PROGRAMMING FUNDAMENTAL PROJECT

ZOYA AZAD 231579 DUAA DARA 232481

FUNCTIONS AND FILE AND EXCEPTION HANDLING

```
#include<iostream>
#include<fstream>
#include<string>
using namespace std;
```

string FirstName, LastName;//declaring variable in string so that whatever user enters can be as long as they want

long number, CNIC, originalCNIC;//declaring variable in long since the values are longer than usual

string location, Guests, EventHours, theme;//declaring variable in string so that whatever user enters can be as long as they wan

```
void Search()//This function allows the user to search for specific details of an event based on
location, theme, or time.
  ofstream fout;//creating a file
  fout.open("event.txt");//opening the file that has been created
  fout.close();//closing the file that has been created
  int search;//declaring a variable named search
  cout << "\nWhat do you want to search for?\n";//statement to ask what the user wants to
search
  cout << " 1.location\n 2.theme\n 3.Time\n";//options given from which u have to choose
  cout << "==> Enter number of your choice:\n";//enter which number from the past statement
  cin >> search;//saving the chosen number in search
  ifstream fin("event.txt");//takes input from file named event details,using file handling
  try {//using exception handling try block
     if (fin.fail())//if the file fails to open or is not found eroor will show
       throw runtime error("File not found");//throws error to show user that the file is not
available
     }
  catch (runtime_error& e)//catch block keeps runtime errors
     cout << "\n error!!!" << e.what() << "\n";//shows error on output screen
     exit(1);//abnormal termination
  }
  if (search == 1)//using conditional statement
     //if user enters no1 which is location the following will be run
```

```
{
                               SEARCH\n";
     cout << "
     cout << "-----
     string ClientLocation;//declaring a string variable named Client Location
     cout << "==> Write a location to see if it is available\n";
     cin.get();//saving location
     getline(cin, ClientLocation);
     if//conditional statement used
       ((ClientLocation == "diamond marquee") || (ClientLocation == "gold marquee") ||
(ClientLocation == "emerald marguee") || (ClientLocation == "ruby marguee") || (ClientLocation
== "golf club marquee"))
    {
       cout << "Location is Available\n";//if location is chosen from any of the above this will
show in output
     }
     else
       cout << "Location is not available\n";//if location is notchosen from any of the above this
will show in output
    }
  else if (search == 2)//using conditional statement
     //if user enters no 2 which is theme the following will be run
  {
     string theme;//declaring a string variable named theme
     cout << "==> Write theme to see if it is available\n";
     cin >> theme;//saving location
     if//conditional statement used
       ((theme == "gold") || (theme == "silver") || (theme == "green") || (theme == "red") ||
(theme == "black"))
    {
       cout << "Theme is Available\n";//if location is chosen from any of the above this will
show in output
     }
     else
       cout << "Theme is not available\n";//if location is notchosen from any of the above this
will show in output
    }
  else if (search == 3)
     int ClientTime;//string variable declared
```

```
cout << "\n==> Enter number of hours to see if time available\n"://enter time to see if its
available
     cin >> ClientTime:
     if ((ClientTime == 1) || (ClientTime == 2) || (ClientTime == 3) || (ClientTime == 4) ||
(ClientTime == 5) || (ClientTime == 6))
       cout << "Time is available\n";//if time is chosen from any of the above this will show in
output
     else
       cout << "Time is not Available\n";//if time is not chosen from any of the above this will
show in output
     }
  else
     cout << "invalid option!\nEnter Again\n";//if none of the available options are available this
will show in output
  // return 0;
}
void Add()
  ifstream fin;//reading data from file
  fin.open("event.txt");//opening a file named event
  ofstream fout;//writing data to file
  fout.open("event.txt", ios::app);//opening file
  try {//using exception handling try block
     if (fin.fail())//if the file fails to open or is not found error will show
       throw runtime_error("File not found");//throws error to show user that the file is not
available
  catch (runtime_error& e)//catch block keeps runtime errors
     cout << "\n error!!!" << e.what() << "\n";//shows error on output screen
     exit(1);//abnormal termination
                      Following are the Location options:\n";
  cout << "
  cout << " 1.Diamond Marquee\n 2.Emarald Marquee\n 3.Golf Club Marquee\n 4.Gold
Marquee\n 5.Ruby Marquee\n";
  cout << "==> Write your location:\n";
```

cin.get();//this is used so that user can enter location with space in between getline(cin, location);//location chosen is saved in variable location

```
cout << " Number Of Guests:\n";
cout << "-----\n";
  cout << "\n==> Enter your Number of Guests\n";
  cin >> Guests://guest chosen is saved in variable guest
  cout << " Following are the Theme options:\n"; cout << "-----\n";
  cout << " 1.Black\n 2.Gold\n 3.Silver\n 4.Red\n 5.Green\n";
  cout << "Write your theme\n";</pre>
  cin >> theme://theme chosen is saved in variable theme
  cout << "-----\n":
              \nFollowing is the Available time:\n";
  cout << "
  cout << "-----\n":
  cout << "\n1. 1-2 pm\n 2. 2-4 pm\n 3. 4-6 pm\n ";
  cout << "\n==> Choose Number of hours for the event\n";
  cin >> EventHours://hours chosen is saved in variable hours
  fin.close();//file is closed
  fout.close();//closing file
void Edit()
  ifstream fin;
  fin.open("event.txt");//opening file to read data
  try {//using exception handling try block
    if (fin.fail())//if the file fails to open or is not found eroor will show
      throw runtime error("File not found");//throws error to show user that the file is not
available
   }
  catch (runtime_error& e)//catch block keeps runtime errors
    cout << "\n error!!!" << e.what() << "\n";//shows error on output screen
    exit(1);//abnormal termination
  }
  char ch;//character declared
  cout << "-----\n":
  cout << " \nDo you want to change something? (y/n)\n";
  cout << "-----\n":
```

}

```
cin >> ch;//y or n will be saved in charachter ch
if (ch == 'y')//if ch is Y following will run
  int choice;//choice is declared
  cout << "==> Choose the number that you want to change:\n";
  cout << "\n 1.Name\n 2.Number\n 3.Location\n 4.Theme\n 5.Guests\n 6.Time\n";
  cin >> choice;//the numbers that have to be changed is saved in choice
  if (choice == 1)
     string name;//declaring string named name
     cout << "-Enter your name\n";
     cin >> name;//name entered by user stored in name after editing
  else if (choice == 2)
     long number;//declaring long int number
     cout << "-Enter your contact number\n";</pre>
     cin >> number;//name entered by user stored in number after editing
  else if (choice == 3)
     string location;//declaring string named location
     cout << "-Enter your location\n";</pre>
     cin >> location;//name entered by user stored in location after editing
  else if (choice == 4)
     string theme;//declaring string named theme
     cout << "-Enter your theme\n";</pre>
     cin >> theme;//name entered by user stored in theme after editing
  else if (choice == 5)
     string guests;//declaring string named guests
     cout << "-Enter your number of guests \n";
     cin >> guests;//name entered by user stored in guests after editing
  else if (choice == 6)
     int Time; //integer time declared
     cout << "-Enter your time \n";
     cin >> Time;//name entered by user stored in time after editing
  else
```

```
cout << "\nwrong choice\n";//if none of the choices are chose wrong choice will be
showed in output
     }
  }
  else//if ch is N following will run
     cout << "You are not Editing anything\n";//shown in output
  fin.close();//file closed
void Delete() {
  char choice;
  cout << "\n Do u want to delete data:(y/n)";//asks user to delete data
  cin >> choice;
  cout << choice;
  if (choice == 'y') {
     ofstream tempfile; //creating temporary tempfile
     tempfile.open("temp.txt");
     ifstream fin;
     fin.open("event.txt");
     try {//using exception handling try block
       if (fin.fail())//if the file fails to open or is not found error will show
          throw runtime error("File not found");//throws error to show user that the file is not
available
     catch (runtime error& e)//catch block keeps runtime errors
       cout << "\n error!!!" << e.what() << "\n";//shows error on output screen
       exit(1);//abnormal termination
     fin >> theme;//reading from file
     fin >> EventHours;//reading from file
     fin >> location;//reading from file
     fin >> Guests;//reading from file
     while (fin >> theme >> EventHours >> Guests >> location) {//condition will work if all are
available in file
       cout << "\n enter your cnic to delete all records ";
       cin >> CNIC;//Cnic will be asked again so that we can compare both cnics and then
show record
       if (CNIC)//if user wants to delete records following will run
```

```
cout << " records found and deleted";
       }
       else {
         cout << "\n cannot find records of this ID";
         tempfile << theme << location << EventHours << Guests;
       }
    fin.close();//fileclose
    tempfile.close();//file close
    remove("event.txt");//event file will be removed
    rename("tempfile.txt", "event.txt");//tempfile will be renamed event
  }
  else {
    cout << "\nrecord not deleted";//if user does not want to delete record following will occur
  }
}
void View()
  ifstream fin;//reading data from file
  fin.open("event.txt");//opening a file named event
  ofstream fout;//writing data to file
  fout.open("event.txt", ios::app);//opening file
  try {//using exception handling try block
    if (fin.fail())//if the file fails to open or is not found error will show
       throw runtime error("File not found");//throws error to show user that the file is not
available
  catch (runtime error& e)//catch block keeps runtime errors
    cout << "\n error!!!" << e.what() << "\n";//shows error on output screen
    exit(1);//abnormal termination
  bool CNIC;
  cout << "-----\n";
  cout << " \nenter your CNIC to check your Event Details\n";
  cin >> CNIC;//getting CNIC from user
  if (CNIC)//if CNIC matches with original CNIC then data will display
  {
    cout << "Your First Name:" << FirstName << endl;//displaying name
    cout << "Your LastName:" << LastName << endl;//displaying LastName
```

```
cout << "Your contact Number:" << number << endl;//displaying number
     cout << "Your Location:" << location << endl;//displaying location
     cout << "Your Guests:" << Guests << endl;//displaying guests
     cout << "Your Time:" << EventHours << endl;//displaying Time
     cout << "Your theme:" << theme << endl;//displaying theme
     fout << "FirstName:" << FirstName << endl;//writing data to file
     fout << "LastName:" << LastName << endl;//writing data to file
     fout << "ContactNumber:" << number << endl;//writing data to file
     fout << "Location:" << location << endl;//writing data to file
     fout << "Guests:" << Guests << endl;//writing data to file
     fout << "Time:" << EventHours << endl;//writing data to file
     fout << "Theme:" << theme << endl;//writing data to file
     fin >> FirstName >> LastName >> location >> Guests >> EventHours >> theme;
     fout << FirstName << LastName << endl << location << endl << Guests << endl <<
EventHours << endl << theme:
  }
  else
     cout << "you have enterred the wrong CNIC\n";//if cnic enterred is not correct the following
statement will be shown
  fin >> FirstName >> LastName >> location >> Guests >> EventHours >> theme;//reading
data from file
  fout << FirstName << LastName << endl << location << endl << Guests << endl <<
EventHours << endl << theme://writing data to file
  fout.close();
  fin.close();//closing file
}
void EventEntity()
  ifstream fin;//to read data from file
  fin.open("event.txt");//opening file
  ofstream fout;//to write data on file
  fout.open("event.txt");//opening file
  try
  {//using exception handling try block
     if (fin.fail())//if the file fails to open or is not found error will show
       throw runtime_error("File not found");//throws error to show user that the file is not
available
  catch (runtime_error& e)//catch block keeps runtime errors
```

```
cout << "\n error!!!" << e.what() << "\n";//shows error on output screen
    exit(1);//abnormal termination
  }
  cout << "-----"://for better
formatting
                         * Event Details * \n";
  cout << "\n
                                                            // event details will be
shown on output due to cout
  cout << "-----"://for better
formatting
  fout << "* Event Management System * \n";// event management will be shown on file due to
fout
  cout << "\nEnter your First Name:\n";//asking for first name</pre>
  cin >> FirstName;//first name stored
  cout << "Enter your Last Name:\n";//asking forlast name
  cin >> LastName://last name stored
  cout << "\nEnter your contact number\n";//asking for contact number
  cin >> number;//storing contact number in number
  cout << "Enter your CNIC number\n";//asking for CNIC
  cin >> originalCNIC;//CNIC saved in originalCNIC
  cout << "-----".
  cout << "\n
                     The available events we have are:\n";
//statement for output
  cout << "-----":
  fout << "\nThe available events we have are:\n";//data will be displayed on file
  cout << "\n 1.Birthday Party\n 2.Aniversary Party\n 3.Wedding Function\n 4.Bridal Shower\n
5.Farewell\n"://options of events from which you can choose
  fout << " 1.Birthday Party\n 2.Aniversary Party\n 3.Wedding Function\n 4.Bridal Shower\n
5.Farewell\n";//data will be displayed on file
  int choice;//declaring choice variable
  cout << " \nEnter the number of your event\n ";//askingforthe number of event that is chosen
by user
  cin >> choice;//option number saved in choice
  if (choice == 1)//selection statement used since there are multiple cases to choose from
    //if user enters one the following will display
 {
    cout << "-----":
    cout << " \n For a birthday Party you have to fill out the following information\n";
    cout << "-----":
    Search();//calling search function
    Add();//calling add function
    Edit();//calling edit function
    View();//calling view function
    Delete();//calling Delete function
```

```
}
else if (choice == 2) //if user choice is two the following will display
  cout << "-----":
  cout << " \nFor a Aniversary Party you have to fill out the following information\n"; cout << "-----";
  Search();//calling search function
  Add();//calling add function
  Edit();//calling edit function
  View();//calling view function
  Delete();//calling Delete function
else if (choice == 3)//if user choice is three the following will display
  cout << " \nFor a Wedding function you have to fill out the following information\n";
  cout << "-----".
  Search()://calling search function
  Add();//calling add function
  Edit();//calling edit function
  View();//calling view function
  Delete();//calling Delete function
else if (choice == 4)//if user choice is four the following will display
  cout << "-----":
  cout << " \nFor a Bridal Shower you have to fill out the following information\n";
  cout << "-----":
  Search();//calling search function
  Add();//calling add function
  Edit();//calling edit function
  View();//calling view function
  Delete();//calling Delete function
else if (choice == 5)//if user choice is five the following will display
```

```
cout << " \nFor a Farewell Party you have to fill out the following information\n";
    Search();//calling search function
    Add();//calling add function
    Edit();//calling edit function
    View();//calling view function
    Delete();//calling Delete function
  else //if user doesnt enter any of the given choice else will be used as default statement
    cout << "you have enterred an unavailable number\n";//will be shown if none of the given
choices are entered
  }
}
2D ARRAYS AND POINTORS
void add(int arr[][2], int n, int& total_invites, int& vip_invites, int& normal_invites) {
/* the add function, the TOTAL INVITES variable is incremented by the number of invites added,
and the corresponding invite type (VIP or normal) is incremented as well.*/
  int type, num;
  cout << "-----\n";
             Add the following Information:\n ";
  cout << "
  cout << "==> Enter the type of invite (1-VIP, 2-Normal): " << endl; // two types of invites
  cin >> type://choose which invite
  cout << "==> Enter the number of invites: \n";
  cin >> num:
  if (type == 1) {//if choosen number 1 following will work
    vip invites += num;
  else if (type == 2) {{//if choosen number 1 following will work
    normal invites += num;
  total_invites += num;
}
void edit(int arr[][2], int n, int& total_invites, int& vip_invites, int& normal_invites) {
/*the edit function, you can only edit the number of VIP or normal invites, not the total number of
invites. This is because the total number of invites is the sum of the VIP and normal invites.*/
```

int index, type, num;

```
Fill out the following info to EDIT\n";
  cout << "
  cout << "==> */Enter the index of the invite to edit: " << endl;
/*if user wants to change one of the invite into another type following will display*/
  cin >> index;
  cout << "==> Enter the type of invite (1-VIP, 2-Normal): " << endl;//changing invite to other
type
  cin >> type;
  cout << "==> Enter the new number of invites: " << endl;//asking fo new numer of invites
  cin >> num;
  if (type == 1) {
    total_invites -= vip_invites;
    vip_invites = num;
  }
  else if (type == 2) {
    total invites -= normal invites;
    normal invites = num;
  total_invites += num;
}
void search(int arr[][2], int n, int& total invites, int& vip invites, int& normal invites) {
/* he search function uses a binary search algorithm to find the desired invite type in the
sorted array. The user is asked to input the desired invite type and the corresponding cost is
calculated and displayed*/
  int index:
  cout << "-----\n":
                 Fill out the following info to SEARCH\n";
  cout << "
  cout << "-----\n":
  cout << "==> Enter the index of the invite to search: " << endl;//searching an invite by index
  cin >> index;
  if (index == 1) {
    cout << "==> The number of invites is: " << vip invites << endl;/*displaying amount of vip
invites*/
  }
  else if (index == 2) {
    cout << "==> The number of invites is: " << normal invites << endl;
  } */displaying amount of vip invites*/
}
void deleteFunction(int arr[][2], int n, int& total invites, int& vip invites, int& normal invites) {
```

/* delete function allows you to delete a certain type of invite or all invites. When deleting a certain type of invite, the total invites variable is decremented by the number of invites deleted, and the corresponding invite type (VIP or normal) is decremented as well.*/

```
char choice:
cout << "-----\n":
                        Delete Information:\n";
cout << "
cout << "-----\n":
cout << "\nDo you want to delete something?(y/n)\n";//asking user to delete a record
cin >> choice:
if (choice == 'y') {if user chooses y for yes following code will work
  cout << "==> Enter 1 to delete an invite by index.\n";
  cout << "==> Enter 2 to delete VIP invites.\n";
  cout << "==> Enter 3 to delete normal invites.\n";
  cout << "==> Enter 4 to delete the total number of invites.\n";
  cout << "==> Enter your choice: ";
  int number;
  cin >> number;
  switch (number) {
  case 1: {
    int index;
    cout << "==> Enter the index of the invite to delete: " << endl;
    cin >> index:
    if (index == 1) {
      total invites -= vip invites;
      vip invites = 0;
    else if (index == 2) {
      total invites -= normal invites;
      normal invites = 0;
    }
    break;
  case 2: {
    total invites -= vip invites;
    vip invites = 0;
    break;
  }
  case 3: {
    total invites -= normal invites;
    normal invites = 0;
    break;
  case 4: {
    total invites = 0;
    vip invites = 0;
    normal_invites = 0;
    break;
```

```
default: {
       cout << "==> Invalid choice. Please try again." << endl;
    }
  else
     cout << "\nYou are Not deleting anything\n";
  }
}
void view(int arr[][2], int n, int& total invites, int& vip invites, int& normal invites) {
/* the view function, the total number of invites, the total number of VIP invites, and the total
number of normal invites are displayed*/
  cout << "-----\n":
                        DETAILS:\n":
  cout << "
  cout << "-----\n":
  cout << "==> Total number of invites: " << total invites << endl;
  cout << "==> Total number of VIP invites: " << vip_invites << endl;
  cout << "==> Total number of normal invites: " << normal invites << endl;
}
void handle_invitations() {*/ o perform any operation, you have to first call the corresponding
function from the handle invitation() function*/
  // Assuming a fixed cost of $50 per invite
  int invite cost = 50;
  // Take inputs for the number of invites
  int total_invites = 0, vip_invites = 0, normal_invites = 0;
  const int n = 5;
  int arr[n][2];
  int choice:
  cout << "\nFor Invitation Details you have to perform the following operations:\n";
  cout << " 1.Add\n 2.Edit\n 3.Search\n 4.View\n ";
  add(arr, n, total_invites, vip_invites, normal_invites);
  edit(arr, n, total invites, vip invites, normal invites);
  search(arr, n, total invites, vip invites, normal invites);
  view(arr, n, total_invites, vip_invites, normal_invites);
  deleteFunction(arr, n, total_invites, vip_invites, normal_invites);
  cout << "Total Invites: " << total invites << endl;
```

```
cout << "VIP Invites: " << vip invites << endl;
  cout << "Normal Invites: " << normal invites << endl;
}
void InvitationsEntity()
  cout << "-----\n";
                  *Invitation Cards*\n";
  cout << "
 cout << "-----\n";
  handle_invitations();
}
int main()
/* In the main function, a switch-case structure is used to handle different cases of user input.
Depending on the user's choice, the corresponding function (handle_invitations, handle_events,
or exit the program) is called*/
{
  cout << "-----\n":
  cout << "
              *EVENT MANAGEMENT SYSTEM*" << endl;
  cout << "-----\n":
  cout << "Enter the number you want to perform" << endl;</pre>
  cout << " 1. Events\n 2. Invitations \n 3. Exit\n";
  cout << "Enter:";
  int option;
  cin >> option;
  switch (option)
  case 1:
    EventEntity(); // Event menu
    break;
  case 2:
    InvitationsEntity(); // Invitations menu
    break;
  case 3:
    cout << "Program ends\n";</pre>
    exit(0);
  default:
    cout << "Invalid option!\n";
  }
  return 0;
```

```
The available events we have are:
1.Birthday Party
2.Aniversary Party
3.Wedding Function
4.Bridal Shower
5.Farewell

Location:Gold Marquee
Guests:230
Time:2
Theme:Silver
FirstName:Zoya
LastName:Azad
ContactNumber:32252456711
Location:Gold Marquee
```





