4].x2 && maxy>=bubble[4].y1 && maxy<=bubble[4].y2 && maxx1>=bubble[3].x1 && maxx1<=bubble[3].x2 && maxy1>=bubble[3].y1 && maxy1<=bubble[3].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[3].x1+j,bubble[3].y1,bubble[3].x2+j,bubble[3].y2);**

**floodfill(bubble[3].x1+5+j,bubble[3].y1+5,WHITE);**

**rectangle(bubble[4].x1-j,bubble[4].y1,bubble[4].x2-j,bubble[4].y2);**

**floodfill(bubble[4].x1+5-j,bubble[4].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=3 && l!=4)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[3]);**

**outtextxy(bubble[3].x1+15+j,315,c);**

**sprintf(c,"%d",a[4]);**

**outtextxy(bubble[4].x1+15-j,315,c);**

**}**

**swap(bubble[3].y1,bubble[4].y1);**

**swap(bubble[3].y2,bubble[4].y2);**

**swap(a[3],a[4]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on two desired rectangle you want to swap.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[1].x1 && maxx<=bubble[1].x2 && maxy>=bubble[1].y1 && maxy<=bubble[1].y2 && maxx1>=bubble[2].x1 && maxx1<=bubble[2].x2 && maxy1>=bubble[2].y1 && maxy1<=bubble[2].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[1].x1+j,bubble[1].y1,bubble[1].x2+j,bubble[1].y2);**

**floodfill(bubble[1].x1+5+j,bubble[1].y1+5,WHITE);**

**rectangle(bubble[2].x1-j,bubble[2].y1,bubble[2].x2-j,bubble[2].y2);**

**floodfill(bubble[2].x1+5-j,bubble[2].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=1 && l!=2)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[1]);**

**outtextxy(bubble[1].x1+15+j,315,c);**

**sprintf(c,"%d",a[2]);**

**outtextxy(bubble[2].x1+15-j,315,c);**

**}**

**swap(bubble[1].y1,bubble[2].y1);**

**swap(bubble[1].y2,bubble[2].y2);**

**swap(a[1],a[2]);**

**}**

**else if(maxx>=bubble[2].x1 && maxx<=bubble[2].x2 && maxy>=bubble[2].y1 && maxy<=bubble[2].y2 && maxx1>=bubble[1].x1 && maxx1<=bubble[1].x2 && maxy1>=bubble[1].y1 && maxy1<=bubble[1].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[1].x1+j,bubble[1].y1,bubble[1].x2+j,bubble[1].y2);**

**floodfill(bubble[1].x1+5+j,bubble[1].y1+5,WHITE);**

**rectangle(bubble[2].x1-j,bubble[2].y1,bubble[2].x2-j,bubble[2].y2);**

**floodfill(bubble[2].x1+5-j,bubble[2].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=1 && l!=2)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[1]);**

**outtextxy(bubble[1].x1+15+j,315,c);**

**sprintf(c,"%d",a[2]);**

**outtextxy(bubble[2].x1+15-j,315,c);**

**}**

**swap(bubble[1].y1,bubble[2].y1);**

**swap(bubble[1].y2,bubble[2].y2);**

**swap(a[1],a[2]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on two desired rectangle you want to swap.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[2].x1 && maxx<=bubble[2].x2 && maxy>=bubble[2].y1 && maxy<=bubble[2].y2 && maxx1>=bubble[3].x1 && maxx1<=bubble[3].x2 && maxy1>=bubble[3].y1 && maxy1<=bubble[3].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[2].x1+j,bubble[2].y1,bubble[2].x2+j,bubble[2].y2);**

**floodfill(bubble[2].x1+5+j,bubble[2].y1+5,WHITE);**

**rectangle(bubble[3].x1-j,bubble[3].y1,bubble[3].x2-j,bubble[3].y2);**

**floodfill(bubble[3].x1+5-j,bubble[3].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=3 && l!=2)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[2]);**

**outtextxy(bubble[2].x1+15+j,315,c);**

**sprintf(c,"%d",a[3]);**

**outtextxy(bubble[3].x1+15-j,315,c);**

**}**

**swap(bubble[3].y1,bubble[2].y1);**

**swap(bubble[3].y2,bubble[2].y2);**

**swap(a[3],a[2]);**

**}**

**else if(maxx>=bubble[3].x1 && maxx<=bubble[3].x2 && maxy>=bubble[3].y1 && maxy<=bubble[3].y2 && maxx1>=bubble[2].x1 && maxx1<=bubble[2].x2 && maxy1>=bubble[2].y1 && maxy1<=bubble[2].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[2].x1+j,bubble[2].y1,bubble[2].x2+j,bubble[2].y2);**

**floodfill(bubble[2].x1+5+j,bubble[2].y1+5,WHITE);**

**rectangle(bubble[3].x1-j,bubble[3].y1,bubble[3].x2-j,bubble[3].y2);**

**floodfill(bubble[3].x1+5-j,bubble[3].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=3 && l!=2)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[2]);**

**outtextxy(bubble[2].x1+15+j,315,c);**

**sprintf(c,"%d",a[3]);**

**outtextxy(bubble[3].x1+15-j,315,c);**

**}**

**swap(bubble[3].y1,bubble[2].y1);**

**swap(bubble[3].y2,bubble[2].y2);**

**swap(a[3],a[2]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on two desired rectangle you want to swap.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[0].x1 && maxx<=bubble[0].x2 && maxy>=bubble[0].y1 && maxy<=bubble[0].y2 && maxx1>=bubble[1].x1 && maxx1<=bubble[1].x2 && maxy1>=bubble[1].y1 && maxy1<=bubble[1].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[0].x1+j,bubble[0].y1,bubble[0].x2+j,bubble[0].y2);**

**floodfill(bubble[0].x1+5+j,bubble[0].y1+5,WHITE);**

**rectangle(bubble[1].x1-j,bubble[1].y1,bubble[1].x2-j,bubble[1].y2);**

**floodfill(bubble[1].x1+5-j,bubble[1].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=0 && l!=1)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[0]);**

**outtextxy(bubble[0].x1+15+j,315,c);**

**sprintf(c,"%d",a[1]);**

**outtextxy(bubble[1].x1+15-j,315,c);**

**}**

**swap(bubble[0].y1,bubble[1].y1);**

**swap(bubble[0].y2,bubble[1].y2);**

**swap(a[1],a[0]);**

**}**

**else if(maxx>=bubble[1].x1 && maxx<=bubble[1].x2 && maxy>=bubble[1].y1 && maxy<=bubble[1].y2 && maxx1>=bubble[0].x1 && maxx1<=bubble[0].x2 && maxy1>=bubble[0].y1 && maxy1<=bubble[0].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[0].x1+j,bubble[0].y1,bubble[0].x2+j,bubble[0].y2);**

**floodfill(bubble[0].x1+5+j,bubble[0].y1+5,WHITE);**

**rectangle(bubble[1].x1-j,bubble[1].y1,bubble[1].x2-j,bubble[1].y2);**

**floodfill(bubble[1].x1+5-j,bubble[1].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=0 && l!=1)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[0]);**

**outtextxy(bubble[0].x1+15+j,315,c);**

**sprintf(c,"%d",a[1]);**

**outtextxy(bubble[1].x1+15-j,315,c);**

**}**

**swap(bubble[0].y1,bubble[1].y1);**

**swap(bubble[0].y2,bubble[1].y2);**

**swap(a[1],a[0]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**delay(1000);**

**cleardevice();**

**settextstyle(BOLD\_FONT,0,5);**

**outtextxy((getmaxx()/2)-150,(getmaxy()/2)-50,"Congratulation");**

**outtextxy(100,(getmaxy()/2),"You have passed level 1");**

**settextstyle(0,0,0);**

**}**

**}**

**}**

**}**

**}**

**}**

**}**

**void bubble\_manual\_2()**

**{**

**f=fopen("level 2.txt","r");**

**fscanf(f,"%d",&n);**

**setbkcolor(LIGHTBLUE);**

**for(int i=0; i<n; i++)**

**{**

**fscanf(f,"%d",&a[i]);**

**}**

**int t=100;**

**for(int i=0; i<n; i++)**

**{**

**bubble[i].x1=t;**

**bubble[i].y1=280-a[i];**

**bubble[i].x2=t+40;**

**bubble[i].y2=300;**

**t+=45;**

**}**

**delay(50);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,5);**

**outtextxy((getmaxx()/2)-100,getmaxy()/2,"LEVEL 2");**

**settextstyle(0,0,0);**

**delay(2000);**

**cleardevice();**

**for(int i=0; i<n; i++)**

**{**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[i].x1,bubble[i].y1,bubble[i].x2,bubble[i].y2);**

**setfillstyle(1,BLUE);**

**floodfill(bubble[i].x1+5,bubble[i].y1+5,WHITE);**

**sprintf(c,"%d",a[i]);**

**outtextxy(bubble[i].x1+15,315,c);**

**}**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on two desired rectangle you want to swap.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[0].x1 && maxx<=bubble[0].x2 && maxy>=bubble[0].y1 && maxy<=bubble[0].y2 && maxx1>=bubble[1].x1 && maxx1<=bubble[1].x2 && maxy1>=bubble[1].y1 && maxy1<=bubble[1].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[0].x1+j,bubble[0].y1,bubble[0].x2+j,bubble[0].y2);**

**floodfill(bubble[0].x1+5+j,bubble[0].y1+5,WHITE);**

**rectangle(bubble[1].x1-j,bubble[1].y1,bubble[1].x2-j,bubble[1].y2);**

**floodfill(bubble[1].x1+5-j,bubble[1].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=0 && l!=1)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[0]);**

**outtextxy(bubble[0].x1+15+j,315,c);**

**sprintf(c,"%d",a[1]);**

**outtextxy(bubble[1].x1+15-j,315,c);**

**}**

**swap(bubble[0].y1,bubble[1].y1);**

**swap(bubble[0].y2,bubble[1].y2);**

**swap(a[1],a[0]);**

**}**

**else if(maxx>=bubble[1].x1 && maxx<=bubble[1].x2 && maxy>=bubble[1].y1 && maxy<=bubble[1].y2 && maxx1>=bubble[0].x1 && maxx1<=bubble[0].x2 && maxy1>=bubble[0].y1 && maxy1<=bubble[0].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[0].x1+j,bubble[0].y1,bubble[0].x2+j,bubble[0].y2);**

**floodfill(bubble[0].x1+5+j,bubble[0].y1+5,WHITE);**

**rectangle(bubble[1].x1-j,bubble[1].y1,bubble[1].x2-j,bubble[1].y2);**

**floodfill(bubble[1].x1+5-j,bubble[1].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=0 && l!=1)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[0]);**

**outtextxy(bubble[0].x1+15+j,315,c);**

**sprintf(c,"%d",a[1]);**

**outtextxy(bubble[1].x1+15-j,315,c);**

**}**

**swap(bubble[0].y1,bubble[1].y1);**

**swap(bubble[0].y2,bubble[1].y2);**

**swap(a[1],a[0]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on two desired rectangle you want to swap.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[1].x1 && maxx<=bubble[1].x2 && maxy>=bubble[1].y1 && maxy<=bubble[1].y2 && maxx1>=bubble[2].x1 && maxx1<=bubble[2].x2 && maxy1>=bubble[2].y1 && maxy1<=bubble[2].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[1].x1+j,bubble[1].y1,bubble[1].x2+j,bubble[1].y2);**

**floodfill(bubble[1].x1+5+j,bubble[1].y1+5,WHITE);**

**rectangle(bubble[2].x1-j,bubble[2].y1,bubble[2].x2-j,bubble[2].y2);**

**floodfill(bubble[2].x1+5-j,bubble[2].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=2 && l!=1)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[1]);**

**outtextxy(bubble[1].x1+15+j,315,c);**

**sprintf(c,"%d",a[2]);**

**outtextxy(bubble[2].x1+15-j,315,c);**

**}**

**swap(bubble[2].y1,bubble[1].y1);**

**swap(bubble[2].y2,bubble[1].y2);**

**swap(a[1],a[2]);**

**}**

**else if(maxx>=bubble[2].x1 && maxx<=bubble[2].x2 && maxy>=bubble[2].y1 && maxy<=bubble[2].y2 && maxx1>=bubble[1].x1 && maxx1<=bubble[1].x2 && maxy1>=bubble[1].y1 && maxy1<=bubble[1].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[1].x1+j,bubble[1].y1,bubble[1].x2+j,bubble[1].y2);**

**floodfill(bubble[1].x1+5+j,bubble[1].y1+5,WHITE);**

**rectangle(bubble[2].x1-j,bubble[2].y1,bubble[2].x2-j,bubble[2].y2);**

**floodfill(bubble[2].x1+5-j,bubble[2].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=2 && l!=1)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[1]);**

**outtextxy(bubble[1].x1+15+j,315,c);**

**sprintf(c,"%d",a[2]);**

**outtextxy(bubble[2].x1+15-j,315,c);**

**}**

**swap(bubble[2].y1,bubble[1].y1);**

**swap(bubble[2].y2,bubble[1].y2);**

**swap(a[1],a[2]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on two desired rectangle you want to swap.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[2].x1 && maxx<=bubble[2].x2 && maxy>=bubble[2].y1 && maxy<=bubble[2].y2 && maxx1>=bubble[3].x1 && maxx1<=bubble[3].x2 && maxy1>=bubble[3].y1 && maxy1<=bubble[3].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[2].x1+j,bubble[2].y1,bubble[2].x2+j,bubble[2].y2);**

**floodfill(bubble[2].x1+5+j,bubble[2].y1+5,WHITE);**

**rectangle(bubble[3].x1-j,bubble[3].y1,bubble[3].x2-j,bubble[3].y2);**

**floodfill(bubble[3].x1+5-j,bubble[3].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=3 && l!=2)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[2]);**

**outtextxy(bubble[2].x1+15+j,315,c);**

**sprintf(c,"%d",a[3]);**

**outtextxy(bubble[3].x1+15-j,315,c);**

**}**

**swap(bubble[2].y1,bubble[3].y1);**

**swap(bubble[2].y2,bubble[3].y2);**

**swap(a[3],a[2]);**

**}**

**else if(maxx>=bubble[3].x1 && maxx<=bubble[3].x2 && maxy>=bubble[3].y1 && maxy<=bubble[3].y2 && maxx1>=bubble[2].x1 && maxx1<=bubble[2].x2 && maxy1>=bubble[2].y1 && maxy1<=bubble[2].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[2].x1+j,bubble[2].y1,bubble[2].x2+j,bubble[2].y2);**

**floodfill(bubble[2].x1+5+j,bubble[2].y1+5,WHITE);**

**rectangle(bubble[3].x1-j,bubble[3].y1,bubble[3].x2-j,bubble[3].y2);**

**floodfill(bubble[3].x1+5-j,bubble[3].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=3 && l!=2)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[2]);**

**outtextxy(bubble[2].x1+15+j,315,c);**

**sprintf(c,"%d",a[3]);**

**outtextxy(bubble[3].x1+15-j,315,c);**

**}**

**swap(bubble[2].y1,bubble[3].y1);**

**swap(bubble[2].y2,bubble[3].y2);**

**swap(a[3],a[2]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on two desired rectangle you want to swap.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[4].x1 && maxx<=bubble[4].x2 && maxy>=bubble[4].y1 && maxy<=bubble[4].y2 && maxx1>=bubble[5].x1 && maxx1<=bubble[5].x2 && maxy1>=bubble[5].y1 && maxy1<=bubble[5].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[4].x1+j,bubble[4].y1,bubble[4].x2+j,bubble[4].y2);**

**floodfill(bubble[4].x1+5+j,bubble[4].y1+5,WHITE);**

**rectangle(bubble[5].x1-j,bubble[5].y1,bubble[5].x2-j,bubble[5].y2);**

**floodfill(bubble[5].x1+5-j,bubble[5].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=4 && l!=5)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[4]);**

**outtextxy(bubble[4].x1+15+j,315,c);**

**sprintf(c,"%d",a[5]);**

**outtextxy(bubble[5].x1+15-j,315,c);**

**}**

**swap(bubble[5].y1,bubble[4].y1);**

**swap(bubble[5].y2,bubble[4].y2);**

**swap(a[4],a[5]);**

**}**

**else if(maxx>=bubble[5].x1 && maxx<=bubble[5].x2 && maxy>=bubble[5].y1 && maxy<=bubble[5].y2 && maxx1>=bubble[4].x1 && maxx1<=bubble[4].x2 && maxy1>=bubble[4].y1 && maxy1<=bubble[4].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[4].x1+j,bubble[4].y1,bubble[4].x2+j,bubble[4].y2);**

**floodfill(bubble[4].x1+5+j,bubble[4].y1+5,WHITE);**

**rectangle(bubble[5].x1-j,bubble[5].y1,bubble[5].x2-j,bubble[5].y2);**

**floodfill(bubble[5].x1+5-j,bubble[5].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=4 && l!=5)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[4]);**

**outtextxy(bubble[4].x1+15+j,315,c);**

**sprintf(c,"%d",a[5]);**

**outtextxy(bubble[5].x1+15-j,315,c);**

**}**

**swap(bubble[5].y1,bubble[4].y1);**

**swap(bubble[5].y2,bubble[4].y2);**

**swap(a[4],a[5]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on two desired rectangle you want to swap.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[5].x1 && maxx<=bubble[5].x2 && maxy>=bubble[5].y1 && maxy<=bubble[5].y2 && maxx1>=bubble[6].x1 && maxx1<=bubble[6].x2 && maxy1>=bubble[6].y1 && maxy1<=bubble[6].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[5].x1+j,bubble[5].y1,bubble[5].x2+j,bubble[5].y2);**

**floodfill(bubble[5].x1+5+j,bubble[5].y1+5,WHITE);**

**rectangle(bubble[6].x1-j,bubble[6].y1,bubble[6].x2-j,bubble[6].y2);**

**floodfill(bubble[6].x1+5-j,bubble[6].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=5 && l!=6)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[5]);**

**outtextxy(bubble[5].x1+15+j,315,c);**

**sprintf(c,"%d",a[6]);**

**outtextxy(bubble[6].x1+15-j,315,c);**

**}**

**swap(bubble[5].y1,bubble[6].y1);**

**swap(bubble[5].y2,bubble[6].y2);**

**swap(a[5],a[6]);**

**}**

**else if(maxx>=bubble[6].x1 && maxx<=bubble[6].x2 && maxy>=bubble[6].y1 && maxy<=bubble[6].y2 && maxx1>=bubble[5].x1 && maxx1<=bubble[5].x2 && maxy1>=bubble[5].y1 && maxy1<=bubble[5].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[5].x1+j,bubble[5].y1,bubble[5].x2+j,bubble[5].y2);**

**floodfill(bubble[5].x1+5+j,bubble[5].y1+5,WHITE);**

**rectangle(bubble[6].x1-j,bubble[6].y1,bubble[6].x2-j,bubble[6].y2);**

**floodfill(bubble[6].x1+5-j,bubble[6].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=5 && l!=6)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[5]);**

**outtextxy(bubble[5].x1+15+j,315,c);**

**sprintf(c,"%d",a[6]);**

**outtextxy(bubble[6].x1+15-j,315,c);**

**}**

**swap(bubble[5].y1,bubble[6].y1);**

**swap(bubble[5].y2,bubble[6].y2);**

**swap(a[5],a[6]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on two desired rectangle you want to swap.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[7].x1 && maxx<=bubble[7].x2 && maxy>=bubble[7].y1 && maxy<=bubble[7].y2 && maxx1>=bubble[8].x1 && maxx1<=bubble[8].x2 && maxy1>=bubble[8].y1 && maxy1<=bubble[8].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[7].x1+j,bubble[7].y1,bubble[7].x2+j,bubble[7].y2);**

**floodfill(bubble[7].x1+5+j,bubble[7].y1+5,WHITE);**

**rectangle(bubble[8].x1-j,bubble[8].y1,bubble[8].x2-j,bubble[8].y2);**

**floodfill(bubble[8].x1+5-j,bubble[8].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=7 && l!=8)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[7]);**

**outtextxy(bubble[7].x1+15+j,315,c);**

**sprintf(c,"%d",a[8]);**

**outtextxy(bubble[8].x1+15-j,315,c);**

**}**

**swap(bubble[8].y1,bubble[7].y1);**

**swap(bubble[8].y2,bubble[7].y2);**

**swap(a[7],a[8]);**

**}**

**else if(maxx>=bubble[8].x1 && maxx<=bubble[8].x2 && maxy>=bubble[8].y1 && maxy<=bubble[8].y2 && maxx1>=bubble[7].x1 && maxx1<=bubble[7].x2 && maxy1>=bubble[7].y1 && maxy1<=bubble[7].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[7].x1+j,bubble[7].y1,bubble[7].x2+j,bubble[7].y2);**

**floodfill(bubble[7].x1+5+j,bubble[7].y1+5,WHITE);**

**rectangle(bubble[8].x1-j,bubble[8].y1,bubble[8].x2-j,bubble[8].y2);**

**floodfill(bubble[8].x1+5-j,bubble[8].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=7 && l!=8)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[7]);**

**outtextxy(bubble[7].x1+15+j,315,c);**

**sprintf(c,"%d",a[8]);**

**outtextxy(bubble[8].x1+15-j,315,c);**

**}**

**swap(bubble[8].y1,bubble[7].y1);**

**swap(bubble[8].y2,bubble[7].y2);**

**swap(a[7],a[8]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on two desired rectangle you want to swap.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[8].x1 && maxx<=bubble[8].x2 && maxy>=bubble[8].y1 && maxy<=bubble[8].y2 && maxx1>=bubble[9].x1 && maxx1<=bubble[9].x2 && maxy1>=bubble[9].y1 && maxy1<=bubble[9].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[8].x1+j,bubble[8].y1,bubble[8].x2+j,bubble[8].y2);**

**floodfill(bubble[8].x1+5+j,bubble[8].y1+5,WHITE);**

**rectangle(bubble[9].x1-j,bubble[9].y1,bubble[9].x2-j,bubble[9].y2);**

**floodfill(bubble[9].x1+5-j,bubble[9].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=9 && l!=8)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[8]);**

**outtextxy(bubble[8].x1+15+j,315,c);**

**sprintf(c,"%d",a[9]);**

**outtextxy(bubble[9].x1+15-j,315,c);**

**}**

**swap(bubble[9].y1,bubble[8].y1);**

**swap(bubble[9].y2,bubble[8].y2);**

**swap(a[8],a[9]);**

**}**

**else if(maxx>=bubble[9].x1 && maxx<=bubble[9].x2 && maxy>=bubble[9].y1 && maxy<=bubble[9].y2 && maxx1>=bubble[8].x1 && maxx1<=bubble[8].x2 && maxy1>=bubble[8].y1 && maxy1<=bubble[8].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[8].x1+j,bubble[8].y1,bubble[8].x2+j,bubble[8].y2);**

**floodfill(bubble[8].x1+5+j,bubble[8].y1+5,WHITE);**

**rectangle(bubble[9].x1-j,bubble[9].y1,bubble[9].x2-j,bubble[9].y2);**

**floodfill(bubble[9].x1+5-j,bubble[9].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=9 && l!=8)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[8]);**

**outtextxy(bubble[8].x1+15+j,315,c);**

**sprintf(c,"%d",a[9]);**

**outtextxy(bubble[9].x1+15-j,315,c);**

**}**

**swap(bubble[9].y1,bubble[8].y1);**

**swap(bubble[9].y2,bubble[8].y2);**

**swap(a[8],a[9]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on two desired rectangle you want to swap.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[1].x1 && maxx<=bubble[1].x2 && maxy>=bubble[1].y1 && maxy<=bubble[1].y2 && maxx1>=bubble[2].x1 && maxx1<=bubble[2].x2 && maxy1>=bubble[2].y1 && maxy1<=bubble[2].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[1].x1+j,bubble[1].y1,bubble[1].x2+j,bubble[1].y2);**

**floodfill(bubble[1].x1+5+j,bubble[1].y1+5,WHITE);**

**rectangle(bubble[2].x1-j,bubble[2].y1,bubble[2].x2-j,bubble[2].y2);**

**floodfill(bubble[2].x1+5-j,bubble[2].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=2 && l!=1)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[1]);**

**outtextxy(bubble[1].x1+15+j,315,c);**

**sprintf(c,"%d",a[2]);**

**outtextxy(bubble[2].x1+15-j,315,c);**

**}**

**swap(bubble[2].y1,bubble[1].y1);**

**swap(bubble[2].y2,bubble[1].y2);**

**swap(a[1],a[2]);**

**}**

**else if(maxx>=bubble[2].x1 && maxx<=bubble[2].x2 && maxy>=bubble[2].y1 && maxy<=bubble[2].y2 && maxx1>=bubble[1].x1 && maxx1<=bubble[1].x2 && maxy1>=bubble[1].y1 && maxy1<=bubble[1].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[1].x1+j,bubble[1].y1,bubble[1].x2+j,bubble[1].y2);**

**floodfill(bubble[1].x1+5+j,bubble[1].y1+5,WHITE);**

**rectangle(bubble[2].x1-j,bubble[2].y1,bubble[2].x2-j,bubble[2].y2);**

**floodfill(bubble[2].x1+5-j,bubble[2].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=2 && l!=1)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[1]);**

**outtextxy(bubble[1].x1+15+j,315,c);**

**sprintf(c,"%d",a[2]);**

**outtextxy(bubble[2].x1+15-j,315,c);**

**}**

**swap(bubble[2].y1,bubble[1].y1);**

**swap(bubble[2].y2,bubble[1].y2);**

**swap(a[1],a[2]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on two desired rectangle you want to swap.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[4].x1 && maxx<=bubble[4].x2 && maxy>=bubble[4].y1 && maxy<=bubble[4].y2 && maxx1>=bubble[5].x1 && maxx1<=bubble[5].x2 && maxy1>=bubble[5].y1 && maxy1<=bubble[5].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[4].x1+j,bubble[4].y1,bubble[4].x2+j,bubble[4].y2);**

**floodfill(bubble[4].x1+5+j,bubble[4].y1+5,WHITE);**

**rectangle(bubble[5].x1-j,bubble[5].y1,bubble[5].x2-j,bubble[5].y2);**

**floodfill(bubble[5].x1+5-j,bubble[5].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=4 && l!=5)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[4]);**

**outtextxy(bubble[4].x1+15+j,315,c);**

**sprintf(c,"%d",a[5]);**

**outtextxy(bubble[5].x1+15-j,315,c);**

**}**

**swap(bubble[5].y1,bubble[4].y1);**

**swap(bubble[5].y2,bubble[4].y2);**

**swap(a[4],a[5]);**

**}**

**else if(maxx>=bubble[5].x1 && maxx<=bubble[5].x2 && maxy>=bubble[5].y1 && maxy<=bubble[5].y2 && maxx1>=bubble[4].x1 && maxx1<=bubble[4].x2 && maxy1>=bubble[4].y1 && maxy1<=bubble[4].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[4].x1+j,bubble[4].y1,bubble[4].x2+j,bubble[4].y2);**

**floodfill(bubble[4].x1+5+j,bubble[4].y1+5,WHITE);**

**rectangle(bubble[5].x1-j,bubble[5].y1,bubble[5].x2-j,bubble[5].y2);**

**floodfill(bubble[5].x1+5-j,bubble[5].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=4 && l!=5)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[4]);**

**outtextxy(bubble[4].x1+15+j,315,c);**

**sprintf(c,"%d",a[5]);**

**outtextxy(bubble[5].x1+15-j,315,c);**

**}**

**swap(bubble[5].y1,bubble[4].y1);**

**swap(bubble[5].y2,bubble[4].y2);**

**swap(a[4],a[5]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on two desired rectangle you want to swap.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[7].x1 && maxx<=bubble[7].x2 && maxy>=bubble[7].y1 && maxy<=bubble[7].y2 && maxx1>=bubble[6].x1 && maxx1<=bubble[6].x2 && maxy1>=bubble[6].y1 && maxy1<=bubble[6].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[6].x1+j,bubble[6].y1,bubble[6].x2+j,bubble[6].y2);**

**floodfill(bubble[6].x1+5+j,bubble[6].y1+5,WHITE);**

**rectangle(bubble[7].x1-j,bubble[7].y1,bubble[7].x2-j,bubble[7].y2);**

**floodfill(bubble[7].x1+5-j,bubble[7].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=7 && l!=6)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[6]);**

**outtextxy(bubble[6].x1+15+j,315,c);**

**sprintf(c,"%d",a[7]);**

**outtextxy(bubble[7].x1+15-j,315,c);**

**}**

**swap(bubble[6].y1,bubble[7].y1);**

**swap(bubble[6].y2,bubble[7].y2);**

**swap(a[7],a[6]);**

**}**

**else if(maxx>=bubble[6].x1 && maxx<=bubble[6].x2 && maxy>=bubble[6].y1 && maxy<=bubble[6].y2 && maxx1>=bubble[7].x1 && maxx1<=bubble[7].x2 && maxy1>=bubble[7].y1 && maxy1<=bubble[7].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[6].x1+j,bubble[6].y1,bubble[6].x2+j,bubble[6].y2);**

**floodfill(bubble[6].x1+5+j,bubble[6].y1+5,WHITE);**

**rectangle(bubble[7].x1-j,bubble[7].y1,bubble[7].x2-j,bubble[7].y2);**

**floodfill(bubble[7].x1+5-j,bubble[7].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=7 && l!=6)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[6]);**

**outtextxy(bubble[6].x1+15+j,315,c);**

**sprintf(c,"%d",a[7]);**

**outtextxy(bubble[7].x1+15-j,315,c);**

**}**

**swap(bubble[6].y1,bubble[7].y1);**

**swap(bubble[6].y2,bubble[7].y2);**

**swap(a[7],a[6]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on two desired rectangle you want to swap.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[7].x1 && maxx<=bubble[7].x2 && maxy>=bubble[7].y1 && maxy<=bubble[7].y2 && maxx1>=bubble[8].x1 && maxx1<=bubble[8].x2 && maxy1>=bubble[8].y1 && maxy1<=bubble[8].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[7].x1+j,bubble[7].y1,bubble[7].x2+j,bubble[7].y2);**

**floodfill(bubble[7].x1+5+j,bubble[7].y1+5,WHITE);**

**rectangle(bubble[8].x1-j,bubble[8].y1,bubble[8].x2-j,bubble[8].y2);**

**floodfill(bubble[8].x1+5-j,bubble[8].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=7 && l!=8)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[7]);**

**outtextxy(bubble[7].x1+15+j,315,c);**

**sprintf(c,"%d",a[8]);**

**outtextxy(bubble[8].x1+15-j,315,c);**

**}**

**swap(bubble[8].y1,bubble[7].y1);**

**swap(bubble[8].y2,bubble[7].y2);**

**swap(a[7],a[8]);**

**}**

**else if(maxx>=bubble[8].x1 && maxx<=bubble[8].x2 && maxy>=bubble[8].y1 && maxy<=bubble[8].y2 && maxx1>=bubble[7].x1 && maxx1<=bubble[7].x2 && maxy1>=bubble[7].y1 && maxy1<=bubble[7].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[7].x1+j,bubble[7].y1,bubble[7].x2+j,bubble[7].y2);**

**floodfill(bubble[7].x1+5+j,bubble[7].y1+5,WHITE);**

**rectangle(bubble[8].x1-j,bubble[8].y1,bubble[8].x2-j,bubble[8].y2);**

**floodfill(bubble[8].x1+5-j,bubble[8].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=7 && l!=8)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[7]);**

**outtextxy(bubble[7].x1+15+j,315,c);**

**sprintf(c,"%d",a[8]);**

**outtextxy(bubble[8].x1+15-j,315,c);**

**}**

**swap(bubble[8].y1,bubble[7].y1);**

**swap(bubble[8].y2,bubble[7].y2);**

**swap(a[7],a[8]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on two desired rectangle you want to swap.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[3].x1 && maxx<=bubble[3].x2 && maxy>=bubble[3].y1 && maxy<=bubble[3].y2 && maxx1>=bubble[4].x1 && maxx1<=bubble[4].x2 && maxy1>=bubble[4].y1 && maxy1<=bubble[4].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[3].x1+j,bubble[3].y1,bubble[3].x2+j,bubble[3].y2);**

**floodfill(bubble[3].x1+5+j,bubble[3].y1+5,WHITE);**

**rectangle(bubble[4].x1-j,bubble[4].y1,bubble[4].x2-j,bubble[4].y2);**

**floodfill(bubble[4].x1+5-j,bubble[4].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=3 && l!=4)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[3]);**

**outtextxy(bubble[3].x1+15+j,315,c);**

**sprintf(c,"%d",a[4]);**

**outtextxy(bubble[4].x1+15-j,315,c);**

**}**

**swap(bubble[4].y1,bubble[3].y1);**

**swap(bubble[4].y2,bubble[3].y2);**

**swap(a[3],a[4]);**

**}**

**else if(maxx>=bubble[4].x1 && maxx<=bubble[4].x2 && maxy>=bubble[4].y1 && maxy<=bubble[4].y2 && maxx1>=bubble[3].x1 && maxx1<=bubble[3].x2 && maxy1>=bubble[3].y1 && maxy1<=bubble[3].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[3].x1+j,bubble[3].y1,bubble[3].x2+j,bubble[3].y2);**

**floodfill(bubble[3].x1+5+j,bubble[3].y1+5,WHITE);**

**rectangle(bubble[4].x1-j,bubble[4].y1,bubble[4].x2-j,bubble[4].y2);**

**floodfill(bubble[4].x1+5-j,bubble[4].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=3 && l!=4)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[3]);**

**outtextxy(bubble[3].x1+15+j,315,c);**

**sprintf(c,"%d",a[4]);**

**outtextxy(bubble[4].x1+15-j,315,c);**

**}**

**swap(bubble[4].y1,bubble[3].y1);**

**swap(bubble[4].y2,bubble[3].y2);**

**swap(a[3],a[4]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on two desired rectangle you want to swap.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[5].x1 && maxx<=bubble[5].x2 && maxy>=bubble[5].y1 && maxy<=bubble[5].y2 && maxx1>=bubble[6].x1 && maxx1<=bubble[6].x2 && maxy1>=bubble[6].y1 && maxy1<=bubble[6].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[5].x1+j,bubble[5].y1,bubble[5].x2+j,bubble[5].y2);**

**floodfill(bubble[5].x1+5+j,bubble[5].y1+5,WHITE);**

**rectangle(bubble[6].x1-j,bubble[6].y1,bubble[6].x2-j,bubble[6].y2);**

**floodfill(bubble[6].x1+5-j,bubble[6].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=5 && l!=6)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[5]);**

**outtextxy(bubble[5].x1+15+j,315,c);**

**sprintf(c,"%d",a[6]);**

**outtextxy(bubble[6].x1+15-j,315,c);**

**}**

**swap(bubble[5].y1,bubble[6].y1);**

**swap(bubble[5].y2,bubble[6].y2);**

**swap(a[5],a[6]);**

**}**

**else if(maxx>=bubble[6].x1 && maxx<=bubble[6].x2 && maxy>=bubble[6].y1 && maxy<=bubble[6].y2 && maxx1>=bubble[5].x1 && maxx1<=bubble[5].x2 && maxy1>=bubble[5].y1 && maxy1<=bubble[5].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[5].x1+j,bubble[5].y1,bubble[5].x2+j,bubble[5].y2);**

**floodfill(bubble[5].x1+5+j,bubble[5].y1+5,WHITE);**

**rectangle(bubble[6].x1-j,bubble[6].y1,bubble[6].x2-j,bubble[6].y2);**

**floodfill(bubble[6].x1+5-j,bubble[6].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=5 && l!=6)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[5]);**

**outtextxy(bubble[5].x1+15+j,315,c);**

**sprintf(c,"%d",a[6]);**

**outtextxy(bubble[6].x1+15-j,315,c);**

**}**

**swap(bubble[5].y1,bubble[6].y1);**

**swap(bubble[5].y2,bubble[6].y2);**

**swap(a[5],a[6]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on two desired rectangle you want to swap.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[7].x1 && maxx<=bubble[7].x2 && maxy>=bubble[7].y1 && maxy<=bubble[7].y2 && maxx1>=bubble[6].x1 && maxx1<=bubble[6].x2 && maxy1>=bubble[6].y1 && maxy1<=bubble[6].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[6].x1+j,bubble[6].y1,bubble[6].x2+j,bubble[6].y2);**

**floodfill(bubble[6].x1+5+j,bubble[6].y1+5,WHITE);**

**rectangle(bubble[7].x1-j,bubble[7].y1,bubble[7].x2-j,bubble[7].y2);**

**floodfill(bubble[7].x1+5-j,bubble[7].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=7 && l!=6)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[6]);**

**outtextxy(bubble[6].x1+15+j,315,c);**

**sprintf(c,"%d",a[7]);**

**outtextxy(bubble[7].x1+15-j,315,c);**

**}**

**swap(bubble[6].y1,bubble[7].y1);**

**swap(bubble[6].y2,bubble[7].y2);**

**swap(a[7],a[6]);**

**}**

**else if(maxx>=bubble[6].x1 && maxx<=bubble[6].x2 && maxy>=bubble[6].y1 && maxy<=bubble[6].y2 && maxx1>=bubble[7].x1 && maxx1<=bubble[7].x2 && maxy1>=bubble[7].y1 && maxy1<=bubble[7].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[6].x1+j,bubble[6].y1,bubble[6].x2+j,bubble[6].y2);**

**floodfill(bubble[6].x1+5+j,bubble[6].y1+5,WHITE);**

**rectangle(bubble[7].x1-j,bubble[7].y1,bubble[7].x2-j,bubble[7].y2);**

**floodfill(bubble[7].x1+5-j,bubble[7].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=7 && l!=6)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[6]);**

**outtextxy(bubble[6].x1+15+j,315,c);**

**sprintf(c,"%d",a[7]);**

**outtextxy(bubble[7].x1+15-j,315,c);**

**}**

**swap(bubble[6].y1,bubble[7].y1);**

**swap(bubble[6].y2,bubble[7].y2);**

**swap(a[7],a[6]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on two desired rectangle you want to swap.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[5].x1 && maxx<=bubble[5].x2 && maxy>=bubble[5].y1 && maxy<=bubble[5].y2 && maxx1>=bubble[6].x1 && maxx1<=bubble[6].x2 && maxy1>=bubble[6].y1 && maxy1<=bubble[6].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[5].x1+j,bubble[5].y1,bubble[5].x2+j,bubble[5].y2);**

**floodfill(bubble[5].x1+5+j,bubble[5].y1+5,WHITE);**

**rectangle(bubble[6].x1-j,bubble[6].y1,bubble[6].x2-j,bubble[6].y2);**

**floodfill(bubble[6].x1+5-j,bubble[6].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=5 && l!=6)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[5]);**

**outtextxy(bubble[5].x1+15+j,315,c);**

**sprintf(c,"%d",a[6]);**

**outtextxy(bubble[6].x1+15-j,315,c);**

**}**

**swap(bubble[5].y1,bubble[6].y1);**

**swap(bubble[5].y2,bubble[6].y2);**

**swap(a[5],a[6]);**

**}**

**else if(maxx>=bubble[6].x1 && maxx<=bubble[6].x2 && maxy>=bubble[6].y1 && maxy<=bubble[6].y2 && maxx1>=bubble[5].x1 && maxx1<=bubble[5].x2 && maxy1>=bubble[5].y1 && maxy1<=bubble[5].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[5].x1+j,bubble[5].y1,bubble[5].x2+j,bubble[5].y2);**

**floodfill(bubble[5].x1+5+j,bubble[5].y1+5,WHITE);**

**rectangle(bubble[6].x1-j,bubble[6].y1,bubble[6].x2-j,bubble[6].y2);**

**floodfill(bubble[6].x1+5-j,bubble[6].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=5 && l!=6)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[5]);**

**outtextxy(bubble[5].x1+15+j,315,c);**

**sprintf(c,"%d",a[6]);**

**outtextxy(bubble[6].x1+15-j,315,c);**

**}**

**swap(bubble[5].y1,bubble[6].y1);**

**swap(bubble[5].y2,bubble[6].y2);**

**swap(a[5],a[6]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on two desired rectangle you want to swap.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[4].x1 && maxx<=bubble[4].x2 && maxy>=bubble[4].y1 && maxy<=bubble[4].y2 && maxx1>=bubble[5].x1 && maxx1<=bubble[5].x2 && maxy1>=bubble[5].y1 && maxy1<=bubble[5].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[4].x1+j,bubble[4].y1,bubble[4].x2+j,bubble[4].y2);**

**floodfill(bubble[4].x1+5+j,bubble[4].y1+5,WHITE);**

**rectangle(bubble[5].x1-j,bubble[5].y1,bubble[5].x2-j,bubble[5].y2);**

**floodfill(bubble[5].x1+5-j,bubble[5].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=4 && l!=5)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[4]);**

**outtextxy(bubble[4].x1+15+j,315,c);**

**sprintf(c,"%d",a[5]);**

**outtextxy(bubble[5].x1+15-j,315,c);**

**}**

**swap(bubble[5].y1,bubble[4].y1);**

**swap(bubble[5].y2,bubble[4].y2);**

**swap(a[4],a[5]);**

**}**

**else if(maxx>=bubble[5].x1 && maxx<=bubble[5].x2 && maxy>=bubble[5].y1 && maxy<=bubble[5].y2 && maxx1>=bubble[4].x1 && maxx1<=bubble[4].x2 && maxy1>=bubble[4].y1 && maxy1<=bubble[4].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[4].x1+j,bubble[4].y1,bubble[4].x2+j,bubble[4].y2);**

**floodfill(bubble[4].x1+5+j,bubble[4].y1+5,WHITE);**

**rectangle(bubble[5].x1-j,bubble[5].y1,bubble[5].x2-j,bubble[5].y2);**

**floodfill(bubble[5].x1+5-j,bubble[5].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=4 && l!=5)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[4]);**

**outtextxy(bubble[4].x1+15+j,315,c);**

**sprintf(c,"%d",a[5]);**

**outtextxy(bubble[5].x1+15-j,315,c);**

**}**

**swap(bubble[5].y1,bubble[4].y1);**

**swap(bubble[5].y2,bubble[4].y2);**

**swap(a[4],a[5]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on two desired rectangle you want to swap.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[3].x1 && maxx<=bubble[3].x2 && maxy>=bubble[3].y1 && maxy<=bubble[3].y2 && maxx1>=bubble[4].x1 && maxx1<=bubble[4].x2 && maxy1>=bubble[4].y1 && maxy1<=bubble[4].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[3].x1+j,bubble[3].y1,bubble[3].x2+j,bubble[3].y2);**

**floodfill(bubble[3].x1+5+j,bubble[3].y1+5,WHITE);**

**rectangle(bubble[4].x1-j,bubble[4].y1,bubble[4].x2-j,bubble[4].y2);**

**floodfill(bubble[4].x1+5-j,bubble[4].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=3 && l!=4)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[3]);**

**outtextxy(bubble[3].x1+15+j,315,c);**

**sprintf(c,"%d",a[4]);**

**outtextxy(bubble[4].x1+15-j,315,c);**

**}**

**swap(bubble[4].y1,bubble[3].y1);**

**swap(bubble[4].y2,bubble[3].y2);**

**swap(a[3],a[4]);**

**}**

**else if(maxx>=bubble[4].x1 && maxx<=bubble[4].x2 && maxy>=bubble[4].y1 && maxy<=bubble[4].y2 && maxx1>=bubble[3].x1 && maxx1<=bubble[3].x2 && maxy1>=bubble[3].y1 && maxy1<=bubble[3].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Bubble sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[3].x1+j,bubble[3].y1,bubble[3].x2+j,bubble[3].y2);**

**floodfill(bubble[3].x1+5+j,bubble[3].y1+5,WHITE);**

**rectangle(bubble[4].x1-j,bubble[4].y1,bubble[4].x2-j,bubble[4].y2);**

**floodfill(bubble[4].x1+5-j,bubble[4].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=3 && l!=4)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[3]);**

**outtextxy(bubble[3].x1+15+j,315,c);**

**sprintf(c,"%d",a[4]);**

**outtextxy(bubble[4].x1+15-j,315,c);**

**}**

**swap(bubble[4].y1,bubble[3].y1);**

**swap(bubble[4].y2,bubble[3].y2);**

**swap(a[3],a[4]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**delay(1000);**

**cleardevice();**

**settextstyle(BOLD\_FONT,0,5);**

**outtextxy((getmaxx()/2)-100,(getmaxy()/2)-50,"Congratulation");**

**outtextxy(100,(getmaxy()/2),"You have passed level 2");**

**outtextxy((getmaxx()/2)-100,(getmaxy()/2)+50,"Thank you");**

**settextstyle(0,0,0);**

**delay(1000);**

**}**

**}**

**}**

**}**

**}**

**}**

**}**

**}**

**}**

**}**

**}**

**}**

**}**

**}**

**}**

**}**

**}**

**}**

**void selection\_manual\_1()**

**{**

**f=fopen("level 1.txt","r");**

**fscanf(f,"%d",&n);**

**setbkcolor(LIGHTBLUE);**

**for(int i=0; i<n; i++)**

**{**

**fscanf(f,"%d",&a[i]);**

**}**

**int t=100;**

**for(int i=0; i<n; i++)**

**{**

**bubble[i].x1=t;**

**bubble[i].y1=280-a[i];**

**bubble[i].x2=t+40;**

**bubble[i].y2=300;**

**t+=45;**

**}**

**delay(50);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,5);**

**outtextxy((getmaxx()/2)-100,getmaxy()/2,"LEVEL 1");**

**settextstyle(0,0,0);**

**delay(1000);**

**cleardevice();**

**for(int i=0; i<n; i++)**

**{**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Selection sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[i].x1,bubble[i].y1,bubble[i].x2,bubble[i].y2);**

**setfillstyle(1,BLUE);**

**floodfill(bubble[i].x1+5,bubble[i].y1+5,WHITE);**

**sprintf(c,"%d",a[i]);**

**outtextxy(bubble[i].x1+15,315,c);**

**}**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on two desired rectangle you want to swap.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[0].x1 && maxx<=bubble[0].x2 && maxy>=bubble[0].y1 && maxy<=bubble[0].y2 && maxx1>=bubble[3].x1 && maxx1<=bubble[3].x2 && maxy1>=bubble[3].y1 && maxy1<=bubble[3].y2)**

**{**

**for(int j=1; j<=3\*45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Selection sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[0].x1+j,bubble[0].y1,bubble[0].x2+j,bubble[0].y2);**

**floodfill(bubble[0].x1+5+j,bubble[0].y1+5,WHITE);**

**rectangle(bubble[3].x1-j,bubble[3].y1,bubble[3].x2-j,bubble[3].y2);**

**floodfill(bubble[3].x1+5-j,bubble[3].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=0 && l!=3)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[0]);**

**outtextxy(bubble[0].x1+15+j,315,c);**

**sprintf(c,"%d",a[3]);**

**outtextxy(bubble[3].x1+15-j,315,c);**

**}**

**swap(bubble[0].y1,bubble[3].y1);**

**swap(bubble[0].y2,bubble[3].y2);**

**swap(a[3],a[0]);**

**}**

**else if(maxx>=bubble[3].x1 && maxx<=bubble[3].x2 && maxy>=bubble[3].y1 && maxy<=bubble[3].y2 && maxx1>=bubble[0].x1 && maxx1<=bubble[0].x2 && maxy1>=bubble[0].y1 && maxy1<=bubble[0].y2)**

**{**

**for(int j=1; j<=3\*45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Selection sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[0].x1+j,bubble[0].y1,bubble[0].x2+j,bubble[0].y2);**

**floodfill(bubble[0].x1+5+j,bubble[0].y1+5,WHITE);**

**rectangle(bubble[3].x1-j,bubble[3].y1,bubble[3].x2-j,bubble[3].y2);**

**floodfill(bubble[3].x1+5-j,bubble[3].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=0 && l!=3)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[0]);**

**outtextxy(bubble[0].x1+15+j,315,c);**

**sprintf(c,"%d",a[3]);**

**outtextxy(bubble[3].x1+15-j,315,c);**

**}**

**swap(bubble[0].y1,bubble[3].y1);**

**swap(bubble[0].y2,bubble[3].y2);**

**swap(a[3],a[0]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on two desired rectangle you want to swap.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[1].x1 && maxx<=bubble[1].x2 && maxy>=bubble[1].y1 && maxy<=bubble[1].y2 && maxx1>=bubble[3].x1 && maxx1<=bubble[3].x2 && maxy1>=bubble[3].y1 && maxy1<=bubble[3].y2)**

**{**

**for(int j=1; j<=2\*45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Selection sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[1].x1+j,bubble[1].y1,bubble[1].x2+j,bubble[1].y2);**

**floodfill(bubble[1].x1+5+j,bubble[1].y1+5,WHITE);**

**rectangle(bubble[3].x1-j,bubble[3].y1,bubble[3].x2-j,bubble[3].y2);**

**floodfill(bubble[3].x1+5-j,bubble[3].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=3 && l!=1)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[1]);**

**outtextxy(bubble[1].x1+15+j,315,c);**

**sprintf(c,"%d",a[3]);**

**outtextxy(bubble[3].x1+15-j,315,c);**

**}**

**swap(bubble[3].y1,bubble[1].y1);**

**swap(bubble[3].y2,bubble[1].y2);**

**swap(a[1],a[3]);**

**}**

**else if(maxx>=bubble[3].x1 && maxx<=bubble[3].x2 && maxy>=bubble[3].y1 && maxy<=bubble[3].y2 && maxx1>=bubble[1].x1 && maxx1<=bubble[1].x2 && maxy1>=bubble[1].y1 && maxy1<=bubble[1].y2)**

**{**

**for(int j=1; j<=2\*45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Selection sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[1].x1+j,bubble[1].y1,bubble[1].x2+j,bubble[1].y2);**

**floodfill(bubble[1].x1+5+j,bubble[1].y1+5,WHITE);**

**rectangle(bubble[3].x1-j,bubble[3].y1,bubble[3].x2-j,bubble[3].y2);**

**floodfill(bubble[3].x1+5-j,bubble[3].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=3 && l!=1)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[1]);**

**outtextxy(bubble[1].x1+15+j,315,c);**

**sprintf(c,"%d",a[3]);**

**outtextxy(bubble[3].x1+15-j,315,c);**

**}**

**swap(bubble[3].y1,bubble[1].y1);**

**swap(bubble[3].y2,bubble[1].y2);**

**swap(a[1],a[3]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on two desired rectangle you want to swap.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[2].x1 && maxx<=bubble[2].x2 && maxy>=bubble[2].y1 && maxy<=bubble[2].y2 && maxx1>=bubble[4].x1 && maxx1<=bubble[4].x2 && maxy1>=bubble[4].y1 && maxy1<=bubble[4].y2)**

**{**

**for(int j=1; j<=2\*45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Selection sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[2].x1+j,bubble[2].y1,bubble[2].x2+j,bubble[2].y2);**

**floodfill(bubble[2].x1+5+j,bubble[2].y1+5,WHITE);**

**rectangle(bubble[4].x1-j,bubble[4].y1,bubble[4].x2-j,bubble[4].y2);**

**floodfill(bubble[4].x1+5-j,bubble[4].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=2 && l!=4)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[2]);**

**outtextxy(bubble[2].x1+15+j,315,c);**

**sprintf(c,"%d",a[4]);**

**outtextxy(bubble[4].x1+15-j,315,c);**

**}**

**swap(bubble[4].y1,bubble[2].y1);**

**swap(bubble[4].y2,bubble[2].y2);**

**swap(a[2],a[4]);**

**}**

**else if(maxx>=bubble[4].x1 && maxx<=bubble[4].x2 && maxy>=bubble[4].y1 && maxy<=bubble[4].y2 && maxx1>=bubble[2].x1 && maxx1<=bubble[2].x2 && maxy1>=bubble[2].y1 && maxy1<=bubble[2].y2)**

**{**

**for(int j=1; j<=2\*45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Selection sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[2].x1+j,bubble[2].y1,bubble[2].x2+j,bubble[2].y2);**

**floodfill(bubble[2].x1+5+j,bubble[2].y1+5,WHITE);**

**rectangle(bubble[4].x1-j,bubble[4].y1,bubble[4].x2-j,bubble[4].y2);**

**floodfill(bubble[4].x1+5-j,bubble[4].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=2 && l!=4)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[2]);**

**outtextxy(bubble[2].x1+15+j,315,c);**

**sprintf(c,"%d",a[4]);**

**outtextxy(bubble[4].x1+15-j,315,c);**

**}**

**swap(bubble[4].y1,bubble[2].y1);**

**swap(bubble[4].y2,bubble[2].y2);**

**swap(a[2],a[4]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on two desired rectangle you want to swap.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[3].x1 && maxx<=bubble[3].x2 && maxy>=bubble[3].y1 && maxy<=bubble[3].y2 && maxx1>=bubble[4].x1 && maxx1<=bubble[4].x2 && maxy1>=bubble[4].y1 && maxy1<=bubble[4].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Selection sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[3].x1+j,bubble[3].y1,bubble[3].x2+j,bubble[3].y2);**

**floodfill(bubble[3].x1+5+j,bubble[3].y1+5,WHITE);**

**rectangle(bubble[4].x1-j,bubble[4].y1,bubble[4].x2-j,bubble[4].y2);**

**floodfill(bubble[4].x1+5-j,bubble[4].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=3 && l!=4)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[3]);**

**outtextxy(bubble[3].x1+15+j,315,c);**

**sprintf(c,"%d",a[4]);**

**outtextxy(bubble[4].x1+15-j,315,c);**

**}**

**swap(bubble[4].y1,bubble[3].y1);**

**swap(bubble[4].y2,bubble[3].y2);**

**swap(a[3],a[4]);**

**}**

**else if(maxx>=bubble[4].x1 && maxx<=bubble[4].x2 && maxy>=bubble[4].y1 && maxy<=bubble[4].y2 && maxx1>=bubble[3].x1 && maxx1<=bubble[3].x2 && maxy1>=bubble[3].y1 && maxy1<=bubble[3].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Selection sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[3].x1+j,bubble[3].y1,bubble[3].x2+j,bubble[3].y2);**

**floodfill(bubble[3].x1+5+j,bubble[3].y1+5,WHITE);**

**rectangle(bubble[4].x1-j,bubble[4].y1,bubble[4].x2-j,bubble[4].y2);**

**floodfill(bubble[4].x1+5-j,bubble[4].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=3 && l!=4)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[3]);**

**outtextxy(bubble[3].x1+15+j,315,c);**

**sprintf(c,"%d",a[4]);**

**outtextxy(bubble[4].x1+15-j,315,c);**

**}**

**swap(bubble[4].y1,bubble[3].y1);**

**swap(bubble[4].y2,bubble[3].y2);**

**swap(a[3],a[4]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**delay(1000);**

**cleardevice();**

**settextstyle(BOLD\_FONT,0,5);**

**outtextxy((getmaxx()/2)-150,(getmaxy()/2)-50,"Congratulation");**

**outtextxy(100,(getmaxy()/2),"You have passed level 1");**

**settextstyle(0,0,0);**

**}**

**}**

**}**

**}**

**}**

**void selection\_manual\_2()**

**{**

**f=fopen("level 2.txt","r");**

**fscanf(f,"%d",&n);**

**setbkcolor(LIGHTBLUE);**

**for(int i=0; i<n; i++)**

**{**

**fscanf(f,"%d",&a[i]);**

**}**

**int t=100;**

**for(int i=0; i<n; i++)**

**{**

**bubble[i].x1=t;**

**bubble[i].y1=280-a[i];**

**bubble[i].x2=t+40;**

**bubble[i].y2=300;**

**t+=45;**

**}**

**delay(50);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,5);**

**outtextxy((getmaxx()/2)-100,getmaxy()/2,"LEVEL 2");**

**settextstyle(0,0,0);**

**delay(2000);**

**cleardevice();**

**for(int i=0; i<n; i++)**

**{**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Selection sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[i].x1,bubble[i].y1,bubble[i].x2,bubble[i].y2);**

**setfillstyle(1,BLUE);**

**floodfill(bubble[i].x1+5,bubble[i].y1+5,WHITE);**

**sprintf(c,"%d",a[i]);**

**outtextxy(bubble[i].x1+15,315,c);**

**}**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on two desired rectangle you want to swap.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[0].x1 && maxx<=bubble[0].x2 && maxy>=bubble[0].y1 && maxy<=bubble[0].y2 && maxx1>=bubble[1].x1 && maxx1<=bubble[1].x2 && maxy1>=bubble[1].y1 && maxy1<=bubble[1].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Selection sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[0].x1+j,bubble[0].y1,bubble[0].x2+j,bubble[0].y2);**

**floodfill(bubble[0].x1+5+j,bubble[0].y1+5,WHITE);**

**rectangle(bubble[1].x1-j,bubble[1].y1,bubble[1].x2-j,bubble[1].y2);**

**floodfill(bubble[1].x1+5-j,bubble[1].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=0 && l!=1)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[0]);**

**outtextxy(bubble[0].x1+15+j,315,c);**

**sprintf(c,"%d",a[1]);**

**outtextxy(bubble[1].x1+15-j,315,c);**

**}**

**swap(bubble[0].y1,bubble[1].y1);**

**swap(bubble[0].y2,bubble[1].y2);**

**swap(a[1],a[0]);**

**}**

**else if(maxx>=bubble[1].x1 && maxx<=bubble[1].x2 && maxy>=bubble[1].y1 && maxy<=bubble[1].y2 && maxx1>=bubble[0].x1 && maxx1<=bubble[0].x2 && maxy1>=bubble[0].y1 && maxy1<=bubble[0].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Selection sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[0].x1+j,bubble[0].y1,bubble[0].x2+j,bubble[0].y2);**

**floodfill(bubble[0].x1+5+j,bubble[0].y1+5,WHITE);**

**rectangle(bubble[1].x1-j,bubble[1].y1,bubble[1].x2-j,bubble[1].y2);**

**floodfill(bubble[1].x1+5-j,bubble[1].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=0 && l!=1)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[0]);**

**outtextxy(bubble[0].x1+15+j,315,c);**

**sprintf(c,"%d",a[1]);**

**outtextxy(bubble[1].x1+15-j,315,c);**

**}**

**swap(bubble[0].y1,bubble[1].y1);**

**swap(bubble[0].y2,bubble[1].y2);**

**swap(a[1],a[0]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on two desired rectangle you want to swap.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[1].x1 && maxx<=bubble[1].x2 && maxy>=bubble[1].y1 && maxy<=bubble[1].y2 && maxx1>=bubble[3].x1 && maxx1<=bubble[3].x2 && maxy1>=bubble[3].y1 && maxy1<=bubble[3].y2)**

**{**

**for(int j=1; j<=2\*45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Selection sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[1].x1+j,bubble[1].y1,bubble[1].x2+j,bubble[1].y2);**

**floodfill(bubble[1].x1+5+j,bubble[1].y1+5,WHITE);**

**rectangle(bubble[3].x1-j,bubble[3].y1,bubble[3].x2-j,bubble[3].y2);**

**floodfill(bubble[3].x1+5-j,bubble[3].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=3 && l!=1)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[1]);**

**outtextxy(bubble[1].x1+15+j,315,c);**

**sprintf(c,"%d",a[3]);**

**outtextxy(bubble[3].x1+15-j,315,c);**

**}**

**swap(bubble[3].y1,bubble[1].y1);**

**swap(bubble[3].y2,bubble[1].y2);**

**swap(a[1],a[3]);**

**}**

**else if(maxx>=bubble[3].x1 && maxx<=bubble[3].x2 && maxy>=bubble[3].y1 && maxy<=bubble[3].y2 && maxx1>=bubble[1].x1 && maxx1<=bubble[1].x2 && maxy1>=bubble[1].y1 && maxy1<=bubble[1].y2)**

**{**

**for(int j=1; j<=2\*45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Selection sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[1].x1+j,bubble[1].y1,bubble[1].x2+j,bubble[1].y2);**

**floodfill(bubble[1].x1+5+j,bubble[1].y1+5,WHITE);**

**rectangle(bubble[3].x1-j,bubble[3].y1,bubble[3].x2-j,bubble[3].y2);**

**floodfill(bubble[3].x1+5-j,bubble[3].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=3 && l!=1)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[1]);**

**outtextxy(bubble[1].x1+15+j,315,c);**

**sprintf(c,"%d",a[3]);**

**outtextxy(bubble[3].x1+15-j,315,c);**

**}**

**swap(bubble[3].y1,bubble[1].y1);**

**swap(bubble[3].y2,bubble[1].y2);**

**swap(a[1],a[3]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[3].x1 && maxx<=bubble[3].x2 && maxy>=bubble[3].y1 && maxy<=bubble[3].y2 && maxx1>=bubble[9].x1 && maxx1<=bubble[9].x2 && maxy1>=bubble[9].y1 && maxy1<=bubble[9].y2)**

**{**

**for(int j=1; j<=6\*45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Selection sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[3].x1+j,bubble[3].y1,bubble[3].x2+j,bubble[3].y2);**

**floodfill(bubble[3].x1+5+j,bubble[3].y1+5,WHITE);**

**rectangle(bubble[9].x1-j,bubble[9].y1,bubble[9].x2-j,bubble[9].y2);**

**floodfill(bubble[9].x1+5-j,bubble[9].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=3 && l!=9)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[3]);**

**outtextxy(bubble[3].x1+15+j,315,c);**

**sprintf(c,"%d",a[9]);**

**outtextxy(bubble[9].x1+15-j,315,c);**

**}**

**swap(bubble[9].y1,bubble[3].y1);**

**swap(bubble[9].y2,bubble[3].y2);**

**swap(a[3],a[9]);**

**}**

**else if(maxx>=bubble[9].x1 && maxx<=bubble[9].x2 && maxy>=bubble[9].y1 && maxy<=bubble[9].y2 && maxx1>=bubble[3].x1 && maxx1<=bubble[3].x2 && maxy1>=bubble[3].y1 && maxy1<=bubble[3].y2)**

**{**

**for(int j=1; j<=6\*45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Selection sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[3].x1+j,bubble[3].y1,bubble[3].x2+j,bubble[3].y2);**

**floodfill(bubble[3].x1+5+j,bubble[3].y1+5,WHITE);**

**rectangle(bubble[9].x1-j,bubble[9].y1,bubble[9].x2-j,bubble[9].y2);**

**floodfill(bubble[9].x1+5-j,bubble[9].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=3 && l!=9)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[3]);**

**outtextxy(bubble[3].x1+15+j,315,c);**

**sprintf(c,"%d",a[9]);**

**outtextxy(bubble[9].x1+15-j,315,c);**

**}**

**swap(bubble[9].y1,bubble[3].y1);**

**swap(bubble[9].y2,bubble[3].y2);**

**swap(a[3],a[9]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on two desired rectangle you want to swap.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[4].x1 && maxx<=bubble[4].x2 && maxy>=bubble[4].y1 && maxy<=bubble[4].y2 && maxx1>=bubble[6].x1 && maxx1<=bubble[6].x2 && maxy1>=bubble[6].y1 && maxy1<=bubble[6].y2)**

**{**

**for(int j=1; j<=2\*45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Selection sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[4].x1+j,bubble[4].y1,bubble[4].x2+j,bubble[4].y2);**

**floodfill(bubble[4].x1+5+j,bubble[4].y1+5,WHITE);**

**rectangle(bubble[6].x1-j,bubble[6].y1,bubble[6].x2-j,bubble[6].y2);**

**floodfill(bubble[6].x1+5-j,bubble[6].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=4 && l!=6)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[4]);**

**outtextxy(bubble[4].x1+15+j,315,c);**

**sprintf(c,"%d",a[6]);**

**outtextxy(bubble[6].x1+15-j,315,c);**

**}**

**swap(bubble[6].y1,bubble[4].y1);**

**swap(bubble[6].y2,bubble[4].y2);**

**swap(a[4],a[6]);**

**}**

**else if(maxx>=bubble[6].x1 && maxx<=bubble[6].x2 && maxy>=bubble[6].y1 && maxy<=bubble[6].y2 && maxx1>=bubble[4].x1 && maxx1<=bubble[4].x2 && maxy1>=bubble[4].y1 && maxy1<=bubble[4].y2)**

**{**

**for(int j=1; j<=2\*45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Selection sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[4].x1+j,bubble[4].y1,bubble[4].x2+j,bubble[4].y2);**

**floodfill(bubble[4].x1+5+j,bubble[4].y1+5,WHITE);**

**rectangle(bubble[6].x1-j,bubble[6].y1,bubble[6].x2-j,bubble[6].y2);**

**floodfill(bubble[6].x1+5-j,bubble[6].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=4 && l!=6)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[4]);**

**outtextxy(bubble[4].x1+15+j,315,c);**

**sprintf(c,"%d",a[6]);**

**outtextxy(bubble[6].x1+15-j,315,c);**

**}**

**swap(bubble[6].y1,bubble[4].y1);**

**swap(bubble[6].y2,bubble[4].y2);**

**swap(a[4],a[6]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[5].x1 && maxx<=bubble[5].x2 && maxy>=bubble[5].y1 && maxy<=bubble[5].y2 && maxx1>=bubble[9].x1 && maxx1<=bubble[9].x2 && maxy1>=bubble[9].y1 && maxy1<=bubble[9].y2)**

**{**

**for(int j=1; j<=4\*45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Selection sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[5].x1+j,bubble[5].y1,bubble[5].x2+j,bubble[5].y2);**

**floodfill(bubble[5].x1+5+j,bubble[5].y1+5,WHITE);**

**rectangle(bubble[9].x1-j,bubble[9].y1,bubble[9].x2-j,bubble[9].y2);**

**floodfill(bubble[9].x1+5-j,bubble[9].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=5 && l!=9)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[5]);**

**outtextxy(bubble[5].x1+15+j,315,c);**

**sprintf(c,"%d",a[9]);**

**outtextxy(bubble[9].x1+15-j,315,c);**

**}**

**swap(bubble[9].y1,bubble[5].y1);**

**swap(bubble[9].y2,bubble[5].y2);**

**swap(a[5],a[9]);**

**}**

**else if(maxx>=bubble[9].x1 && maxx<=bubble[9].x2 && maxy>=bubble[9].y1 && maxy<=bubble[9].y2 && maxx1>=bubble[5].x1 && maxx1<=bubble[5].x2 && maxy1>=bubble[5].y1 && maxy1<=bubble[5].y2)**

**{**

**for(int j=1; j<=4\*45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Selection sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[5].x1+j,bubble[5].y1,bubble[5].x2+j,bubble[5].y2);**

**floodfill(bubble[5].x1+5+j,bubble[5].y1+5,WHITE);**

**rectangle(bubble[9].x1-j,bubble[9].y1,bubble[9].x2-j,bubble[9].y2);**

**floodfill(bubble[9].x1+5-j,bubble[9].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=5 && l!=9)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[5]);**

**outtextxy(bubble[5].x1+15+j,315,c);**

**sprintf(c,"%d",a[9]);**

**outtextxy(bubble[9].x1+15-j,315,c);**

**}**

**swap(bubble[9].y1,bubble[5].y1);**

**swap(bubble[9].y2,bubble[5].y2);**

**swap(a[5],a[9]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[6].x1 && maxx<=bubble[6].x2 && maxy>=bubble[6].y1 && maxy<=bubble[6].y2 && maxx1>=bubble[8].x1 && maxx1<=bubble[8].x2 && maxy1>=bubble[8].y1 && maxy1<=bubble[8].y2)**

**{**

**for(int j=1; j<=2\*45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Selection sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[6].x1+j,bubble[6].y1,bubble[6].x2+j,bubble[6].y2);**

**floodfill(bubble[6].x1+5+j,bubble[6].y1+5,WHITE);**

**rectangle(bubble[8].x1-j,bubble[8].y1,bubble[8].x2-j,bubble[8].y2);**

**floodfill(bubble[8].x1+5-j,bubble[8].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=6 && l!=8)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[6]);**

**outtextxy(bubble[6].x1+15+j,315,c);**

**sprintf(c,"%d",a[8]);**

**outtextxy(bubble[8].x1+15-j,315,c);**

**}**

**swap(bubble[8].y1,bubble[6].y1);**

**swap(bubble[8].y2,bubble[6].y2);**

**swap(a[6],a[8]);**

**}**

**else if(maxx>=bubble[8].x1 && maxx<=bubble[8].x2 && maxy>=bubble[8].y1 && maxy<=bubble[8].y2 && maxx1>=bubble[6].x1 && maxx1<=bubble[6].x2 && maxy1>=bubble[6].y1 && maxy1<=bubble[6].y2)**

**{**

**for(int j=1; j<=2\*45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Selection sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[6].x1+j,bubble[6].y1,bubble[6].x2+j,bubble[6].y2);**

**floodfill(bubble[6].x1+5+j,bubble[6].y1+5,WHITE);**

**rectangle(bubble[8].x1-j,bubble[8].y1,bubble[8].x2-j,bubble[8].y2);**

**floodfill(bubble[8].x1+5-j,bubble[8].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=6 && l!=8)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[6]);**

**outtextxy(bubble[6].x1+15+j,315,c);**

**sprintf(c,"%d",a[8]);**

**outtextxy(bubble[8].x1+15-j,315,c);**

**}**

**swap(bubble[8].y1,bubble[6].y1);**

**swap(bubble[8].y2,bubble[6].y2);**

**swap(a[6],a[8]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[7].x1 && maxx<=bubble[7].x2 && maxy>=bubble[7].y1 && maxy<=bubble[7].y2 && maxx1>=bubble[9].x1 && maxx1<=bubble[9].x2 && maxy1>=bubble[9].y1 && maxy1<=bubble[9].y2)**

**{**

**for(int j=1; j<=2\*45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Selection sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[7].x1+j,bubble[7].y1,bubble[7].x2+j,bubble[7].y2);**

**floodfill(bubble[7].x1+5+j,bubble[7].y1+5,WHITE);**

**rectangle(bubble[9].x1-j,bubble[9].y1,bubble[9].x2-j,bubble[9].y2);**

**floodfill(bubble[9].x1+5-j,bubble[9].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=7 && l!=9)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[7]);**

**outtextxy(bubble[7].x1+15+j,315,c);**

**sprintf(c,"%d",a[9]);**

**outtextxy(bubble[9].x1+15-j,315,c);**

**}**

**swap(bubble[9].y1,bubble[7].y1);**

**swap(bubble[9].y2,bubble[7].y2);**

**swap(a[7],a[9]);**

**}**

**else if(maxx>=bubble[9].x1 && maxx<=bubble[9].x2 && maxy>=bubble[9].y1 && maxy<=bubble[9].y2 && maxx1>=bubble[7].x1 && maxx1<=bubble[7].x2 && maxy1>=bubble[7].y1 && maxy1<=bubble[7].y2)**

**{**

**for(int j=1; j<=2\*45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Selection sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[7].x1+j,bubble[7].y1,bubble[7].x2+j,bubble[7].y2);**

**floodfill(bubble[7].x1+5+j,bubble[7].y1+5,WHITE);**

**rectangle(bubble[9].x1-j,bubble[9].y1,bubble[9].x2-j,bubble[9].y2);**

**floodfill(bubble[9].x1+5-j,bubble[9].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=7 && l!=9)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[7]);**

**outtextxy(bubble[7].x1+15+j,315,c);**

**sprintf(c,"%d",a[9]);**

**outtextxy(bubble[9].x1+15-j,315,c);**

**}**

**swap(bubble[9].y1,bubble[7].y1);**

**swap(bubble[9].y2,bubble[7].y2);**

**swap(a[7],a[9]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**delay(1000);**

**cleardevice();**

**settextstyle(BOLD\_FONT,0,5);**

**outtextxy((getmaxx()/2)-100,(getmaxy()/2)-50,"Congratulation");**

**outtextxy(100,(getmaxy()/2),"You have passed level 2");**

**outtextxy((getmaxx()/2)-100,(getmaxy()/2)+50,"Thank you");**

**settextstyle(0,0,0);**

**delay(1000);**

**}**

**}**

**}**

**}**

**}**

**}**

**}**

**}**

**void insertion\_manual\_1()**

**{**

**f=fopen("level 1.txt","r");**

**fscanf(f,"%d",&n);**

**setbkcolor(LIGHTBLUE);**

**for(int i=0; i<n; i++)**

**{**

**fscanf(f,"%d",&a[i]);**

**}**

**int t=100;**

**for(int i=0; i<n; i++)**

**{**

**bubble[i].x1=t;**

**bubble[i].y1=280-a[i];**

**bubble[i].x2=t+40;**

**bubble[i].y2=300;**

**t+=45;**

**}**

**delay(50);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,5);**

**outtextxy((getmaxx()/2)-100,getmaxy()/2,"LEVEL 1");**

**settextstyle(0,0,0);**

**delay(1000);**

**cleardevice();**

**for(int i=0; i<n; i++)**

**{**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Insertion sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[i].x1,bubble[i].y1,bubble[i].x2,bubble[i].y2);**

**setfillstyle(1,BLUE);**

**floodfill(bubble[i].x1+5,bubble[i].y1+5,WHITE);**

**sprintf(c,"%d",a[i]);**

**outtextxy(bubble[i].x1+15,315,c);**

**}**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on a rectangle that you want to move.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**delay(50);**

**cleardevice();**

**for(int i=0; i<n; i++)**

**{**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Insertion sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[i].x1,bubble[i].y1,bubble[i].x2,bubble[i].y2);**

**setfillstyle(1,BLUE);**

**floodfill(bubble[i].x1+5,bubble[i].y1+5,WHITE);**

**sprintf(c,"%d",a[i]);**

**outtextxy(bubble[i].x1+15,315,c);**

**}**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on a rectangle where you want to");**

**outtextxy(102,175,"insert the chosen rectangle");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[2].x1 && maxx<=bubble[2].x2 && maxy>=bubble[2].y1 && maxy<=bubble[2].y2 && maxx1>=bubble[1].x1 && maxx1<=bubble[1].x2 && maxy1>=bubble[1].y1 && maxy1<=bubble[1].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Insertion sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[1].x1+j,bubble[1].y1,bubble[1].x2+j,bubble[1].y2);**

**floodfill(bubble[1].x1+5+j,bubble[1].y1+5,WHITE);**

**rectangle(bubble[2].x1-j,bubble[2].y1,bubble[2].x2-j,bubble[2].y2);**

**floodfill(bubble[2].x1+5-j,bubble[2].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=1 && l!=2)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[1]);**

**outtextxy(bubble[1].x1+15+j,315,c);**

**sprintf(c,"%d",a[2]);**

**outtextxy(bubble[2].x1+15-j,315,c);**

**}**

**swap(bubble[1].y1,bubble[2].y1);**

**swap(bubble[2].y2,bubble[2].y2);**

**swap(a[1],a[2]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on a rectangle that you want to move.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**delay(50);**

**cleardevice();**

**for(int i=0; i<n; i++)**

**{**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Insertion sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[i].x1,bubble[i].y1,bubble[i].x2,bubble[i].y2);**

**setfillstyle(1,BLUE);**

**floodfill(bubble[i].x1+5,bubble[i].y1+5,WHITE);**

**sprintf(c,"%d",a[i]);**

**outtextxy(bubble[i].x1+15,315,c);**

**}**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on a rectangle where you want to");**

**outtextxy(102,175,"insert the chosen rectangle");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[3].x1 && maxx<=bubble[3].x2 && maxy>=bubble[3].y1 && maxy<=bubble[3].y2 && maxx1>=bubble[0].x1 && maxx1<=bubble[0].x2 && maxy1>=bubble[0].y1 && maxy1<=bubble[0].y2)**

**{**

**t=3;**

**while(t)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Insertion sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[t-1].x1+j,bubble[t-1].y1,bubble[t-1].x2+j,bubble[t-1].y2);**

**floodfill(bubble[t-1].x1+5+j,bubble[t-1].y1+5,WHITE);**

**rectangle(bubble[t].x1-j,bubble[t].y1,bubble[t].x2-j,bubble[t].y2);**

**floodfill(bubble[t].x1+5-j,bubble[t].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=t && l!=t-1)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[t-1]);**

**outtextxy(bubble[t-1].x1+15+j,315,c);**

**sprintf(c,"%d",a[t]);**

**outtextxy(bubble[t].x1+15-j,315,c);**

**}**

**swap(bubble[t-1].y1,bubble[t].y1);**

**swap(bubble[t-1].y2,bubble[t].y2);**

**swap(a[t-1],a[t]);**

**t--;**

**}**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on a rectangle that you want to move.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**delay(50);**

**cleardevice();**

**for(int i=0; i<n; i++)**

**{**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Insertion sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[i].x1,bubble[i].y1,bubble[i].x2,bubble[i].y2);**

**setfillstyle(1,BLUE);**

**floodfill(bubble[i].x1+5,bubble[i].y1+5,WHITE);**

**sprintf(c,"%d",a[i]);**

**outtextxy(bubble[i].x1+15,315,c);**

**}**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on a rectangle where you want to");**

**outtextxy(102,175,"insert the chosen rectangle");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[4].x1 && maxx<=bubble[4].x2 && maxy>=bubble[4].y1 && maxy<=bubble[4].y2 && maxx1>=bubble[2].x1 && maxx1<=bubble[2].x2 && maxy1>=bubble[2].y1 && maxy1<=bubble[2].y2)**

**{**

**t=4;**

**while(t>=3)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Insertion sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[t-1].x1+j,bubble[t-1].y1,bubble[t-1].x2+j,bubble[t-1].y2);**

**floodfill(bubble[t-1].x1+5+j,bubble[t-1].y1+5,WHITE);**

**rectangle(bubble[t].x1-j,bubble[t].y1,bubble[t].x2-j,bubble[t].y2);**

**floodfill(bubble[t].x1+5-j,bubble[t].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=t && l!=t-1)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[t-1]);**

**outtextxy(bubble[t-1].x1+15+j,315,c);**

**sprintf(c,"%d",a[t]);**

**outtextxy(bubble[t].x1+15-j,315,c);**

**}**

**swap(bubble[t-1].y1,bubble[t].y1);**

**swap(bubble[t-1].y2,bubble[t].y2);**

**swap(a[t-1],a[t]);**

**t--;**

**}**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**delay(1000);**

**cleardevice();**

**settextstyle(BOLD\_FONT,0,5);**

**outtextxy((getmaxx()/2)-150,(getmaxy()/2)-50,"Congratulation");**

**outtextxy(100,(getmaxy()/2),"You have passed level 1");**

**settextstyle(0,0,0);**

**}**

**}**

**}**

**}**

**void insertion\_manual\_2()**

**{**

**f=fopen("level 2.txt","r");**

**fscanf(f,"%d",&n);**

**setbkcolor(LIGHTBLUE);**

**for(int i=0; i<n; i++)**

**{**

**fscanf(f,"%d",&a[i]);**

**}**

**int t=100;**

**for(int i=0; i<n; i++)**

**{**

**bubble[i].x1=t;**

**bubble[i].y1=280-a[i];**

**bubble[i].x2=t+40;**

**bubble[i].y2=300;**

**t+=45;**

**}**

**delay(50);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,5);**

**outtextxy((getmaxx()/2)-100,getmaxy()/2,"LEVEL 2");**

**settextstyle(0,0,0);**

**delay(2000);**

**cleardevice();**

**for(int i=0; i<n; i++)**

**{**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Insertion sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[i].x1,bubble[i].y1,bubble[i].x2,bubble[i].y2);**

**setfillstyle(1,BLUE);**

**floodfill(bubble[i].x1+5,bubble[i].y1+5,WHITE);**

**sprintf(c,"%d",a[i]);**

**outtextxy(bubble[i].x1+15,315,c);**

**}**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on a rectangle that you want to move.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**delay(50);**

**cleardevice();**

**for(int i=0; i<n; i++)**

**{**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Insertion sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[i].x1,bubble[i].y1,bubble[i].x2,bubble[i].y2);**

**setfillstyle(1,BLUE);**

**floodfill(bubble[i].x1+5,bubble[i].y1+5,WHITE);**

**sprintf(c,"%d",a[i]);**

**outtextxy(bubble[i].x1+15,315,c);**

**}**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on a rectangle where you want to");**

**outtextxy(102,175,"insert the chosen rectangle");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[1].x1 && maxx<=bubble[1].x2 && maxy>=bubble[1].y1 && maxy<=bubble[1].y2 && maxx1>=bubble[0].x1 && maxx1<=bubble[0].x2 && maxy1>=bubble[0].y1 && maxy1<=bubble[0].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Insertion sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[0].x1+j,bubble[0].y1,bubble[0].x2+j,bubble[0].y2);**

**floodfill(bubble[0].x1+5+j,bubble[0].y1+5,WHITE);**

**rectangle(bubble[1].x1-j,bubble[1].y1,bubble[1].x2-j,bubble[1].y2);**

**floodfill(bubble[1].x1+5-j,bubble[1].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=0 && l!=1)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[0]);**

**outtextxy(bubble[0].x1+15+j,315,c);**

**sprintf(c,"%d",a[1]);**

**outtextxy(bubble[1].x1+15-j,315,c);**

**}**

**swap(bubble[0].y1,bubble[1].y1);**

**swap(bubble[0].y2,bubble[1].y2);**

**swap(a[1],a[0]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on a rectangle that you want to move.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**delay(50);**

**cleardevice();**

**for(int i=0; i<n; i++)**

**{**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Insertion sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[i].x1,bubble[i].y1,bubble[i].x2,bubble[i].y2);**

**setfillstyle(1,BLUE);**

**floodfill(bubble[i].x1+5,bubble[i].y1+5,WHITE);**

**sprintf(c,"%d",a[i]);**

**outtextxy(bubble[i].x1+15,315,c);**

**}**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on a rectangle where you want to");**

**outtextxy(102,175,"insert the chosen rectangle");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[2].x1 && maxx<=bubble[2].x2 && maxy>=bubble[2].y1 && maxy<=bubble[2].y2 && maxx1>=bubble[1].x1 && maxx1<=bubble[1].x2 && maxy1>=bubble[1].y1 && maxy1<=bubble[1].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Insertion sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[1].x1+j,bubble[1].y1,bubble[1].x2+j,bubble[1].y2);**

**floodfill(bubble[1].x1+5+j,bubble[1].y1+5,WHITE);**

**rectangle(bubble[2].x1-j,bubble[2].y1,bubble[2].x2-j,bubble[2].y2);**

**floodfill(bubble[2].x1+5-j,bubble[2].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=1 && l!=2)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[1]);**

**outtextxy(bubble[1].x1+15+j,315,c);**

**sprintf(c,"%d",a[2]);**

**outtextxy(bubble[2].x1+15-j,315,c);**

**}**

**swap(bubble[1].y1,bubble[2].y1);**

**swap(bubble[2].y2,bubble[2].y2);**

**swap(a[1],a[2]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on a rectangle that you want to move.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**delay(50);**

**cleardevice();**

**for(int i=0; i<n; i++)**

**{**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Insertion sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[i].x1,bubble[i].y1,bubble[i].x2,bubble[i].y2);**

**setfillstyle(1,BLUE);**

**floodfill(bubble[i].x1+5,bubble[i].y1+5,WHITE);**

**sprintf(c,"%d",a[i]);**

**outtextxy(bubble[i].x1+15,315,c);**

**}**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on a rectangle where you want to");**

**outtextxy(102,175,"insert the chosen rectangle");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[3].x1 && maxx<=bubble[3].x2 && maxy>=bubble[3].y1 && maxy<=bubble[3].y2 && maxx1>=bubble[1].x1 && maxx1<=bubble[1].x2 && maxy1>=bubble[1].y1 && maxy1<=bubble[1].y2)**

**{**

**t=3;**

**while(t>=2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Insertion sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[t-1].x1+j,bubble[t-1].y1,bubble[t-1].x2+j,bubble[t-1].y2);**

**floodfill(bubble[t-1].x1+5+j,bubble[t-1].y1+5,WHITE);**

**rectangle(bubble[t].x1-j,bubble[t].y1,bubble[t].x2-j,bubble[t].y2);**

**floodfill(bubble[t].x1+5-j,bubble[t].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=t && l!=t-1)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[t-1]);**

**outtextxy(bubble[t-1].x1+15+j,315,c);**

**sprintf(c,"%d",a[t]);**

**outtextxy(bubble[t].x1+15-j,315,c);**

**}**

**swap(bubble[t-1].y1,bubble[t].y1);**

**swap(bubble[t-1].y2,bubble[t].y2);**

**swap(a[t-1],a[t]);**

**t--;**

**}**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on a rectangle that you want to move.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**delay(50);**

**cleardevice();**

**for(int i=0; i<n; i++)**

**{**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Insertion sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[i].x1,bubble[i].y1,bubble[i].x2,bubble[i].y2);**

**setfillstyle(1,BLUE);**

**floodfill(bubble[i].x1+5,bubble[i].y1+5,WHITE);**

**sprintf(c,"%d",a[i]);**

**outtextxy(bubble[i].x1+15,315,c);**

**}**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on a rectangle where you want to");**

**outtextxy(102,175,"insert the chosen rectangle");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[5].x1 && maxx<=bubble[5].x2 && maxy>=bubble[5].y1 && maxy<=bubble[5].y2 && maxx1>=bubble[4].x1 && maxx1<=bubble[4].x2 && maxy1>=bubble[4].y1 && maxy1<=bubble[4].y2)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Insertion sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[4].x1+j,bubble[4].y1,bubble[4].x2+j,bubble[4].y2);**

**floodfill(bubble[4].x1+5+j,bubble[4].y1+5,WHITE);**

**rectangle(bubble[5].x1-j,bubble[5].y1,bubble[5].x2-j,bubble[5].y2);**

**floodfill(bubble[5].x1+5-j,bubble[5].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=4 && l!=5)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[4]);**

**outtextxy(bubble[4].x1+15+j,315,c);**

**sprintf(c,"%d",a[5]);**

**outtextxy(bubble[5].x1+15-j,315,c);**

**}**

**swap(bubble[5].y1,bubble[4].y1);**

**swap(bubble[5].y2,bubble[4].y2);**

**swap(a[4],a[5]);**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on a rectangle that you want to move.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**delay(50);**

**cleardevice();**

**for(int i=0; i<n; i++)**

**{**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Insertion sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[i].x1,bubble[i].y1,bubble[i].x2,bubble[i].y2);**

**setfillstyle(1,BLUE);**

**floodfill(bubble[i].x1+5,bubble[i].y1+5,WHITE);**

**sprintf(c,"%d",a[i]);**

**outtextxy(bubble[i].x1+15,315,c);**

**}**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on a rectangle where you want to");**

**outtextxy(102,175,"insert the chosen rectangle");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[6].x1 && maxx<=bubble[6].x2 && maxy>=bubble[6].y1 && maxy<=bubble[6].y2 && maxx1>=bubble[3].x1 && maxx1<=bubble[3].x2 && maxy1>=bubble[3].y1 && maxy1<=bubble[3].y2)**

**{**

**t=6;**

**while(t>=4)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Insertion sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[t-1].x1+j,bubble[t-1].y1,bubble[t-1].x2+j,bubble[t-1].y2);**

**floodfill(bubble[t-1].x1+5+j,bubble[t-1].y1+5,WHITE);**

**rectangle(bubble[t].x1-j,bubble[t].y1,bubble[t].x2-j,bubble[t].y2);**

**floodfill(bubble[t].x1+5-j,bubble[t].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=t && l!=t-1)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[t-1]);**

**outtextxy(bubble[t-1].x1+15+j,315,c);**

**sprintf(c,"%d",a[t]);**

**outtextxy(bubble[t].x1+15-j,315,c);**

**}**

**swap(bubble[t-1].y1,bubble[t].y1);**

**swap(bubble[t-1].y2,bubble[t].y2);**

**swap(a[t-1],a[t]);**

**t--;**

**}**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on a rectangle that you want to move.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**delay(50);**

**cleardevice();**

**for(int i=0; i<n; i++)**

**{**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Insertion sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[i].x1,bubble[i].y1,bubble[i].x2,bubble[i].y2);**

**setfillstyle(1,BLUE);**

**floodfill(bubble[i].x1+5,bubble[i].y1+5,WHITE);**

**sprintf(c,"%d",a[i]);**

**outtextxy(bubble[i].x1+15,315,c);**

**}**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on a rectangle where you want to");**

**outtextxy(102,175,"insert the chosen rectangle");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[8].x1 && maxx<=bubble[8].x2 && maxy>=bubble[8].y1 && maxy<=bubble[8].y2 && maxx1>=bubble[5].x1 && maxx1<=bubble[5].x2 && maxy1>=bubble[5].y1 && maxy1<=bubble[5].y2)**

**{**

**t=8;**

**while(t>=6)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Insertion sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[t-1].x1+j,bubble[t-1].y1,bubble[t-1].x2+j,bubble[t-1].y2);**

**floodfill(bubble[t-1].x1+5+j,bubble[t-1].y1+5,WHITE);**

**rectangle(bubble[t].x1-j,bubble[t].y1,bubble[t].x2-j,bubble[t].y2);**

**floodfill(bubble[t].x1+5-j,bubble[t].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=t && l!=t-1)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[t-1]);**

**outtextxy(bubble[t-1].x1+15+j,315,c);**

**sprintf(c,"%d",a[t]);**

**outtextxy(bubble[t].x1+15-j,315,c);**

**}**

**swap(bubble[t-1].y1,bubble[t].y1);**

**swap(bubble[t-1].y2,bubble[t].y2);**

**swap(a[t-1],a[t]);**

**t--;**

**}**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on a rectangle that you want to move.");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx,maxy);**

**delay(50);**

**cleardevice();**

**for(int i=0; i<n; i++)**

**{**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Insertion sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[i].x1,bubble[i].y1,bubble[i].x2,bubble[i].y2);**

**setfillstyle(1,BLUE);**

**floodfill(bubble[i].x1+5,bubble[i].y1+5,WHITE);**

**sprintf(c,"%d",a[i]);**

**outtextxy(bubble[i].x1+15,315,c);**

**}**

**settextstyle(1,0,2);**

**outtextxy(102,150,"Click on a rectangle where you want to");**

**outtextxy(102,175,"insert the chosen rectangle");**

**settextstyle(0,0,0);**

**while(!ismouseclick(WM\_LBUTTONDOWN)) {}**

**getmouseclick(WM\_LBUTTONDOWN,maxx1,maxy1);**

**if(maxx>=bubble[9].x1 && maxx<=bubble[9].x2 && maxy>=bubble[9].y1 && maxy<=bubble[9].y2 && maxx1>=bubble[3].x1 && maxx1<=bubble[3].x2 && maxy1>=bubble[3].y1 && maxy1<=bubble[3].y2)**

**{**

**t=9;**

**while(t>=4)**

**{**

**for(int j=1; j<=45; j++)**

**{**

**delay(5);**

**cleardevice();**

**setbkcolor(LIGHTBLUE);**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(100,65,"Insertion sort");**

**settextstyle(0,0,0);**

**rectangle(bubble[t-1].x1+j,bubble[t-1].y1,bubble[t-1].x2+j,bubble[t-1].y2);**

**floodfill(bubble[t-1].x1+5+j,bubble[t-1].y1+5,WHITE);**

**rectangle(bubble[t].x1-j,bubble[t].y1,bubble[t].x2-j,bubble[t].y2);**

**floodfill(bubble[t].x1+5-j,bubble[t].y1+5,WHITE);**

**for(int l=0; l<n; l++)**

**{**

**if(l!=t && l!=t-1)**

**{**

**rectangle(bubble[l].x1,bubble[l].y1,bubble[l].x2,bubble[l].y2);**

**floodfill(bubble[l].x1+5,bubble[l].y1+5,WHITE);**

**sprintf(c,"%d",a[l]);**

**outtextxy(bubble[l].x1+15,315,c);**

**}**

**}**

**sprintf(c,"%d",a[t-1]);**

**outtextxy(bubble[t-1].x1+15+j,315,c);**

**sprintf(c,"%d",a[t]);**

**outtextxy(bubble[t].x1+15-j,315,c);**

**}**

**swap(bubble[t-1].y1,bubble[t].y1);**

**swap(bubble[t-1].y2,bubble[t].y2);**

**swap(a[t-1],a[t]);**

**t--;**

**}**

**}**

**else**

**{**

**settextstyle(1,0,5);**

**flag=0;**

**outtextxy(102,400,"Wrong move.");**

**settextstyle(0,0,0);**

**}**

**if(flag==1)**

**{**

**delay(1000);**

**cleardevice();**

**settextstyle(BOLD\_FONT,0,5);**

**outtextxy((getmaxx()/2)-100,(getmaxy()/2)-50,"Congratulation");**

**outtextxy(100,(getmaxy()/2),"You have passed level 2");**

**outtextxy((getmaxx()/2)-100,(getmaxy()/2)+50,"Thank you");**

**settextstyle(0,0,0);**

**delay(1000);**

**}**

**}**

**}**

**}**

**}**

**}**

**}**

**}**

**void bubble\_pseudocode()**

**{**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(495,102+3,"Pseudo-code");**

**settextstyle(0,0,0);**

**rectangle(422,146,789,289+3+20+25);**

**setfillstyle(1,LIGHTBLUE);**

**floodfill(450,200,WHITE);**

**setfillstyle(1,BLUE);**

**outtextxy(425+2,150 ,"function bubblesort ( array )");**

**outtextxy(425+2,152+20 ," for i from 0 to N-1");**

**outtextxy(425+2,169+3+20," for j from 0 to N - i - 1");**

**outtextxy(425+2,189+3+20," if a[j] > a[j + 1]");**

**outtextxy(425+2,209+3+20," swap(a[j], a[j + 1])");**

**outtextxy(425+2,229+3+20," end if");**

**outtextxy(425+2,249+3+20," end for");**

**outtextxy(425+2,269+3+20," end for");**

**outtextxy(425+2,289+3+20,"end function");**

**}**

**void selection\_pseudocode()**

**{**

**settextstyle(BOLD\_FONT,0,4);**

**outtextxy(495,102+3+10,"Pseudo-code");**

**settextstyle(0,0,0);**

**rectangle(422,146+10,789,263+50+25+10);**

**setfillstyle(1,LIGHTBLUE);**

**floodfill(450,200,WHITE);**

**setfillstyle(1,BLUE);**

**outtextxy(425+2,150+10 ,"function SelectionSort ( array )");**

**outtextxy(425+2,170+10 ," for i from 0 to N-1");**

**outtextxy(425+2,190+10 ," for j from i+1 to N - 1");**

**outtextxy(425+2,210+10 ," if a[i] > a[j]");**

**outtextxy(425+2,230+10 ," swap( a[i], a[j] )");**

**outtextxy(425+2,203+50+10," end if");**

**outtextxy(425+2,223+50+10," end for");**

**outtextxy(425+2,243+50+10," end for");**

**outtextxy(425+2,263+50+10,"end function");**

**}**

**void insertion\_pseudocode()**

**{**

**rectangle(402,100,770,363);**

**setfillstyle(1,LIGHTBLUE);**

**floodfill(450,200,WHITE);**

**setfillstyle(1,BLUE);**

**outtextxy(405,103,"function InsertionSort ( array )");**

**outtextxy(405,123," for i from 1 to N-1");**

**outtextxy(405,143," j = i");**

**outtextxy(405,163," while j > 0");**

**outtextxy(405,183," if a[j]<a[j-1]");**

**outtextxy(405,203," swap ( a[j] , a[j-1] )");**

**outtextxy(405,223," j = j – 1");**

**outtextxy(405,243," else");**

**outtextxy(405,263," break; ");**

**outtextxy(405,283," end while");**

**outtextxy(405,303," end for");**

**outtextxy(405,343,"end function");**

**}**

**Conclusion:**

Though we had to give this project a lot of our time and effort, we had a good time working together to make our very first game.

The aim of this project was to sharpen our implementation skill and implementing our C language skill to make something user friendly and interactive was truly a new and exciting experience for us.

We hope the users enjoy this as much as we had in the process. We also hope we can improve in the future and progress in this field.

**Reference:**

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3. C Programming Absolute Beginner’s Guide by Perry and Miller
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5. [http://www.cs.colorado.edu](http://www.cs.colorado.edu/)
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7. <http://en.wikipedia.org/>