Source Code

```
/*
      Project Name : Video Game Management System
      Version      : 1.0
      Developed By : Ikshita Yadav, Ishaan Asthana
      School       : DPS RK Puram
*/

//Header Files
#include<conio.h>
#include<stdio.h>
#include<fstream.h>

//Classes
class VideoG
{
  int Vno, Mno;
  char Title[20], Author[20],Publisher[20];
  float Price;
public:
  VideoG()
  {
    Mno=0;
  }
  void init()
  {
    cout<<"Enter The Details:"<<endl;
    cout<<"1. Video Game Number: "; cin>> Vno;
    cout<<"2. Author Name: ";gets(Author);
    cout<<"3. Title: ";gets(Title);
    cout<<"4. Publisher: ";gets(Publisher);
    cout<<"5. Price: ";cin>> Price;
  }
  void Show()
  {
    cout<<"The Details:"<<endl;
        cout<<"1. Video Game Number: "<<Vno<<endl;
        cout<<"2. Author Name: "<<Author<<endl;
        cout<<"3. Title: "<<Title<<endl;
        cout<<"4. Publisher: "<<Publisher<<endl;
        cout<<"5. Price: "<<Price<<endl;
        cout<<"6. Member no.: "<<Mno<<endl;
      }
      float RPrice()
```

```cpp
        {return Price;}
    void ChangeMno()
     {
       cout<< "Game is returned";
       Mno=0;
     }
    int RVno()
      {return Vno;}
    int RMno()
      {return Mno;}
    int issue(int TMno)
      {
      if(Vno!=0)
      {
          //Mno=TMno;
            return 1;
      }
      else
          return 0;
      }

    int Return(int TMno)
    {
      if(Mno==TMno)
      {
          Mno=0;
          return 1;
      }
      else
    return 0;
      }
};

class MEMBER
{
    float Mno, Vno;
    char Name[20], Email[40];
  public:
    MEMBER()
    {
        Vno=0;
    }
    void Enter()
    {
    cout<<"Member Number: ";cin>>Mno;
    cout<<"Member Name  : ";gets(Name);
    cout<<"Email        : ";gets(Email);
    }
```

```cpp
   void Edit()
   {

   }
   void ChangeVno()
    {
       cout<< "Game is returned";
       Vno=0;
    }
   void disp()
   {
      cout<<"Enter The Details: "<<endl;
      cout<<"1. Member Number : "<<Mno<<endl;
      cout<<"2. Member Name    : "<<Name<<endl;
      cout<<"3. Email          : "<<Email<<endl;
      cout<<"4. Video Game number issued: "<<Vno<<endl;
   }
   float RVno()
      {return Vno;}
   float RMno()
      {return Mno;}
   int issue(int TVno)
   {
      if(Vno==0)
      {
         Vno=TVno;
         return 1;
      }
      else
         return 0;
   }

   int Return(int TVno)
   {
      if(Vno==TVno)
      {
          Vno=0;
          return 1;
      }
      else
        return 0;
   }
};
void SortGame()
{
    fstream a;
    VideoG S,s1;
    a.open("GAME.dat",ios :: binary|ios::in|ios::out);
```

```cpp
        a.seekg(0,ios::end);
        int n=a.tellg()/sizeof(VideoG);
            for(int I=0;I<n;I++)
                for (int J=0; J<n-I-1;J++)
                {
                        a.seekp(J*sizeof(VideoG));
                        a.read((char*)&S,sizeof(S));
                        a.read((char*)&s1,sizeof(s1));
                        if(S.RVno()>s1.RVno())
                        {
                            a.seekg(J*sizeof(VideoG));
                            a.write((char*)&s1,sizeof(VideoG));
                            a.write((char*)&S,sizeof(VideoG));
                        }
                }
        a.close();
}
void SortMember()
{
            fstream Z;
            MEMBER M,M1;
            Z.open("MEMBER.dat",ios :: binary|ios::in|ios::out);
            Z.seekg(0,ios::end);
            int n=Z.tellg()/sizeof(MEMBER);
            for(int I=0;I<n;I++)
              for (int J=0; J<n-I-1;J++)
              {
                    Z.seekp(J*sizeof(MEMBER));
                    Z.read((char*)&M,sizeof(M));
                    Z.read((char*)&M1,sizeof(M1));
                    if(M.RMno()>M1.RMno())
                    {
                      Z.seekg(J*sizeof(MEMBER));
                      Z.write((char*)&M1,sizeof(MEMBER));
                      Z.write((char*)&M,sizeof(MEMBER));
                    }
              }
        Z.close();
}
void RegisterGame()
{
      VideoG S;
      fstream a;
      char ch;
      a.open("GAME.dat",ios::binary|ios::app);
      do
      {
        S.init();
```

```cpp
        a.write((char*)&S,sizeof(S));
        cout<<"Want to register more games?(Y/N)";
        cin>>ch;
      }
      while(ch!='N');
      a.close();
}

void RegisterMember()
{
      MEMBER M;
      fstream a;
      char ch;
      a.open("MEMBER.dat",ios::binary|ios::app);
      do
      {
        M.Enter();
        a.write((char*)&M,sizeof(M));
        cout<<"Want to register more member?(Y/N)";
        cin>>ch;
      }
      while(ch!='N');
    a.close();
}

void DisplayallGame()
{
      fstream a; VideoG S;
      a.open("GAME.dat",ios::binary|ios::in);
      while (a.read((char*)&S,sizeof(S)))
        S.Show();
        cout<<endl;
      a.close();
}

void DisplayallMember()
{
      fstream a; MEMBER M;
      a.open("MEMBER.dat",ios::binary|ios::in);
      while (a.read((char*)&M,sizeof(M)))
        M.disp();
      a.close();
}

void DeleteGame()
{
      VideoG S;
      fstream a,b;
```

```cpp
 int N, del=0;
 a.open("GAME.dat",ios::binary|ios::in);
 b.open("TGAME.dat",ios::binary|ios::out);
 cout<<"Video Game no. of the game to be deleted ?"<<endl;
 cin>>N;
 while(a.read((char*)&S,sizeof(S)))
 {
if (S.RVno()!=N)
  b.write((char*)&S,sizeof(S));
 else
   del++;
 }
 if (del==0)
cout<<"Game not found"<<endl;
 else
 {
     cout<<"deleted"<<endl;
     remove("Game.dat");
     rename("TGame.dat","Game.dat");
 }
 a.close();
 b.close();

}

void DeleteMember()
{
    MEMBER M;
    fstream A,B;
    int N, del=0;
    A.open("MEMBER.dat",ios::binary|ios::in);
    B.open("TMEMBER.dat",ios::binary|ios::out);
    cout<<"Member no. of the member to be deleted ?"<<endl;
    cin>>N;
     while(A.read((char*)&M,sizeof(M)))
     {
if (M.RMno()!=N)
  B.write((char*)&M,sizeof(M));
else
   del++;
 }
 if (del==0)
cout<<"member not found"<<endl;
 else
 {
  cout<<"deleted"<<endl;
  remove("MEMBER.dat");
  rename("TMEMBER.dat","MEMBER.dat");
```

```
        }
        A.close();
        B.close();

}

void InsertGame()
{
     VideoG RE,S;
     int Inos=0;
     fstream a,b;
     a.open("GAME.dat",ios::binary|ios::in);
     b.open("TGAME.dat",ios::binary|ios::out);
     cout<<"New record to be entered ?"<<endl;
     RE.init();
     while(a.read((char*)&S,sizeof(S)))
     {
       if(S.RVno()>RE.RVno() && !Inos)
       {
           b.write((char*)&RE,sizeof(RE));
           Inos++;
       }
       b.write((char*)&S,sizeof(S));
     }
     if(Inos==0)
     {
       b.write((char*)&S,sizeof(S));
       remove("Game.dat");
       rename("TGame.dat","Game.dat");
     }
     a.close();
     b.close();

}

void InsertMember()
{
     MEMBER R,M;
     int Inos=0;
     fstream A,B;
     A.open("MEMBER.dat",ios::binary|ios::in);
     B.open("TMEMBER.dat",ios::binary|ios::out);
     cout<<"New record to be entered ?"<<endl;
     R.Enter();
     while(A.read((char*)&M,sizeof(M)))
     {
       if(M.RMno()>R.RMno() && !Inos)
       {
```

```cpp
        B.write((char*)&R,sizeof(R));
        Inos++;
          }
          B.write((char*)&M,sizeof(M));


        }
        if(Inos==0)
          B.write((char*)&M,sizeof((M)));
          remove("MEMBER.dat");
          rename("TMEMBER.dat","MEMBER.dat");
        A.close();
        B.close();


}

void SearchGame()
{
        fstream a;
        int N, found=0;
        VideoG S;
        a.open("GAME.dat",ios::binary|ios::in);
        cout<<"Enter game number to be searched:"<<endl;
        cin>>N;
        while(a.read((char*)&S,sizeof(S)))
        {
          if(S.RVno()==N)
          found++;
          S.Show();
        }
        if(found==0)
          cout<<"invalid entry"<<endl;
        a.close();
}

void SearchMember()
{
        fstream A;
        int N, found=0;
        MEMBER M;
        A.open("MEMBER.dat",ios::binary|ios::in);
        cout<<"Enter member number to be searched:"<<endl;
        cin>>N;
        while(A.read((char*)&M,sizeof(M)))
        {
          if(M.RMno()==N)
          {
        found++;
        M.disp();
```

```cpp
            }
        }
        if(found==0)
        cout<<"invalid entry"<<endl;
        A.close();
 }

 //UTILITIES--> Issue, return

 void ReturnGame()
 {
   fstream F1, F2;
   F1.open("GAME.DAT",ios::binary|ios::in|ios::out);
   F2.open("MEMBER.DAT",ios::binary|ios::in|ios::out);
   MEMBER M;
   VideoG V;
   int RVno, RMno, RV=0, RM=0;
   cout<<"Enter the Game Number to be returned: "; cin>>RVno;
   cout<<"Enter the Member Number of the returner: "; cin>>RMno;
   // To check validity of games
   while(!RV && F1.read((char*)&V,sizeof(V)))
       if(V.RVno()==RVno)// && V.issue(RVno))
        { RV=1; cout<<"*****\n";}
   if(RV)
   {
       //To check validity of member to return book
       while(!RM && F2.read((char*)&M,sizeof(M)))
         if(M.RMno()==RMno && M.Return(RVno))
            RM=1;
       //if MEMBER is valid, modify both files
       if(RM)
       {
               // M.ChangeVno();
                V.ChangeMno();
           F1.seekp(F1.tellg()-sizeof(V));
           F2.seekp(F2.tellg()-sizeof(M));
           F1.write((char*)&V,sizeof(V));
           F2.write((char*)&M,sizeof(M));
           cout<<"Video Game "<<RVno<< "recieved  back  from  member
"<<RMno<<endl;
       }
       else
         cout<<"Sorry! Member not registered. "<<endl;
   }
   else
       cout<<"Sorry!  Game  does  not  exist/Game  already  in  library
"<<endl;
   F1.close();
```

```cpp
    F2.close();
}


void IssueGame()
{
  fstream F1,F2;
  F1.open("GAME.dat",ios::binary|ios::in|ios::out);
  F2.open("MEMBER.dat",ios::binary|ios::in|ios::out);
  VideoG V;
  MEMBER M;
  int IVno, IMno, IV=0, IM=0;
  cout<<"Enter the Game Number to be issued: "; cin>>IVno;
  cout<<"Enter the Member Number of the issuer: "; cin>>IMno;
  // To check availability of games
  while(!IV && F1.read((char*)&V,sizeof(V)))
      if(V.RVno()==IVno && V.issue(IMno))
        IV=1;
  //if GAME is available, we check MEMBER
  if(IV)
  {
      //To check registered member for feasibility for issuing
      while(!IM && F2.read((char*)&M,sizeof(M)))
        if(M.RMno()==IMno && M.issue(IVno))
      IM=1;
      //if MEMBER is valid, modify both files
      if(IV)
      {
    F1.seekp(F1.tellg()-sizeof(V));
    F2.seekp(F2.tellg()-sizeof(M));
    F1.write((char*)&V,sizeof(V));
    F2.write((char*)&M,sizeof(M));
    cout<<IVno<< " issued to "<<IMno<<endl;
      }
      else
        cout<<"Sorry! Member not registered. "<<endl;
  }
  else
      cout<<"Sorry! Game does not exist/Game already issued "<<endl;
  F1.close();
  F2.close();
}



void MwGame()
{
  int MwV=0, MwoV=0;
  MEMBER M;
  fstream F1;
```

```cpp
   F1.open("MEMBER.dat",ios::binary|ios::in);
   cout<<"Members with Games: "<<endl;
   while(F1.read((char*)&M,sizeof(M)))
   {
     int T=0;
     if(T!=M.RVno())
     {
     M.disp();
     MwV++;
     }
     else
      MwoV++;
   }
   cout<<"Number of Members with Games are: "<<MwV<<endl;
   cout<<"Nember of Members without Games are: "<<MwoV<<endl;
   F1.close();
}

void AvailableGames()
{
   fstream F1;
   F1.open("Game.DAT",ios::binary|ios::in);
   VideoG V;
   cout<<"Available Games are: "<<endl;
   while(F1.read((char*)&V,sizeof(V)))
   {
      if(V.RMno()==0)
      {
        V.Show();
      }
   }
}

void IssuedGames()
{
   fstream F1;
   F1.open("GAME.DAT",ios::binary|ios::in);
   VideoG V;
   cout<<"Issued Games are: "<<endl;
   while(F1.read((char*)&V,sizeof(V)))
   {
      if(V.RMno()!=0)
      {
        V.Show();
      }
   }
}
void main()
```

```cpp
{
  clrscr();
  char Choice1,g;
  do
  {
    cout<<"G:Games"<<endl
      <<"M:Member"<<endl
      <<"R:Report"<<endl
      <<"U:Utilities"<<endl
      <<"Q:Quit"<<endl;
    cin>>Choice1;
    switch (Choice1)
    {
      case 'G' :cout<<"R-Register a Game "<<endl;
            cout<<"D-Display all Game in library "<<endl;
            cout<<"S-Search for a Game "<<endl;
            cout<<"X-Delete a Game "<<endl;
            cout<<"I-Insert a Game "<<endl;
            cin>>g;
            switch(g)
            {
              case'R': RegisterGame(),SortGame();break;
              case'D': DisplayallGame();break;
              case'S': SearchGame();break;
              case'X': DeleteGame();break;
              case'I': InsertGame(),SortGame();break;
            }
            break;
      case 'M':cout<<"R-Register a Member"<<endl;
            cout<<"D-Display all Members in system"<<endl;
            cout<<"S-Search for a Member"<<endl;
            cout<<"X-Delete a Member from record"<<endl;
            cout<<"I-Insert a Member into record"<<endl;
            cin>>g;
            switch(g)
            {
              case'R': RegisterMember(),SortMember();break;
              case'D': DisplayallMember();break;
              case'S': SearchMember();break;
              case'X': DeleteMember();break;
              case'I': InsertMember(),SortMember();break;
            }
            break;
      case 'U' :cout<<" I:Issue game, R:Return game ";
              cin>>g;
              switch(g)
              {
                case 'I' : IssueGame(); break;
```

```cpp
                    case 'R' : ReturnGame(); break;
                }
                break;
        case 'R' :cout<<"W: Members with Games"<<endl;
                cout<<"A: Available Games"<<endl;
                cout<<"I: Issued Games"<<endl;
                cin>>g;
                switch(g)
                {
                    case 'W' : MwGame(); break;
                    case 'A' : AvailableGames(); break;
                    case 'I' : IssuedGames(); break;
                }

        }
    }
    while(Choice1!='Q');
    getch();
}
```

Output Screen

```
G:Games
M:Member
R:Report
U:Utilities
Q:Quit
G
R-Register a Game
D-Display all Game in library
S-Search for a Game
X-Delete a Game
I-Insert a Game
R
Enter The Details:
1. Video Game Number: 1
2. Author Name: Ramesh
3. Title: 5star Trivia
4. Publisher: Ramesh.pvt
5. Price: 250
Want to register more games?(Y/N)Y




Enter The Details:
1. Video Game Number: 2
2. Author Name: Sarah
3. Title: CANDYcrush
4. Publisher: WWP
5. Price: 1000
Want to register more games?(Y/N)N
G:Games
M:Member
R:Report
U:Utilities
Q:Quit
```

```
G
R-Register a Game
D-Display all Game in library
S-Search for a Game
X-Delete a Game
I-Insert a Game
D
The Details:
1. Video Game Number: 2
2. Author Name: Sarah
3. Title: CANDYcrush
4. Publisher: WWP
5. Price: 1000
6. Member no.: 0

G:Games
M:Member
R:Report
U:Utilities
Q:Quit


U:Utilities
Q:Quit
G
R-Register a Game
D-Display all Game in library
S-Search for a Game
X-Delete a Game
I-Insert a Game
S
Enter game number to be searched:
1
The Details:
1. Video Game Number: 2
2. Author Name: Sarah
3. Title: CANDYcrush
4. Publisher: WWP
5. Price: 1000
6. Member no.: 0
invalid entry
G:Games
M:Member
R:Report
U:Utilities
Q:Quit
```

```
G:Games
M:Member
R:Report
U:Utilities
Q:Quit
G
R-Register a Game
D-Display all Game in library
S-Search for a Game
X-Delete a Game
I-Insert a Game
X
Video Game no. of the game to be deleted ?
Z
deleted
G:Games
M:Member
R:Report
U:Utilities
Q:Quit
```

```
G:Games
M:Member
R:Report
U:Utilities
Q:Quit
G
R-Register a Game
D-Display all Game in library
S-Search for a Game
X-Delete a Game
I-Insert a Game
I
New record to be entered ?
Enter The Details:
1. Video Game Number: 3
2. Author Name: Palak
3. Title: PUBG
4. Publisher: EAsports
5. Price: 2000
G:Games
M:Member
R:Report
U:Utilities
Q:Quit
```

```
G:Games
M:Member
R:Report
U:Utilities
Q:Quit
G
R-Register a Game
D-Display all Game in library
S-Search for a Game
X-Delete a Game
I-Insert a Game
X
Video Game no. of the game to be deleted ?
2
deleted
G:Games
M:Member
R:Report
U:Utilities
Q:Quit
```

```
G:Games
M:Member
R:Report
U:Utilities
Q:Quit
G
R-Register a Game
D-Display all Game in library
S-Search for a Game
X-Delete a Game
I-Insert a Game
I
New record to be entered ?
Enter The Details:
1. Video Game Number: 3
2. Author Name: Palak
3. Title: PUBG
4. Publisher: EAsports
5. Price: 2000
G:Games
M:Member
R:Report
U:Utilities
Q:Quit
```

```
M:Member
R:Report
U:Utilities
Q:Quit
M
R-Register a Member
D-Display all Members in system
S-Search for a Member
X-Delete a Member from record
I-Insert a Member into record
R
Member Number: 1
Member Name   : Radha
Email         : Radha@hotmail.com
Want to register more member?(Y/N)Y
Member Number: 2
Member Name   : Khush
Email         : Khush@gmail.com
Want to register more member?(Y/N)N
G:Games
M:Member
R:Report
U:Utilities
Q:Quit
```

```
M
R-Register a Member
D-Display all Members in system
S-Search for a Member
X-Delete a Member from record
I-Insert a Member into record
D
Enter The Details:
1. Member Number : 1
2. Member Name    : Radha
3. Email          : Radha@hotmail.com
4. Video Game number issued: 0
Enter The Details:
1. Member Number : 2
2. Member Name    : Khush
3. Email          : Khush@gmail.com
4. Video Game number issued: 0
G:Games
M:Member
R:Report
U:Utilities
Q:Quit
```

```
G:Games
M:Member
R:Report
U:Utilities
Q:Quit
M
R-Register a Member
D-Display all Members in system
S-Search for a Member
X-Delete a Member from record
I-Insert a Member into record
I
New record to be entered ?
Member Number: 2
Member Name   : Khushagra
Email         : khushagra@gmail.com
G:Games
M:Member
R:Report
U:Utilities
Q:Quit




G:Games
M:Member
R:Report
U:Utilities
Q:Quit
U
 I:Issue game, R:Return game I
Enter the Game Number to be issued: 1
Enter the Member Number of the issuer: 1
1 issued to 1
G:Games
M:Member
R:Report
U:Utilities
Q:Quit
```

```
U
  I:Issue game, R:Return game I
Enter the Game Number to be issued: 2
Enter the Member Number of the issuer: 2
2 issued to 2
G:Games
M:Member
R:Report
U:Utilities
Q:Quit
U
  I:Issue game, R:Return game R
Enter the Game Number to be returned: 1
Enter the Member Number of the returner: 1
*****
Game is returnedVideo Game 1recieved back from member 1
G:Games
M:Member
R:Report
U:Utilities
Q:Quit
```

```
G:Games
M:Member
R:Report
U:Utilities
Q:Quit
R
W: Members with Games
A: Available Games
I: Issued Games
W
Members with Games:
Enter The Details:
1. Member Number : 2
2. Member Name    : Khushagra
3. Email          : Khushagra@gmail.com
4. Video Game number issued: 2
Number of Members with Games are: 1
Nember of Members without Games are: 1
G:Games
M:Member
R:Report
U:Utilities
Q:Quit
R_
```

```
W: Members with Games
A: Available Games
I: Issued Games
A
Available Games are:
The Details:
1. Video Game Number: 1
2. Author Name: Ramesh
3. Title: 5star Trivia
4. Publisher: Ramesh.pvt
5. Price: 250
6. Member no.: 0
The Details:
1. Video Game Number: 2
2. Author Name: Sarah
3. Title: CANDY crush
4. Publisher: WWP
5. Price: 1000
6. Member no.: 0
G:Games
M:Member
R:Report
U:Utilities
Q:Quit

_
```

R:Report
U:Utilities
Q:Quit
U
 I:Issue game, R:Return game R
Enter the Game Number to be returned: 2
Enter the Member Number of the returner: 2
*****
Game is returnedVideo Game 2recieved back from member 2
G:Games
M:Member
R:Report
U:Utilities
Q:Quit
U
 I:Issue game, R:Return game R
Enter the Game Number to be returned: 10
Enter the Member Number of the returner: 0
Sorry! Game does not exist/Game already in library
G:Games
M:Member
R:Report
U:Utilities
Q:Quit

G:Games
M:Member
R:Report
U:Utilities
Q:Quit
R
W: Members with Games
A: Available Games
I: Issued Games
I
Issued Games are:
G:Games
M:Member
R:Report
U:Utilities
Q:Quit