ALGORITMA DAN PEMOGRAMAN LANJUT

PROJECT SEMESTER 2



DISUSUN OLEH :

|  |  |  |
| --- | --- | --- |
| NAMA | : | BAYU SAPUTRA (123160043)  RAHMAD YESA ALFARABI (123160050)  ARNI PUDYASTUTI (123160052) |
| KELAS | : | B |
| DOSEN PEMBIMBING | : | WILIS KASWIDJANTI, S.SI., M.KOM. |

JURUSAN TEKNIK INFORMATIKA

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YOGYAKARTA

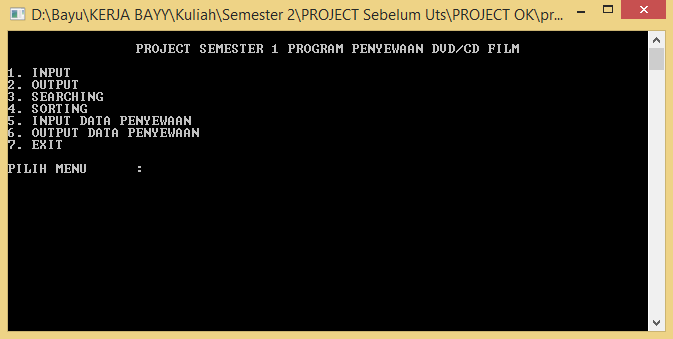
2017

**Project Akhir**

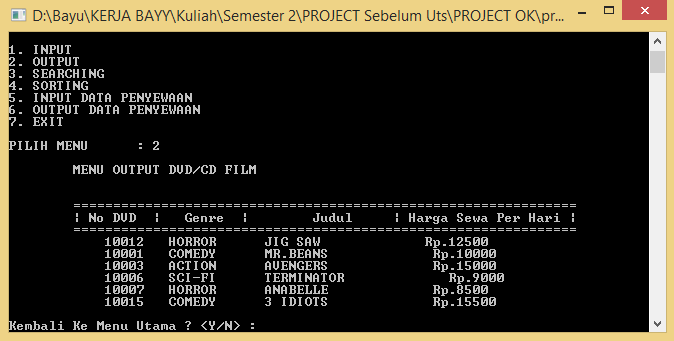
Listing program :

|  |
| --- |
| #include <iostream> //SEARCH TUNS kelar  #include <iomanip> //PALING OKE, JANGAN SAMPAI DIMACAM-MACAM SEBELUM DIPASTIKAN BENER REVISI!!  #include <string.h>  #include <fstream>  using namespace std;  struct data  {  int nodvd,harga;  string genre,judul;  };  struct data datadvd[200],tampung,x[200];  struct satu  {  string nama;  int belanja,kode;  };  struct satu jual[100];  void penjualan();  void outputpenjualan();  void inputdvd(); //KELAR  void outputdvd(); //KELAR  void searching(); //KELAR  void sequential(); //KELAR  void seqtidakurutnonsentinel(); //KELAR  void searchnodvd\_TUNS(); //KELAR  void searchgenre\_TUNS(); //KELAR  void searchjudul\_TUNS(); //KELAR  void searchharga\_TUNS(); //KELAR  void seqtidakurutsentinel(); //KELAR  void searchnodvd\_TUS(); //KELAR  void searchgenre\_TUS(); //KELAR  void searchjudul\_TUS(); //KELAR  void searchharga\_TUS(); //KELAR  void sequrutnonsentinel(); //KELAR  void searchnodvd\_UNS(); //KELAR  void sequrutsentinel(); //KELAR  void searchnodvd\_US(); //KELAR  void binary(); //OK TAPI HANYA BISA TEMUKAN 1 DATA YG SAMA  void binnodvd(); //OK TAPI HANYA BISA TEMUKAN 1 DATA YG SAMA  void bingenre(); //OK TAPI HANYA BISA TEMUKAN 1 DATA YG SAMA  void binjudul(); //OK TAPI HANYA BISA TEMUKAN 1 DATA YG SAMA  void binharga(); //OK TAPI HANYA BISA TEMUKAN 1 DATA YG SAMA  void sorting(); //LENGKAP  void bubble(); //OK  void ascbub(); //OK  void ascbubnodvd(); //OK0  void ascbubgenre(); //OK  void ascbubjudul(); //OK  void ascbubharga(); //OK  void dscbub(); //OK  void dscbubnodvd(); //OK  void dscbubgenre(); //OK  void dscbubjudul(); //OK  void dscbubharga(); //OK  void insertion(); //OK  void ascins(); //OK  void ascinsnodvd(); //OK  void ascinsgenre(); //OK  void ascinsjudul(); //OK  void ascinsharga(); //OK  void dscins(); //OK  void dscinsnodvd(); //OK  void dscinsgenre(); //OK  void dscinsjudul(); //OK  void dscinsharga(); //OK  void selection(); //OK  void ascsel(); //OK  void ascselnodvd(); //OK  void ascselgenre(); //OK  void ascseljudul(); //OK  void ascselharga(); //OK  void dscsel(); //OK  void dscselnodvd(); //OK  void dscselgenre(); //OK  void dscseljudul(); //OK  void dscselharga(); //OK  void shell(); // OTW  void ascshell(); //OK  void ascshellnodvd(); //OK  void ascshellgenre(); //OK  void ascshelljudul(); //OK  void ascshellharga(); //OK  void dscshell(); //OK  void dscshellnodvd(); //OK  void dscshellgenre(); //OK  void dscshelljudul(); //OK  void dscshellharga(); //OK  void quick(); //OK  void ascquick(); //OK  void ascquicknodvd(int,int); //OK  void ascquickgenre(int,int); //OK  void ascquickjudul(int,int); //OK  void ascquickharga(int,int); //OK  void dscquick(); //OK  void dscquicknodvd(int,int); //OK  void dscquickgenre(int,int); //OK  void dscquickjudul(int,int); //OK  void dscquickharga(int,int); //OK  void merg(); //OK  void ascmerg(); //OK  void ascmergnodvd(data x[],int first,int last); //OK  void s\_ascmergnodvd(data x[],int low,int mid,int high); //OK  void ascmerggenre(data x[],int first,int last); //OK  void s\_ascmerggenre(data x[],int low,int mid,int high); //OK  void ascmergjudul(data x[],int first,int last); //OK  void s\_ascmergjudul(data x[],int low,int mid,int high); //OK  void ascmergharga(data x[],int first,int last); //OK  void s\_ascmergharga(data x[],int low,int mid,int high); //OK  void dscmerg(); //OK  void dscmergnodvd(data x[],int first,int last); //OK  void s\_dscmergnodvd(data x[],int low,int mid,int high); //OK  void dscmerggenre(data x[],int first,int last); //OK  void s\_dscmerggenre(data x[],int low,int mid,int high); //OK  void dscmergjudul(data x[],int first,int last); //OK  void s\_dscmergjudul(data x[],int low,int mid,int high); //OK  void dscmergharga(data x[],int first,int last); //OK  void s\_dscmergharga(data x[],int low,int mid,int high); //OK  int jmldvd,ttl;  bool found;  FILE \*file;  int main()  {  int pilih;  char yn;  do{  cout<<"\n\t\tPROJECT SEMESTER 1 PROGRAM PENYEWAAN DVD/CD FILM\n\n";  cout<<"1. INPUT\n";  cout<<"2. OUTPUT\n";  cout<<"3. SEARCHING\n";  cout<<"4. SORTING\n";  cout<<"5. INPUT DATA PENYEWAAN\n";  cout<<"6. OUTPUT DATA PENYEWAAN\n";  cout<<"7. EXIT\n";  cout<<"\nPILIH MENU\t: "; cin>>pilih;  switch(pilih)  {  case 1 : inputdvd();  break;  case 2 : outputdvd();  break;  case 3 : searching();  break;  case 4 : sorting();  break;  case 5 : penjualan();  break;  case 6 : outputpenjualan();  break;  }  cout<<"\nKembali Ke Menu Utama ? <Y/N> : "; cin>>yn;  }while(yn == 'y' || yn == 'Y');  }  void inputdvd()  {  file = fopen("rentalxx.txt","w");  cout<<"\n\tMENU SIMPAN DVD/CD FILM \n";  cout<<"\nINPUT JUMLAH\t: "; cin>>jmldvd;  fwrite(&jmldvd,sizeof(jmldvd),1,file);  cout<<"\nSELALU INPUT DMENGGUNAKAN KAPITAL!!\n";  cout<<"\t\t\t\t\tGENRE YANG TERSEDIA\n";  cout<<"\t\t\t\t\t1.HORROR\n";  cout<<"\t\t\t\t\t2.COMEDY\n";  cout<<"\t\t\t\t\t3.ACTION\n";  cout<<"\t\t\t\t\t4.SCI-FI\n";  for(int a=0; a<jmldvd; a++)  {  cout<<"\nNOMOR DVD/CD (5A ANGKA)\t: "; cin>>datadvd[a].nodvd;  cout<<"GENRE DVD/CD FILM\t: "; cin>>datadvd[a].genre;  cout<<"JUDUL DVD/CD FILM\t: "; cin.ignore(); getline(cin,datadvd[a].judul);  cout<<"HARGA SEWA DVD/CD FILM\t: "<<"Rp."; cin>>datadvd[a].harga;  fwrite(&datadvd[a],sizeof(datadvd[a]),1,file);  }  fclose(file);  }  void outputdvd()  {  file = fopen("rentalxx.txt","r");  cout<<"\n\tMENU OUTPUT DVD/CD FILM \n\n";  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  fread(&jmldvd,sizeof(jmldvd),1,file);  for(int a=0; a<jmldvd; a++)  { fread(&datadvd[a],sizeof(datadvd[a]),1,file);  cout<<setw(12)<<" "<<datadvd[a].nodvd<<" "<<datadvd[a].genre<<" \t"<<datadvd[a].judul<<" "<<" Rp."<<datadvd[a].harga<<endl;  }  fclose(file);  }  void searching()  {  int pilih;  file = fopen("rentalxx.txt","r");  fread(&jmldvd,sizeof(jmldvd),1,file);  for(int a=0; a<jmldvd; a++)  {  fread(&datadvd[a],sizeof(datadvd[a]),1,file);  }  cout<<"\n\tMENU SEARCH DVD/CD FILM\n\n";  cout<<"1. SEQUENTIAL SEARCH\n";  cout<<"2. BINARY SEARCH\n";  cout<<"\nPilih Menu Search\t: "; cin>>pilih;  switch(pilih)  {  case 1 : sequential();  break;  case 2 : binary();  break;  }  fclose(file);  }  void sequential()  {  int pilih;  cout<<"\n\tMENU SEQUENTIAL SEARCH DVD/CD FILM\n\n";  cout<<"1. SEQUENTIAL TIDAK URUT NONSENTINEL\n";  cout<<"2. SEQUENTIAL TIDAK URUT SENTINEL\n";  cout<<"3. SEQUENTIAL URUT NON SENTINEL\n";  cout<<"4. SEQUENTIAL URUT SENTINEL\n";  cout<<"5. EXIT\n";  cout<<"\nPilih Menu Search\t: "; cin>>pilih;  switch(pilih)  {  case 1 : seqtidakurutnonsentinel();  break;  case 2 : seqtidakurutsentinel();  break;  case 3 : sequrutnonsentinel();  break;  case 4 : sequrutsentinel();  break;  }  }  void seqtidakurutnonsentinel()  {  int pilih;  char ulg;  do{  cout<<"\n\tMENU SEARCH SEQUENTIAL TIDAK URUT NON SENTINEL\n\n";  cout<<"1. CARI BERDASARKAN NO DVD\n";  cout<<"2. CARI BERDASARKAN GENRE\n";  cout<<"3. CARI BERDASARKAN JUDUL\n";  cout<<"4. CARI BERDASARKAN HARGA\n";  cout<<"5. EXIT\n";  cout<<"\nPilih Menu\t: "; cin>>pilih;  switch(pilih)  {  case 1 : searchnodvd\_TUNS();  break;  case 2 : searchgenre\_TUNS();  break;  case 3 : searchjudul\_TUNS();  break;  case 4 : searchharga\_TUNS();  break;  }  cout<<"\nCARI KEMBALI? <Y/N> : "; cin>>ulg;  }while(ulg == 'y' || ulg == 'Y');  }  void searchnodvd\_TUNS()  {  int cari,a=0;  found = false;  cout<<"\n\tMENU SEARCH NO DVD/CD SEQUENTIAL TIDAK URUT NON SENTINEL\n";  cout<<"\nCARI NO DVD\t: "; cin>>cari;  while((a<jmldvd) & (!found))  {  if(datadvd[a].nodvd == cari )  found = true;  else  a = a + 1;  }  if(found)  {  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  cout<<setw(12)<<" "<<datadvd[a].nodvd<<" "<<datadvd[a].genre<<" \t"<<datadvd[a].judul<<" "<<" Rp."<<datadvd[a].harga<<endl;  }  else  cout<<"\nNOMOR DVD/CD FILM TERSEBUT TIDAK DITEMUKAN!";  }  void searchgenre\_TUNS()  {  string cari;  int x=0,c,bantu,arraybantuan[100];  found = false;  cout<<"\n\tMENU SEARCH GENRE SEQUENTIAL TIDAK URUT NON SENTINEL\n";  cout<<"\nCARI GENRE\t: "; cin>>cari;  for(int b=0; b<jmldvd; b++)  {  if(datadvd[b].genre == cari )  {  arraybantuan[x] = b ;  x = x + 1;  found = true;  }  else  cout<<"";  }  if(found)  {  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int a=0; a<x; a++)  {  c = arraybantuan[a];  bantu = c;  cout<<setw(12)<<" "<<datadvd[bantu].nodvd<<" "<<datadvd[bantu].genre<<" \t"<<datadvd[bantu].judul<<" "<<" Rp."<<datadvd[bantu].harga<<endl;  }  }  else  cout<<"\nGENRE DVD/CD FILM TERSEBUT TIDAK DITEMUKAN!";  }  void searchjudul\_TUNS()  {  char cari[30];  int x=0,c,bantu,arraybantuan[100];  found = false;  cout<<"\n\tMENU SEARCH JUDUL SEQUENTIAL TIDAK URUT NON SENTINEL\n";  cout<<"\nCARI JUDUL\t: "; cin.ignore(); cin.getline(cari,sizeof(cari));  for(int b=0; b<jmldvd; b++)  {  if(datadvd[b].judul == cari )  {  arraybantuan[x] = b ;  x = x + 1;  found = true;  }  else  cout<<"";  }  if(found)  {  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int a=0; a<x; a++)  {  c = arraybantuan[a];  bantu = c;  cout<<setw(12)<<" "<<datadvd[bantu].nodvd<<" "<<datadvd[bantu].genre<<" \t"<<datadvd[bantu].judul<<" "<<" Rp."<<datadvd[bantu].harga<<endl;  }  }  else  cout<<"\nJUDUL DVD/CD FILM TERSEBUT TIDAK DITEMUKAN!";  }  void searchharga\_TUNS()  {  int cari;  int x=0,c,bantu,arraybantuan[100];  found = false;  cout<<"\n\tMENU SEARCH HARGA SEQUENTIAL TIDAK URUT SENTINEL\n";  cout<<"\nCARI HARGA\t: Rp."; cin>>cari;  for(int b=0; b<jmldvd; b++)  {  if(datadvd[b].harga == cari )  {  arraybantuan[x] = b ;  x = x + 1;  found = true;  }  else  cout<<"";  }  if(found)  {  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int a=0; a<x; a++)  {  c = arraybantuan[a];  bantu = c;  cout<<setw(12)<<" "<<datadvd[bantu].nodvd<<" "<<datadvd[bantu].genre<<" \t"<<datadvd[bantu].judul<<" "<<" Rp."<<datadvd[bantu].harga<<endl;  }  }  else  cout<<"\nHARGA DVD/CD FILM TERSEBUT TIDAK DITEMUKAN!";  }  void seqtidakurutsentinel()  {  int pilih;  char ulg;  do{  cout<<"\n\tMENU SEARCH SEQUENTIAL TIDAK URUT SENTINEL\n";  cout<<"\n1. CARI BERDASARKAN NO DVD\n";  cout<<"2. CARI BERDASARKAN GENRE\n";  cout<<"3. CARI BERDASARKAN JUDUL\n";  cout<<"4. CARI BERDASARKAN HARGA\n";  cout<<"5. EXIT\n";  cout<<"\nPilih Menu\t: "; cin>>pilih;  switch(pilih)  {  case 1 : searchnodvd\_TUS();  break;  case 2 : searchgenre\_TUS();  break;  case 3 : searchjudul\_TUS();  break;  case 4 : searchharga\_TUS();  break;  }  cout<<"\nCARI LAGI ? <Y/N> : "; cin>>ulg;  }while(ulg == 'y' || ulg =='Y');  }  void searchnodvd\_TUS()  {  int cari;  int a=0;  found = false;  cout<<"\nCARI NO DVD/CD FILM\t: "; cin>>cari;  datadvd[jmldvd+1].nodvd = cari;  while(!found)  {  if(datadvd[a].nodvd == cari)  {  found = true;  }  else  a++;  }  if(a == jmldvd+1)  {  cout<<"\nNO DVD/CD FILM TERSEBUT TIDAK DITEMUKAN";  }  else  {  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  cout<<setw(12)<<" "<<datadvd[a].nodvd<<" "<<datadvd[a].genre<<" \t"<<datadvd[a].judul<<" "<<" Rp."<<datadvd[a].harga<<endl;  }  }  void searchgenre\_TUS()  {  string cari;  int a=0;  int arraybantuan[100],x=0;  found = false;  cout<<"\nCARI GENRE FILM\t: "; cin>>cari;  datadvd[jmldvd+1].genre = cari;  for(int a=0; a<jmldvd; a++)  {  if(datadvd[a].genre == cari)  {  arraybantuan[x]=a;  x++;  found = true;  }  else  cout<<"";  }  if(a == jmldvd+1)  {  cout<<"\nGENRE FILM TERSEBUT TIDAK DITEMUKAN";  }  else  {  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int c=0; c<x; c++)  {  cout<<setw(12)<<" "<<datadvd[arraybantuan[c]].nodvd<<" "<<datadvd[arraybantuan[c]].genre<<" \t"<<datadvd[arraybantuan[c]].judul<<" "<<" Rp."<<datadvd[arraybantuan[c]].harga<<endl;  }  }  }  void searchjudul\_TUS()  {  char cari[30];  int a=0;  int arraybantuan[100],x=0;  found = false;  cout<<"\nCARI JUDUL FILM\t: "; cin.ignore(); cin.getline(cari,sizeof(cari));;  datadvd[jmldvd+1].judul = cari;  for(int a=0; a<jmldvd; a++)  {  if(datadvd[a].judul == cari)  {  arraybantuan[x]=a;  x++;  found = true;  }  else  cout<<"";  }  if(a == jmldvd+1)  cout<<"JUDUL FILM TERSEBUT TIDAK DITEMUKAN";  else  {  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int c=0; c<x; c++)  {  cout<<setw(12)<<" "<<datadvd[arraybantuan[c]].nodvd<<" "<<datadvd[arraybantuan[c]].genre<<" \t"<<datadvd[arraybantuan[c]].judul<<" "<<" Rp."<<datadvd[arraybantuan[c]].harga<<endl;  }  }  }  void searchharga\_TUS()  {  int cari;  int a=0;  int arraybantuan[100],x=0;  found = false;  cout<<"\nCARI HARGA FILM\t: Rp."; cin>>cari;  datadvd[jmldvd+1].harga = cari;  for(int a=0; a<jmldvd; a++)  {  if(datadvd[a].harga == cari)  {  arraybantuan[x]=a;  x++;  found = true;  }  else  cout<<"";  }  if(a == jmldvd+1)  {  cout<<"\nDVD/CD FILM DENGAN HARGA TERSEBUT TIDAK DITEMUKAN\n";  }  else  {  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int c=0; c<x; c++)  {  cout<<setw(12)<<" "<<datadvd[arraybantuan[c]].nodvd<<" "<<datadvd[arraybantuan[c]].genre<<" \t"<<datadvd[arraybantuan[c]].judul<<" "<<" Rp."<<datadvd[arraybantuan[c]].harga<<endl;  }  }  }  void sequrutnonsentinel()  {  char ulg;  do{  cout<<"\n\tMENU SEARCH SEQUENTIAL URUT NONSENTINEL\n";  cout<<"\n CARI BERDASARKAN NO DVD\n";  searchnodvd\_UNS();  cout<<"\nCARI KEMBALI? <Y/N> : "; cin>>ulg;  }while(ulg == 'y' || ulg == 'Y');  }  void searchnodvd\_UNS()  {  int cari,a=0,out=0;  found = false;  cout<<"\nCARI NO DVD/CD FILM\t: "; cin>>cari;  while((a<jmldvd) & (!found) & (cari>=datadvd[a].nodvd))  {  if(datadvd[a].nodvd == cari)  {  out = a;  found = true;  }  else  a++;  }  if(found)  {  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  cout<<setw(12)<<" "<<datadvd[out].nodvd<<" "<<datadvd[out].genre<<" \t"<<datadvd[out].judul<<" "<<" Rp."<<datadvd[out].harga<<endl;  }  else  cout<<"\nNOMOR DVD/CD FILM YANG ANDA CARI TIDAK DITEMUKAN";  }  void sequrutsentinel()  {  char ulg;  do{  cout<<"\nMENU SEARCHING URUT SENTINEL\n";  searchnodvd\_US();  cout<<"\nCARI KEMBALI? <Y/N> : "; cin>>ulg;  }  while(ulg == 'y' || ulg == 'Y');  }  void searchnodvd\_US()  {  int cari,a=0,out;  cout<<"\nCARI BERDASARKAN NO DVD/CD FILM\t: "; cin>>cari;  datadvd[jmldvd+1].nodvd = cari;  found = false;  while((!found) & (datadvd[a].nodvd <= cari))  {  if(datadvd[a].nodvd == cari)  {  out = a;  found = true;  }  else  a = a + 1;  }  if(a == jmldvd + 1)  {  cout<<"\nNO DVD/CD FILM TERSEBUT TIDAK DITEMUKAN\n";  }  else  {  if(found)  {  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  cout<<setw(12)<<" "<<datadvd[out].nodvd<<" "<<datadvd[out].genre<<" \t"<<datadvd[out].judul<<" "<<" Rp."<<datadvd[out].harga<<endl;  }  else  cout<<"\nNO DVD/CD FILM TERSEBUT TIDAK DITEMUKAN\n";  }  }  void binary()  {  int pilih;  char ulg;  do{  cout<<"\n\tMENU BINARY SEAARCH\n";  cout<<"\n1. CARI BERDASARKAN NO DVD\n";  cout<<"2. CARI BERDASARKAN GENRE\n";  cout<<"3. CARI BERDASARKAN JUDUL\n";  cout<<"4. CARI BERDASARKAN HARGA\n";  cout<<"5. EXIT\n";  cout<<"\nPilih Menu\t: "; cin>>pilih;  switch(pilih)  {  case 1 : binnodvd();  break;  case 2 : bingenre();  break;  case 3 : binjudul();  break;  case 4 : binharga();  break;  }  cout<<"\nCARI LAGI ? <Y/N> : "; cin>>ulg;  }while(ulg == 'y' || ulg =='Y');  }  void binnodvd()  {  int cari;  int awal,akhir,tengah;  awal=0;  akhir = jmldvd;  found = false;  cout<<"\nBINARY SEARCH\n";  cout<<"\nCARI NO DVD/CD FILM YANG INGIN DICARI\t: "; cin>>cari;  while((!found) & (awal <= akhir))  {  tengah = (awal+akhir)/2;  if(cari == x[tengah].nodvd)  {  found = true;  }  else  {  if(cari<x[tengah].nodvd)  {  akhir = tengah - 1;  }  else  {  awal = tengah +1;  }  }  }  if(found)  {  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  cout<<setw(12)<<" "<<x[tengah].nodvd<<" "<<x[tengah].genre<<" \t"<<x[tengah].judul<<" "<<" Rp."<<x[tengah].harga<<endl;  }  else  cout<<"\nDATA TIDAK DITEMUKAN ATAU DATA BELUM DISORTING !\n";  }  void bingenre()  {  string cari;  int awal,akhir,tengah;  awal=0;  akhir = jmldvd;  found = false;  cout<<"\nBINARY SEARCH\n";  cout<<"\nCARI GENRE DVD/CD FILM YANG INGIN DICARI\t: "; cin.ignore(); getline(cin,cari);  while((!found) & (awal <= akhir))  {  tengah = (awal+akhir)/2;  if(cari == x[tengah].genre)  {  found = true;  }  else  {  if(cari<x[tengah].genre)  {  akhir = tengah - 1;  }  else  {  awal = tengah +1;  }  }  }  if(found)  {  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  cout<<setw(12)<<" "<<x[tengah].nodvd<<" "<<x[tengah].genre<<" \t"<<x[tengah].judul<<" "<<" Rp."<<x[tengah].harga<<endl;  }  else  cout<<"\nDATA TIDAK DITEMUKAN ATAU DATA BELUM DISORTING !\n";  }  void binjudul()  {  string cari;  int awal,akhir,tengah;  awal=0;  akhir = jmldvd;  found = false;  cout<<"\nBINARY SEARCH\n";  cout<<"\nCARI JUDUL DVD/CD FILM YANG INGIN DICARI\t: "; cin.ignore(); getline(cin,cari);  while((!found) & (awal <= akhir))  {  tengah = (awal+akhir)/2;  if(cari == x[tengah].judul)  {  found = true;  }  else  {  if(cari<x[tengah].judul)  {  akhir = tengah - 1;  }  else  {  awal = tengah +1;  }  }  }  if(found)  {  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  cout<<setw(12)<<" "<<x[tengah].nodvd<<" "<<x[tengah].genre<<" \t"<<x[tengah].judul<<" "<<" Rp."<<x[tengah].harga<<endl;  }  else  cout<<"\nDATA TIDAK DITEMUKAN ATAU DATA BELUM DISORTING !\n";  }  void binharga()  {  int cari;  int awal,akhir,tengah;  awal=0;  akhir = jmldvd;  found = false;  cout<<"\nBINARY SEARCH\n";  cout<<"\nCARI HARGA DVD/CD FILM YANG INGIN DICARI\t: "; cin>>cari;  while((!found) & (awal <= akhir))  {  tengah = (awal+akhir)/2;  if(cari == x[tengah].harga)  {  found = true;  }  else  {  if(cari<x[tengah].harga)  {  akhir = tengah - 1;  }  else  {  awal = tengah +1;  }  }  }  if(found)  {  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  cout<<setw(12)<<" "<<x[tengah].nodvd<<" "<<x[tengah].genre<<" \t"<<x[tengah].judul<<" "<<" Rp."<<x[tengah].harga<<endl;  }  else  cout<<"\nDATA TIDAK DITEMUKAN ATAU DATA BELUM DISORTING !\n";  }  void sorting()  {  file = fopen("rentalxx.txt","r");  fread(&jmldvd,sizeof(jmldvd),1,file);  for(int a=0; a<jmldvd; a++)  {  fread(&datadvd[a],sizeof(datadvd[a]),1,file);  x[a] = datadvd[a];  }  int pilih;  char ulg;  do{  cout<<"1. BUBBLE SORT\n";  cout<<"2. INSERTION SORT\n";  cout<<"3. SELECTION SORT\n";  cout<<"4. SHELL SORT\n";  cout<<"5. QUICK SORT\n";  cout<<"6. MERGE SORT\n";  cout<<"\nPILIH MENU\t: "; cin>>pilih;  switch(pilih)  {  case 1 : bubble();  break;  case 2 : insertion();  break;  case 3 : selection();  break;  case 4 : shell();  break;  case 5 : quick();  break;  case 6 : merg();  break;  }  cout<<"\nSORTING LAGI ? <Y/N> : "; cin>>ulg;  }while(ulg == 'y' || ulg =='Y');  fclose(file);  }  void bubble()  {  int pilih;  cout<<"\nPILIH CARA SORTING\n";  cout<<"\n1. ASCENDING\n";  cout<<"2. DESCENDING\n";  cout<<"\nPILIH CARA\t: "; cin>>pilih;  switch(pilih)  {  case 1 : ascbub();  break;  case 2 : dscbub();  break;  }  }  void ascbub()  {  int pilih;  cout<<"\t\tMENU SORTING ASCENDING METODE BUBBLE SORT\n";  cout<<"\n1. SORTING NO DVD/CD FILM\n";  cout<<"2. SORTING GENRE DVD/CD FILM\n";  cout<<"3. SORTING JUDUL DVD/CD FILM\n";  cout<<"4. SORTING HARGA DCD/CD FILM\n\n";  cout<<"PILIH MENU\t: "; cin>>pilih;  switch(pilih)  {  case 1 : ascbubnodvd();  break;  case 2 : ascbubgenre();  break;  case 3 : ascbubjudul();  break;  case 4 : ascbubharga();  break;  }  }  void ascbubnodvd()  {  for(int a=0; a<jmldvd-1; a++)  {  for(int b=0; b<jmldvd-1-a; b++)  {  if(x[b].nodvd > x[b+1].nodvd)  {  tampung = x[b];  x[b] = x[b+1];  x[b+1] = tampung;  }  }  }  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int a=0; a<jmldvd; a++)  {  cout<<setw(12)<<" "<<x[a].nodvd<<" "<<x[a].genre<<" \t"<<x[a].judul<<" "<<" Rp."<<x[a].harga<<endl;  }  }  void ascbubgenre()  {  for(int a=0; a<jmldvd-1; a++)  {  for(int b=0; b<jmldvd-1-a; b++)  {  if(x[b].genre > x[b+1].genre)  {  tampung = x[b];  x[b] = x[b+1];  x[b+1] = tampung;  }  }  }  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int a=0; a<jmldvd; a++)  {  cout<<setw(12)<<" "<<x[a].nodvd<<" "<<x[a].genre<<" \t"<<x[a].judul<<" "<<" Rp."<<x[a].harga<<endl;  }  }  void ascbubjudul()  {  for(int a=0; a<jmldvd-1; a++)  {  for(int b=0; b<jmldvd-1-a; b++)  {  if(x[b].judul > x[b+1].judul)  {  tampung = x[b];  x[b] = x[b+1];  x[b+1] = tampung;  }  }  }  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int a=0; a<jmldvd; a++)  {  cout<<setw(12)<<" "<<x[a].nodvd<<" "<<x[a].genre<<" \t"<<x[a].judul<<" "<<" Rp."<<x[a].harga<<endl;  }  }  void ascbubharga()  {  for(int a=0; a<jmldvd-1; a++)  {  for(int b=0; b<jmldvd-1-a; b++)  {  if(x[b].harga > x[b+1].harga)  {  tampung = x[b];  x[b] = x[b+1];  x[b+1] = tampung;  }  }  }  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int a=0; a<jmldvd; a++)  {  cout<<setw(12)<<" "<<x[a].nodvd<<" "<<x[a].genre<<" \t"<<x[a].judul<<" "<<" Rp."<<x[a].harga<<endl;  }  }  void dscbub()  {  int pilih;  cout<<"\t\tMENU SORTING DESCENDING METODE BUBBLE SORT\n";  cout<<"\n1. SORTING NO DVD/CD FILM\n";  cout<<"2. SORTING GENRE DVD/CD FILM\n";  cout<<"3. SORTING JUDUL DVD/CD FILM\n";  cout<<"4. SORTING HARGA DCD/CD FILM\n\n";  cout<<"PILIH MENU\t: "; cin>>pilih;  switch(pilih)  {  case 1 : dscbubnodvd();  break;  case 2 : dscbubgenre();  break;  case 3 : dscbubjudul();  break;  case 4 : dscbubharga();  break;  }  }  void dscbubnodvd()  {  for(int a=0; a<jmldvd-1; a++)  {  for(int b=0; b<jmldvd-1-a; b++)  {  if(x[b].nodvd < x[b+1].nodvd)  {  tampung = x[b];  x[b] = x[b+1];  x[b+1] = tampung;  }  }  }  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int a=0; a<jmldvd; a++)  {  cout<<setw(12)<<" "<<x[a].nodvd<<" "<<x[a].genre<<" \t"<<x[a].judul<<" "<<" Rp."<<x[a].harga<<endl;  }  }  void dscbubgenre()  {  for(int a=0; a<jmldvd-1; a++)  {  for(int b=0; b<jmldvd-1-a; b++)  {  if(x[b].genre < x[b+1].genre)  {  tampung = x[b];  x[b] = x[b+1];  x[b+1] = tampung;  }  }  }  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int a=0; a<jmldvd; a++)  {  cout<<setw(12)<<" "<<x[a].nodvd<<" "<<x[a].genre<<" \t"<<x[a].judul<<" "<<" Rp."<<x[a].harga<<endl;  }  }  void dscbubjudul()  {  for(int a=0; a<jmldvd-1; a++)  {  for(int b=0; b<jmldvd-1-a; b++)  {  if(x[b].judul < x[b+1].judul)  {  tampung = x[b];  x[b] = x[b+1];  x[b+1] = tampung;  }  }  }  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int a=0; a<jmldvd; a++)  {  cout<<setw(12)<<" "<<x[a].nodvd<<" "<<x[a].genre<<" \t"<<x[a].judul<<" "<<" Rp."<<x[a].harga<<endl;  }  }  void dscbubharga()  {  for(int a=0; a<jmldvd-1; a++)  {  for(int b=0; b<jmldvd-1-a; b++)  {  if(x[b].harga < x[b+1].harga)  {  tampung = x[b];  x[b] = x[b+1];  x[b+1] = tampung;  }  }  }  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int a=0; a<jmldvd; a++)  {  cout<<setw(12)<<" "<<x[a].nodvd<<" "<<x[a].genre<<" \t"<<x[a].judul<<" "<<" Rp."<<x[a].harga<<endl;  }  }  void insertion()  {  int pilih;  cout<<"\nPILIH CARA SORTING\n";  cout<<"\n1. ASCENDING\n";  cout<<"2. DESCENDING\n";  cout<<"\nPILIH CARA\t: "; cin>>pilih;  switch(pilih)  {  case 1 : ascins();  break;  case 2 : dscins();  break;  }  }  void ascins()  {  int pilih;  cout<<"\t\tMENU SORTING ASCENDING METODE INSERTION SORT\n";  cout<<"\n1. SORTING NO DVD/CD FILM\n";  cout<<"2. SORTING GENRE DVD/CD FILM\n";  cout<<"3. SORTING JUDUL DVD/CD FILM\n";  cout<<"4. SORTING HARGA DCD/CD FILM\n\n";  cout<<"PILIH MENU\t: "; cin>>pilih;  switch(pilih)  {  case 1 : ascinsnodvd();  break;  case 2 : ascinsgenre();  break;  case 3 : ascinsjudul();  break;  case 4 : ascinsharga();  break;  }  }  void ascinsnodvd()  {  int a,b;  int bantu;  for(a=1; a<jmldvd; a++)  {  tampung = x[a];  bantu = x[a].nodvd;  b=a-1;  while((bantu<x[b].nodvd)&(b>=0))  {  x[b+1] = x[b];  b=b-1;  x[b+1] = tampung;  }  }  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int a=0; a<jmldvd; a++)  {  cout<<setw(12)<<" "<<x[a].nodvd<<" "<<x[a].genre<<" \t"<<x[a].judul<<" "<<" Rp."<<x[a].harga<<endl;  }  }  void ascinsgenre()  {  int a,b;  string bantu2;  for(a=1; a<jmldvd; a++)  {  tampung = x[a];  bantu2 = x[a].genre;  b=a-1;  while((bantu2<x[b].genre)&(b>=0))  {  x[b+1] = x[b];  b=b-1;  x[b+1] = tampung;  }  }  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int a=0; a<jmldvd; a++)  {  cout<<setw(12)<<" "<<x[a].nodvd<<" "<<x[a].genre<<" \t"<<x[a].judul<<" "<<" Rp."<<x[a].harga<<endl;  }  }  void ascinsjudul()  {  int a,b;  string bantu3;  for(a=1; a<jmldvd; a++)  {  tampung = x[a];  bantu3 = x[a].judul;  b=a-1;  while((bantu3<x[b].judul)&(b>=0))  {  x[b+1] = x[b];  b=b-1;  x[b+1] = tampung;  }  }  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int a=0; a<jmldvd; a++)  {  cout<<setw(12)<<" "<<x[a].nodvd<<" "<<x[a].genre<<" \t"<<x[a].judul<<" "<<" Rp."<<x[a].harga<<endl;  }  }  void ascinsharga()  {  int a,b;  int bantu4;  for(a=1; a<jmldvd; a++)  {  tampung = x[a];  bantu4 = x[a].harga;  b=a-1;  while((bantu4<x[b].harga)&(b>=0))  {  x[b+1] = x[b];  b=b-1;  x[b+1] = tampung;  }  }  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int a=0; a<jmldvd; a++)  {  cout<<setw(12)<<" "<<x[a].nodvd<<" "<<x[a].genre<<" \t"<<x[a].judul<<" "<<" Rp."<<x[a].harga<<endl;  }  }  void dscins()  {  int pilih;  cout<<"\t\tMENU SORTING DESCENDING METODE INSERTION SORT\n";  cout<<"\n1. SORTING NO DVD/CD FILM\n";  cout<<"2. SORTING GENRE DVD/CD FILM\n";  cout<<"3. SORTING JUDUL DVD/CD FILM\n";  cout<<"4. SORTING HARGA DCD/CD FILM\n\n";  cout<<"PILIH MENU\t: "; cin>>pilih;  switch(pilih)  {  case 1 : dscinsnodvd();  break;  case 2 : dscinsgenre();  break;  case 3 : dscinsjudul();  break;  case 4 : dscinsharga();  break;  }  }  void dscinsnodvd()  {  int a,b;  int bantu;  for(a=1; a<jmldvd; a++)  {  tampung = x[a];  bantu = x[a].nodvd;  b=a-1;  while((bantu>x[b].nodvd)&(b>=0))  {  x[b+1] = x[b];  b=b-1;  x[b+1] = tampung;  }  }  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int a=0; a<jmldvd; a++)  {  cout<<setw(12)<<" "<<x[a].nodvd<<" "<<x[a].genre<<" \t"<<x[a].judul<<" "<<" Rp."<<x[a].harga<<endl;  }  }  void dscinsgenre()  {  int a,b;  string bantu2;  for(a=1; a<jmldvd; a++)  {  tampung = x[a];  bantu2 = x[a].genre;  b=a-1;  while((bantu2>x[b].genre)&(b>=0))  {  x[b+1] = x[b];  b=b-1;  x[b+1] = tampung;  }  }  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int a=0; a<jmldvd; a++)  {  cout<<setw(12)<<" "<<x[a].nodvd<<" "<<x[a].genre<<" \t"<<x[a].judul<<" "<<" Rp."<<x[a].harga<<endl;  }  }  void dscinsjudul()  {  int a,b;  string bantu3;  for(a=1; a<jmldvd; a++)  {  tampung = x[a];  bantu3 = x[a].judul;  b=a-1;  while((bantu3>x[b].judul)&(b>=0))  {  x[b+1] = x[b];  b=b-1;  x[b+1] = tampung;  }  }  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int a=0; a<jmldvd; a++)  {  cout<<setw(12)<<" "<<x[a].nodvd<<" "<<x[a].genre<<" \t"<<x[a].judul<<" "<<" Rp."<<x[a].harga<<endl;  }  }  void dscinsharga()  {  int a,b;  int bantu4;  for(a=1; a<jmldvd; a++)  {  tampung = x[a];  bantu4 = x[a].harga;  b=a-1;  while((bantu4>x[b].harga)&(b>=0))  {  x[b+1] = x[b];  b=b-1;  x[b+1] = tampung;  }  }  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int a=0; a<jmldvd; a++)  {  cout<<setw(12)<<" "<<x[a].nodvd<<" "<<x[a].genre<<" \t"<<x[a].judul<<" "<<" Rp."<<x[a].harga<<endl;  }  }  void selection()  {  int pilih;  cout<<"\nPILIH CARA SORTING\n";  cout<<"\n1. ASCENDING\n";  cout<<"2. DESCENDING\n";  cout<<"\nPILIH CARA\t: "; cin>>pilih;  switch(pilih)  {  case 1 : ascsel();  break;  case 2 : dscsel();  break;  }  }  void ascsel()  {  int pilih;  cout<<"\n\t\tMENU SORTING ASCENDING METODE SELECTION SORT\n";  cout<<"\n1. SORTING NO DVD/CD FILM\n";  cout<<"2. SORTING GENRE DVD/CD FILM\n";  cout<<"3. SORTING JUDUL DVD/CD FILM\n";  cout<<"4. SORTING HARGA DCD/CD FILM\n";  cout<<"\nPILIH MENU\t: "; cin>>pilih;  switch(pilih)  {  case 1 : ascselnodvd();  break;  case 2 : ascselgenre();  break;  case 3 : ascseljudul();  break;  case 4 : ascselharga();  break;  }  }  void ascselnodvd()  { int a,b,c;  for(a=0; a<jmldvd; a++)  {  for (b=a+1; b<jmldvd; b++)  {  if(x[a].nodvd > x[b].nodvd)  {  tampung = x[a];  x[a]=x[b];  x[b]=tampung;  }  }  }  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(c=0; c<jmldvd; c++)  {  cout<<setw(12)<<" "<<x[c].nodvd<<" "<<x[c].genre<<" \t"<<x[c].judul<<" "<<" Rp."<<x[c].harga<<endl;  }  }  void ascselgenre()  { int a,b,c;  for(a=0; a<jmldvd; a++)  {  for (b=a+1; b<jmldvd; b++)  {  if(x[a].genre > x[b].genre)  {  tampung = x[a];  x[a]=x[b];  x[b]=tampung;  }  }  }  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(c=0; c<jmldvd; c++)  {  cout<<setw(12)<<" "<<x[c].nodvd<<" "<<x[c].genre<<" \t"<<x[c].judul<<" "<<" Rp."<<x[c].harga<<endl;  }  }  void ascseljudul()  { int a,b,c;  for(a=0; a<jmldvd; a++)  {  for (b=a+1; b<jmldvd; b++)  {  if(x[a].judul > x[b].judul)  {  tampung = x[a];  x[a]=x[b];  x[b]=tampung;  }  }  }  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(c=0; c<jmldvd; c++)  {  cout<<setw(12)<<" "<<x[c].nodvd<<" "<<x[c].genre<<" \t"<<x[c].judul<<" "<<" Rp."<<x[c].harga<<endl;  }  }  void ascselharga()  { int a,b,c;  for(a=0; a<jmldvd; a++)  {  for (b=a+1; b<jmldvd; b++)  {  if(x[a].harga > x[b].harga)  {  tampung = x[a];  x[a]=x[b];  x[b]=tampung;  }  }  }  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(c=0; c<jmldvd; c++)  {  cout<<setw(12)<<" "<<x[c].nodvd<<" "<<x[c].genre<<" \t"<<x[c].judul<<" "<<" Rp."<<x[c].harga<<endl;  }  }  void dscsel()  {  int pilih;  cout<<"\n\t\tMENU SORTING DESCENDING METODE SELECTION SORT\n";  cout<<"\n1. SORTING NO DVD/CD FILM\n";  cout<<"2. SORTING GENRE DVD/CD FILM\n";  cout<<"3. SORTING JUDUL DVD/CD FILM\n";  cout<<"4. SORTING HARGA DCD/CD FILM\n";  cout<<"\nPILIH MENU\t: "; cin>>pilih;  switch(pilih)  {  case 1 : dscselnodvd();  break;  case 2 : dscselgenre();  break;  case 3 : dscseljudul();  break;  case 4 : dscselharga();  break;  }  }  void dscselnodvd()  { int a,b,c;  for(a=0; a<jmldvd; a++)  {  for (b=a+1; b<jmldvd; b++)  {  if(x[a].nodvd < x[b].nodvd)  {  tampung = x[a];  x[a]=x[b];  x[b]=tampung;  }  }  }  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(c=0; c<jmldvd; c++)  {  cout<<setw(12)<<" "<<x[c].nodvd<<" "<<x[c].genre<<" \t"<<x[c].judul<<" "<<" Rp."<<x[c].harga<<endl;  }  }  void dscselgenre()  { int a,b,c;  for(a=0; a<jmldvd; a++)  {  for (b=a+1; b<jmldvd; b++)  {  if(x[a].genre < x[b].genre)  {  tampung = x[a];  x[a]=x[b];  x[b]=tampung;  }  }  }  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(c=0; c<jmldvd; c++)  {  cout<<setw(12)<<" "<<x[c].nodvd<<" "<<x[c].genre<<" \t"<<x[c].judul<<" "<<" Rp."<<x[c].harga<<endl;  }  }  void dscseljudul()  { int a,b,c;  for(a=0; a<jmldvd; a++)  {  for (b=a+1; b<jmldvd; b++)  {  if(x[a].judul < x[b].judul)  {  tampung = x[a];  x[a]=x[b];  x[b]=tampung;  }  }  }  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(c=0; c<jmldvd; c++)  {  cout<<setw(12)<<" "<<x[c].nodvd<<" "<<x[c].genre<<" \t"<<x[c].judul<<" "<<" Rp."<<x[c].harga<<endl;  }  }  void dscselharga()  { int a,b,c;  for(a=0; a<jmldvd; a++)  {  for (b=a+1; b<jmldvd; b++)  {  if(x[a].harga < x[b].harga)  {  tampung = x[a];  x[a]=x[b];  x[b]=tampung;  }  }  }  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(c=0; c<jmldvd; c++)  {  cout<<setw(12)<<" "<<x[c].nodvd<<" "<<x[c].genre<<" \t"<<x[c].judul<<" "<<" Rp."<<x[c].harga<<endl;  }  }  void shell()  {  int pilih;  cout<<"\nPILIH CARA SORTING\n";  cout<<"\n1. ASCENDING\n";  cout<<"2. DESCENDING\n";  cout<<"\nPILIH CARA\t: "; cin>>pilih;  switch(pilih)  {  case 1 : ascshell();  break;  case 2 : dscshell();  break;  }  }  void ascshell()  {  int pilih;  cout<<"\n\t\tMENU SORTING ASCENDING METODE SHELL SORT\n";  cout<<"\n1. SORTING NO DVD/CD FILM\n";  cout<<"2. SORTING GENRE DVD/CD FILM\n";  cout<<"3. SORTING JUDUL DVD/CD FILM\n";  cout<<"4. SORTING HARGA DCD/CD FILM\n";  cout<<"\nPILIH MENU\t: "; cin>>pilih;  switch(pilih)  {  case 1 : ascshellnodvd();  break;  case 2 : ascshellgenre();  break;  case 3 : ascshelljudul();  break;  case 4 : ascshellharga();  break;  }  }  void ascshellnodvd()  { int a,b,c;  for(a=jmldvd/2; a>0; a/=2)  {  for(b=a; b<jmldvd; b++)  {  for(c=b-a; c>=0 && x[c].nodvd > x[c+a].nodvd; c-=a)  {  tampung = x[c];  x[c] = x[c+a];  x[c+a] = tampung;  }  }  }  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int d=0; d<jmldvd; d++)  {  cout<<setw(12)<<" "<<x[d].nodvd<<" "<<x[d].genre<<" \t"<<x[d].judul<<" "<<" Rp."<<x[d].harga<<endl;  }  }  void ascshellgenre()  { int a,b,c;  for(a=jmldvd/2; a>0; a/=2)  {  for(b=a; b<jmldvd; b++)  {  for(c=b-a; c>=0 && x[c].genre> x[c+a].genre; c-=a)  {  tampung = x[c];  x[c] = x[c+a];  x[c+a] = tampung;  }  }  }  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int d=0; d<jmldvd; d++)  {  cout<<setw(12)<<" "<<x[d].nodvd<<" "<<x[d].genre<<" \t"<<x[d].judul<<" "<<" Rp."<<x[d].harga<<endl;  }  }  void ascshelljudul()  { int a,b,c;  for(a=jmldvd/2; a>0; a/=2)  {  for(b=a; b<jmldvd; b++)  {  for(c=b-a; c>=0 && x[c].judul> x[c+a].judul; c-=a)  {  tampung = x[c];  x[c] = x[c+a];  x[c+a] = tampung;  }  }  }  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int d=0; d<jmldvd; d++)  {  cout<<setw(12)<<" "<<x[d].nodvd<<" "<<x[d].genre<<" \t"<<x[d].judul<<" "<<" Rp."<<x[d].harga<<endl;  }  }  void ascshellharga()  { int a,b,c;  for(a=jmldvd/2; a>0; a/=2)  {  for(b=a; b<jmldvd; b++)  {  for(c=b-a; c>=0 && x[c].harga> x[c+a].harga; c-=a)  {  tampung = x[c];  x[c] = x[c+a];  x[c+a] = tampung;  }  }  }  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int d=0; d<jmldvd; d++)  {  cout<<setw(12)<<" "<<x[d].nodvd<<" "<<x[d].genre<<" \t"<<x[d].judul<<" "<<" Rp."<<x[d].harga<<endl;  }  }  void dscshell()  {  int pilih;  cout<<"\n\t\tMENU SORTING DESCENDING METODE SHELL SORT\n";  cout<<"\n1. SORTING NO DVD/CD FILM\n";  cout<<"2. SORTING GENRE DVD/CD FILM\n";  cout<<"3. SORTING JUDUL DVD/CD FILM\n";  cout<<"4. SORTING HARGA DCD/CD FILM\n";  cout<<"\nPILIH MENU\t: "; cin>>pilih;  switch(pilih)  {  case 1 : dscshellnodvd();  break;  case 2 : dscshellgenre();  break;  case 3 : dscshelljudul();  break;  case 4 : dscshellharga();  break;  }  }  void dscshellnodvd()  { int a,b,c;  for(a=jmldvd/2; a>0; a/=2)  {  for(b=a; b<jmldvd; b++)  {  for(c=b-a; c>=0 && x[c].nodvd < x[c+a].nodvd; c-=a)  {  tampung = x[c];  x[c] = x[c+a];  x[c+a] = tampung;  }  }  }  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int d=0; d<jmldvd; d++)  {  cout<<setw(12)<<" "<<x[d].nodvd<<" "<<x[d].genre<<" \t"<<x[d].judul<<" "<<" Rp."<<x[d].harga<<endl;  }  }  void dscshellgenre()  { int a,b,c;  for(a=jmldvd/2; a>0; a/=2)  {  for(b=a; b<jmldvd; b++)  {  for(c=b-a; c>=0 && x[c].genre < x[c+a].genre; c-=a)  {  tampung = x[c];  x[c] = x[c+a];  x[c+a] = tampung;  }  }  }  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int d=0; d<jmldvd; d++)  {  cout<<setw(12)<<" "<<x[d].nodvd<<" "<<x[d].genre<<" \t"<<x[d].judul<<" "<<" Rp."<<x[d].harga<<endl;  }  }  void dscshelljudul()  { int a,b,c;  for(a=jmldvd/2; a>0; a/=2)  {  for(b=a; b<jmldvd; b++)  {  for(c=b-a; c>=0 && x[c].judul < x[c+a].judul; c-=a)  {  tampung = x[c];  x[c] = x[c+a];  x[c+a] = tampung;  }  }  }  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int d=0; d<jmldvd; d++)  {  cout<<setw(12)<<" "<<x[d].nodvd<<" "<<x[d].genre<<" \t"<<x[d].judul<<" "<<" Rp."<<x[d].harga<<endl;  }  }  void dscshellharga()  { int a,b,c;  for(a=jmldvd/2; a>0; a/=2)  {  for(b=a; b<jmldvd; b++)  {  for(c=b-a; c>=0 && x[c].harga < x[c+a].harga; c-=a)  {  tampung = x[c];  x[c] = x[c+a];  x[c+a] = tampung;  }  }  }  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int d=0; d<jmldvd; d++)  {  cout<<setw(12)<<" "<<x[d].nodvd<<" "<<x[d].genre<<" \t"<<x[d].judul<<" "<<" Rp."<<x[d].harga<<endl;  }  }  void quick()  {  int pilih;  cout<<"\nPILIH CARA SORTING\n";  cout<<"\n1. ASCENDING\n";  cout<<"2. DESCENDING\n";  cout<<"\nPILIH CARA\t: "; cin>>pilih;  switch(pilih)  {  case 1 : ascquick();  break;  case 2 : dscquick();  break;  }  }  void ascquick()  { int first,last;  int pilih;  first = 0;  last = jmldvd;  cout<<"\n\t\tMENU SORTING ASCENDING METODE QUICK SORT\n";  cout<<"\n1. SORTING NO DVD/CD FILM\n";  cout<<"2. SORTING GENRE DVD/CD FILM\n";  cout<<"3. SORTING JUDUL DVD/CD FILM\n";  cout<<"4. SORTING HARGA DCD/CD FILM\n";  cout<<"\nPILIH MENU\t: "; cin>>pilih;  switch(pilih)  {  case 1 : ascquicknodvd(first,last-1);  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int d=0; d<jmldvd; d++)  {  cout<<setw(12)<<" "<<x[d].nodvd<<" "<<x[d].genre<<" \t"<<x[d].judul<<" "<<" Rp."<<x[d].harga<<endl;  }  break;  case 2 : ascquickgenre(first,last-1);  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int d=0; d<jmldvd; d++)  {  cout<<setw(12)<<" "<<x[d].nodvd<<" "<<x[d].genre<<" \t"<<x[d].judul<<" "<<" Rp."<<x[d].harga<<endl;  }  break;  case 3 : ascquickjudul(first,last-1);  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int d=0; d<jmldvd; d++)  {  cout<<setw(12)<<" "<<x[d].nodvd<<" "<<x[d].genre<<" \t"<<x[d].judul<<" "<<" Rp."<<x[d].harga<<endl;  }  break;  case 4 : ascquickharga(first,last-1);  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int d=0; d<jmldvd; d++)  {  cout<<setw(12)<<" "<<x[d].nodvd<<" "<<x[d].genre<<" \t"<<x[d].judul<<" "<<" Rp."<<x[d].harga<<endl;  }  break;  }  }  void ascquicknodvd(int first, int last)  {  int low,high,ls;  low = first;  high = last;  ls = x[(first+last)/2].nodvd;  do{  while(x[low].nodvd<ls) low++;  while(x[high].nodvd>ls) high--;  if(low<=high)  {  tampung = x[low];  x[low++] = x[high];  x[high--] = tampung;  }  }while(low<=high);  if(first<high) ascquicknodvd(first,high);  if(low<last) ascquicknodvd(low,last);  }  void ascquickgenre(int first, int last)  {  int low,high;  string ls;  low = first;  high = last;  ls = x[(first+last)/2].genre;  do{  while(x[low].genre<ls) low++;  while(x[high].genre>ls) high--;  if(low<=high)  {  tampung = x[low];  x[low++] = x[high];  x[high--] = tampung;  }  }while(low<=high);  if(first<high) ascquickgenre(first,high);  if(low<last) ascquickgenre(low,last);  }  void ascquickjudul(int first, int last)  {  int low,high;  string ls;  low = first;  high = last;  ls = x[(first+last)/2].judul;  do{  while(x[low].judul<ls) {low++;}  while(x[high].judul>ls) {high--;}  if(low<=high)  {  tampung = x[low];  x[low++] = x[high];  x[high--] = tampung;  }  }while(low<=high);  if(first<high) ascquickjudul(first,high);  if(low<last) ascquickjudul(low,last);  }  void ascquickharga(int first, int last)  {  int low,high,ls;  low = first;  high = last;  ls = x[(first+last)/2].harga;  do{  while(x[low].harga<ls) low++;  while(x[high].harga>ls) high--;  if(low<=high)  {  tampung = x[low];  x[low++] = x[high];  x[high--] = tampung;  }  }while(low<=high);  if(first<high) ascquickharga(first,high);  if(low<last) ascquickharga(low,last);  }  void dscquick()  { int first,last;  int pilih;  first = 0;  last = jmldvd;  cout<<"\n\t\tMENU SORTING ASCENDING METODE QUICK SORT\n";  cout<<"\n1. SORTING NO DVD/CD FILM\n";  cout<<"2. SORTING GENRE DVD/CD FILM\n";  cout<<"3. SORTING JUDUL DVD/CD FILM\n";  cout<<"4. SORTING HARGA DCD/CD FILM\n";  cout<<"\nPILIH MENU\t: "; cin>>pilih;  switch(pilih)  {  case 1 : dscquicknodvd(first,last-1);  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int d=0; d<jmldvd; d++)  {  cout<<setw(12)<<" "<<x[d].nodvd<<" "<<x[d].genre<<" \t"<<x[d].judul<<" "<<" Rp."<<x[d].harga<<endl;  }  break;  case 2 : dscquickgenre(first,last-1);  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int d=0; d<jmldvd; d++)  {  cout<<setw(12)<<" "<<x[d].nodvd<<" "<<x[d].genre<<" \t"<<x[d].judul<<" "<<" Rp."<<x[d].harga<<endl;  }  break;  case 3 : dscquickjudul(first,last-1);  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int d=0; d<jmldvd; d++)  {  cout<<setw(12)<<" "<<x[d].nodvd<<" "<<x[d].genre<<" \t"<<x[d].judul<<" "<<" Rp."<<x[d].harga<<endl;  }  break;  case 4 : dscquickharga(first,last-1);  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int d=0; d<jmldvd; d++)  {  cout<<setw(12)<<" "<<x[d].nodvd<<" "<<x[d].genre<<" \t"<<x[d].judul<<" "<<" Rp."<<x[d].harga<<endl;  }  break;  }  }  void dscquicknodvd(int first, int last)  {  int low,high,ls;  low = first;  high = last;  ls = x[(first+last)/2].nodvd;  do{  while(x[low].nodvd>ls) low++;  while(x[high].nodvd<ls) high--;  if(low<=high)  {  tampung = x[low];  x[low++] = x[high];  x[high--] = tampung;  }  }while(low<=high);  if(first<high) dscquicknodvd(first,high);  if(low<last) dscquicknodvd(low,last);  }  void dscquickgenre(int first, int last)  {  int low,high;  string ls;  low = first;  high = last;  ls = x[(first+last)/2].genre;  do{  while(x[low].genre>ls) low++;  while(x[high].genre<ls) high--;  if(low<=high)  {  tampung = x[low];  x[low++] = x[high];  x[high--] = tampung;  }  }while(low<=high);  if(first<high) dscquickgenre(first,high);  if(low<last) dscquickgenre(low,last);  }  void dscquickjudul(int first, int last)  {  int low,high;  string ls;  low = first;  high = last;  ls = x[(first+last)/2].judul;  do{  while(x[low].judul>ls) {low++;}  while(x[high].judul<ls) {high--;}  if(low<=high)  {  tampung = x[low];  x[low++] = x[high];  x[high--] = tampung;  }  }while(low<=high);  if(first<high) dscquickjudul(first,high);  if(low<last) dscquickjudul(low,last);  }  void dscquickharga(int first, int last)  {  int low,high,ls;  low = first;  high = last;  ls = x[(first+last)/2].harga;  do{  while(x[low].harga>ls) low++;  while(x[high].harga<ls) high--;  if(low<=high)  {  tampung = x[low];  x[low++] = x[high];  x[high--] = tampung;  }  }while(low<=high);  if(first<high) dscquickharga(first,high);  if(low<last) dscquickharga(low,last);  }  void merg()  {  int pilih;  cout<<"\nPILIH CARA SORTING\n";  cout<<"\n1. ASCENDING\n";  cout<<"2. DESCENDING\n";  cout<<"\nPILIH CARA\t: "; cin>>pilih;  switch(pilih)  {  case 1 : ascmerg();  break;  case 2 : dscmerg();  break;  }  }  void ascmerg()  {  int pilih;  cout<<"\t\tMENU SORTING ASCENDING METODE MERGE SORT\n";  cout<<"\n1. SORTING NO DVD/CD FILM\n";  cout<<"2. SORTING GENRE DVD/CD FILM\n";  cout<<"3. SORTING JUDUL DVD/CD FILM\n";  cout<<"4. SORTING HARGA DCD/CD FILM\n\n";  cout<<"PILIH MENU\t: "; cin>>pilih;  switch(pilih)  {  case 1 : ascmergnodvd(x,0,jmldvd-1);  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int d=0; d<jmldvd; d++)  {  cout<<setw(12)<<" "<<x[d].nodvd<<" "<<x[d].genre<<" \t"<<x[d].judul<<" "<<" Rp."<<x[d].harga<<endl;  }  break;  case 2 : ascmerggenre(x,0,jmldvd-1);  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int d=0; d<jmldvd; d++)  {  cout<<setw(12)<<" "<<x[d].nodvd<<" "<<x[d].genre<<" \t"<<x[d].judul<<" "<<" Rp."<<x[d].harga<<endl;  }  break;  case 3 : ascmergjudul(x,0,jmldvd-1);  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int d=0; d<jmldvd; d++)  {  cout<<setw(12)<<" "<<x[d].nodvd<<" "<<x[d].genre<<" \t"<<x[d].judul<<" "<<" Rp."<<x[d].harga<<endl;  }  break;  case 4 : ascmergharga(x,0,jmldvd-1);  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int d=0; d<jmldvd; d++)  {  cout<<setw(12)<<" "<<x[d].nodvd<<" "<<x[d].genre<<" \t"<<x[d].judul<<" "<<" Rp."<<x[d].harga<<endl;  }  break;  }  }  void ascmergnodvd(data x[],int first, int last)  {  int mid,low,high;  low = first; high = last;  if(low<high)  {  mid = (low+high)/2;  ascmergnodvd(x,low,mid);  ascmergnodvd(x,mid+1,high);  s\_ascmergnodvd(x,low,mid,high);  }  }  void s\_ascmergnodvd(data x[],int low,int mid,int high)  {  int w,y,z,a;  data temp[100];  w=low;  y=low;  z=mid+1;  while((w<=mid) && (z<=high))  {  if(x[w].nodvd<=x[z].nodvd){  temp[y]=x[w];  w++;  }else{  temp[y]=x[z]; z++;  }  y++;  }  if(w>mid){  for(a=z;a<=high;a++){  temp[y]=x[a]; y++;  }  }else{  for(a=w;a<=mid;a++){  temp[y]=x[a]; y++;  }  }  for(a=low;a<=high;a++){  x[a]=temp[a];  }  }  void ascmerggenre(data x[],int first, int last)  {  int mid,low,high;  low = first; high = last;  if(low<high)  {  mid = (low+high)/2;  ascmerggenre(x,low,mid);  ascmerggenre(x,mid+1,high);  s\_ascmerggenre(x,low,mid,high);  }  }  void s\_ascmerggenre(data x[],int low,int mid,int high)  {  int w,y,z,a;  data temp[100];  w=low;  y=low;  z=mid+1;  while((w<=mid) && (z<=high))  {  if(x[w].genre<=x[z].genre){  temp[y]=x[w];  w++;  }else{  temp[y]=x[z]; z++;  }  y++;  }  if(w>mid){  for(a=z;a<=high;a++){  temp[y]=x[a]; y++;  }  }else{  for(a=w;a<=mid;a++){  temp[y]=x[a]; y++;  }  }  for(a=low;a<=high;a++){  x[a]=temp[a];  }  }  void ascmergjudul(data x[],int first, int last)  {  int mid,low,high;  low = first; high = last;  if(low<high)  {  mid = (low+high)/2;  ascmergjudul(x,low,mid);  ascmergjudul(x,mid+1,high);  s\_ascmergjudul(x,low,mid,high);  }  }  void s\_ascmergjudul(data x[],int low,int mid,int high)  {  int w,y,z,a;  data temp[100];  w=low;  y=low;  z=mid+1;  while((w<=mid) && (z<=high))  {  if(x[w].judul<=x[z].judul){  temp[y]=x[w];  w++;  }else{  temp[y]=x[z]; z++;  }  y++;  }  if(w>mid){  for(a=z;a<=high;a++){  temp[y]=x[a]; y++;  }  }else{  for(a=w;a<=mid;a++){  temp[y]=x[a]; y++;  }  }  for(a=low;a<=high;a++){  x[a]=temp[a];  }  }  void ascmergharga(data x[],int first, int last)  {  int mid,low,high;  low = first; high = last;  if(low<high)  {  mid = (low+high)/2;  ascmergharga(x,low,mid);  ascmergharga(x,mid+1,high);  s\_ascmergharga(x,low,mid,high);  }  }  void s\_ascmergharga(data x[],int low,int mid,int high)  {  int w,y,z,a;  data temp[100];  w=low;  y=low;  z=mid+1;  while((w<=mid) && (z<=high))  {  if(x[w].harga<=x[z].harga){  temp[y]=x[w];  w++;  }else{  temp[y]=x[z]; z++;  }  y++;  }  if(w>mid){  for(a=z;a<=high;a++){  temp[y]=x[a]; y++;  }  }else{  for(a=w;a<=mid;a++){  temp[y]=x[a]; y++;  }  }  for(a=low;a<=high;a++){  x[a]=temp[a];  }  }  // START DESCENDING  void dscmerg()  {  int pilih;  cout<<"\t\tMENU SORTING DESCENDING METODE MERGE SORT\n";  cout<<"\n1. SORTING NO DVD/CD FILM\n";  cout<<"2. SORTING GENRE DVD/CD FILM\n";  cout<<"3. SORTING JUDUL DVD/CD FILM\n";  cout<<"4. SORTING HARGA DCD/CD FILM\n\n";  cout<<"PILIH MENU\t: "; cin>>pilih;  switch(pilih)  {  case 1 : dscmergnodvd(x,0,jmldvd-1);  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int d=0; d<jmldvd; d++)  {  cout<<setw(12)<<" "<<x[d].nodvd<<" "<<x[d].genre<<" \t"<<x[d].judul<<" "<<" Rp."<<x[d].harga<<endl;  }  break;  case 2 : dscmerggenre(x,0,jmldvd-1);  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int d=0; d<jmldvd; d++)  {  cout<<setw(12)<<" "<<x[d].nodvd<<" "<<x[d].genre<<" \t"<<x[d].judul<<" "<<" Rp."<<x[d].harga<<endl;  }  break;  case 3 : dscmergjudul(x,0,jmldvd-1);  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int d=0; d<jmldvd; d++)  {  cout<<setw(12)<<" "<<x[d].nodvd<<" "<<x[d].genre<<" \t"<<x[d].judul<<" "<<" Rp."<<x[d].harga<<endl;  }  break;  case 4 : dscmergharga(x,0,jmldvd-1);  cout <<setw(12)<<"\n\t===============================================================" <<endl;  cout <<setw(12)<<"\t| No DVD " << " | " << " Genre " << " |" << " Judul " << " \t| " << "Harga Sewa Per Hari |\n";  cout <<setw(12)<<"\t===============================================================" <<endl;  for(int d=0; d<jmldvd; d++)  {  cout<<setw(12)<<" "<<x[d].nodvd<<" "<<x[d].genre<<" \t"<<x[d].judul<<" "<<" Rp."<<x[d].harga<<endl;  }  break;  }  }  void dscmergnodvd(data x[],int first, int last)  {  int mid,low,high;  low = first; high = last;  if(low<high)  {  mid = (low+high)/2;  dscmergnodvd(x,low,mid);  dscmergnodvd(x,mid+1,high);  s\_dscmergnodvd(x,low,mid,high);  }  }  void s\_dscmergnodvd(data x[],int low,int mid,int high)  {  int w,y,z,a;  data temp[100];  w=low;  y=low;  z=mid+1;  while((w<=mid) && (z<=high))  {  if(x[w].nodvd>=x[z].nodvd){  temp[y]=x[w];  w++;  }else{  temp[y]=x[z]; z++;  }  y++;  }  if(w>mid){  for(a=z;a<=high;a++){  temp[y]=x[a]; y++;  }  }else{  for(a=w;a<=mid;a++){  temp[y]=x[a]; y++;  }  }  for(a=low;a<=high;a++){  x[a]=temp[a];  }  }  void dscmerggenre(data x[],int first, int last)  {  int mid,low,high;  low = first; high = last;  if(low<high)  {  mid = (low+high)/2;  dscmerggenre(x,low,mid);  dscmerggenre(x,mid+1,high);  s\_dscmerggenre(x,low,mid,high);  }  }  void s\_dscmerggenre(data x[],int low,int mid,int high)  {  int w,y,z,a;  data temp[100];  w=low;  y=low;  z=mid+1;  while((w<=mid) && (z<=high))  {  if(x[w].genre>=x[z].genre){  temp[y]=x[w];  w++;  }else{  temp[y]=x[z]; z++;  }  y++;  }  if(w>mid){  for(a=z;a<=high;a++){  temp[y]=x[a]; y++;  }  }else{  for(a=w;a<=mid;a++){  temp[y]=x[a]; y++;  }  }  for(a=low;a<=high;a++){  x[a]=temp[a];  }  }  void dscmergjudul(data x[],int first, int last)  {  int mid,low,high;  low = first; high = last;  if(low<high)  {  mid = (low+high)/2;  dscmergjudul(x,low,mid);  dscmergjudul(x,mid+1,high);  s\_dscmergjudul(x,low,mid,high);  }  }  void s\_dscmergjudul(data x[],int low,int mid,int high)  {  int w,y,z,a;  data temp[100];  w=low;  y=low;  z=mid+1;  while((w<=mid) && (z<=high))  {  if(x[w].judul>=x[z].judul){  temp[y]=x[w];  w++;  }else{  temp[y]=x[z]; z++;  }  y++;  }  if(w>mid){  for(a=z;a<=high;a++){  temp[y]=x[a]; y++;  }  }else{  for(a=w;a<=mid;a++){  temp[y]=x[a]; y++;  }  }  for(a=low;a<=high;a++){  x[a]=temp[a];  }  }  void dscmergharga(data x[],int first, int last)  {  int mid,low,high;  low = first; high = last;  if(low<high)  {  mid = (low+high)/2;  dscmergharga(x,low,mid);  dscmergharga(x,mid+1,high);  s\_dscmergharga(x,low,mid,high);  }  }  void s\_dscmergharga(data x[],int low,int mid,int high)  {  int w,y,z,a;  data temp[100];  w=low;  y=low;  z=mid+1;  while((w<=mid) && (z<=high))  {  if(x[w].harga>=x[z].harga){  temp[y]=x[w];  w++;  }else{  temp[y]=x[z]; z++;  }  y++;  }  if(w>mid){  for(a=z;a<=high;a++){  temp[y]=x[a]; y++;  }  }else{  for(a=w;a<=mid;a++){  temp[y]=x[a]; y++;  }  }  for(a=low;a<=high;a++){  x[a]=temp[a];  }  }  void penjualan()  { file = fopen("penjualan.txt","w");  int p,ttl=0;  cout<<"\n\nMENU PENJUALAN HARI INI\n\n";  cout<<"BANYAK PEMBELI\t: "; cin>>p;  fwrite(&p,sizeof(p),1,file);  for(int a=0; a<p; a++)  {  cout<<"\nKODE PEMBELI\t: "; cin>>jual[a].kode;  cout<<"NAMA PEMBELI\t: "; cin.ignore(); getline(cin,jual[a].nama);  cout<<"TOTAL BELANJA\t: "; cin>>jual[a].belanja;  fwrite(&jual[a],sizeof(jual[a]),1,file);  }  for(int b=0; b<p; b++)  {  ttl=ttl + jual[b].belanja;  }  fwrite(&ttl,sizeof(ttl),1,file);  cout<<"\n";  fclose(file);  }  void outputpenjualan()  { int p;  file = fopen("penjualan.txt","r");  fread(&p,sizeof(p),1,file);  cout <<setw(12)<<"\n\t=============================================================" <<endl;  cout <<setw(12)<<"\t| Kode Pembeli " << " | " << " Nama Pembeli " << " |" << " Total Belanja |\n";  cout <<setw(12)<<"\t=============================================================" <<endl;  for(int d=0; d<p; d++)  { fread(&jual[d],sizeof(jual[d]),1,file);  cout<<setw(12)<<" "<<jual[d].kode<<" \t"<<jual[d].nama<<" \t"<<jual[d].belanja<<endl;  }cout <<setw(12)<<"\t============================================================" <<endl;  fread(&ttl,sizeof(ttl),1,file);  cout<<"\nTOTAL PENDAPATAN\t: "<<ttl<<endl;  fclose(file);  } |

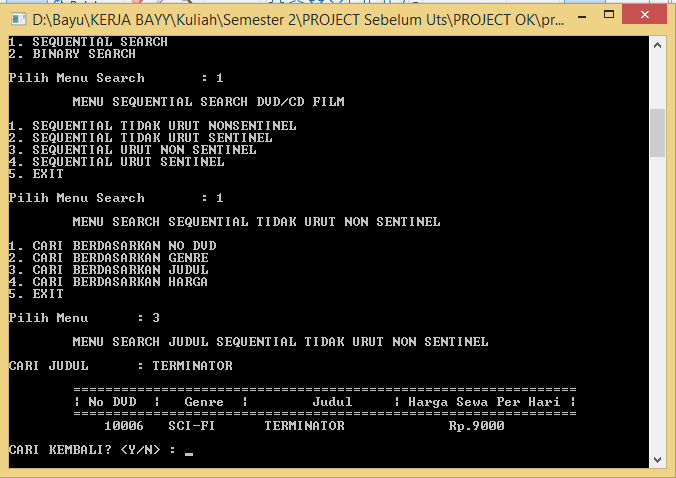
Output :



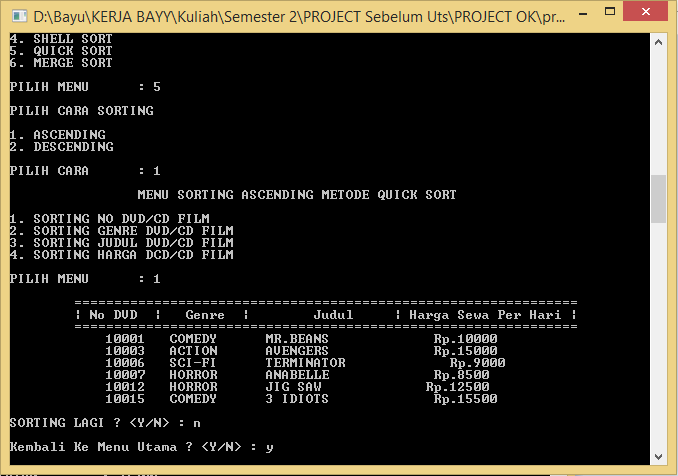
**Gambar 1.1** Menu Utama



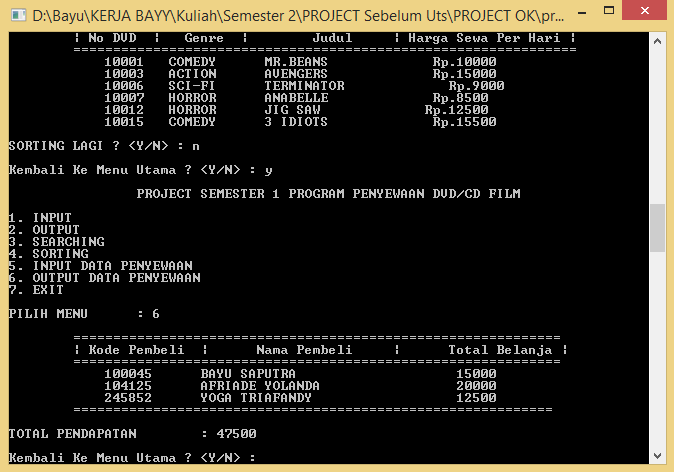
**Gambar 1.2** Output Utama



**Gambar 1.3** Searching Binary



**Gambar 1.4** Quick Sort



**Gambar 1.5** Menu Ouput Jual Beli Setelah Penginputan