```cpp
#include <iomanip.h>
#include <conio.h>
#include <stdio.h>
#include <stdlib.h>
#include <fstream.h>
#include <string.h>
void intro(); // Intro
void order(); // to place order and generate bill
void admin_menu(); // Admin Menu
void write(); // to write records onto file
void modify(); // to modify a record
void show(); // to read all records
void del(); // to delete a record
void sortNum(); // to sort list by item no.
void sortName(); // to sort by name
void sortPrice(); // to sort by price
class food
{
unsigned int pno;
float price;
char name[50];
public:
void create()
{
cout<<"Item no:\t\t";cin>>pno;
cout<<"Name:\t\t";gets(name);
cout<<"Price:\t\t";cin>>price;
}
void show()
{
cout<<setw(6)<<setiosflags(ios::left)<<pno;
cout<<setw(30)<<setiosflags(ios::left)<<name;
cout<<"Rs. "<<setiosflags(ios::fixed)
<<setiosflags(ios::showpoint)
<<setprecision(2)
<<price;
//always show 2 decimal pts and non-exponential val
}
int retpno() {return pno;}
float retprice() {return price;}
char* retname() {return name;}
};
```

```cpp
void main()
{
clrscr();
remove("List.dat"); //remove any pre-existing file with the same name
intro();
char ch;
do
{
clrscr();
cout<<"1. Customer Menu\n2. Administrator Menu\n3. Exit";
cout<<"\nInput: "; ch=getche();
switch(ch)
{
case'1': order(); break;
case'2': admin_menu(); break;
case'3': break;
default :cout<<"\a"; ch=getche(); break;
}
} while(ch!='3');
remove("List.dat"); //remove the file created
}
void intro()
{
clrscr();
cout
<<"\n\n COMPUTER SCIENCE PROJECT\n\n"
<<" Class XII\n"
<<" 2014-15\n\n\n"
<<"----------------------------------------\n"
<<" MCDONALDS RESTAURANT\n"
<<" BILLING SYSTEM\n"
<<"----------------------------------------\n\n\n\n"
<<setw(20)<<setiosflags(ios::left)<<"Submitted by"<<" | Submitted to\n"
<<setw(20)<<setiosflags(ios::left)<<"Anadi Shankar"<<" Mr.Mohit Dey | \n"
<<setw(20)<<setiosflags(ios::left)<<"Student, XII J"<<" | Computer Science Teacher\n"
<<setw(20)<<setiosflags(ios::left)<<"Roll No: 000000"
<<" | Delhi Public School, RK Puram\n";
getch();
}
void order()
{
fstream file;
file.open("List.dat",ios::binary|ios::in);
```

```cpp
if(!file)
{
file.close();
cout<<"\n\nList of food items not prepared."
<<"Please create the list using Admin Menu";
<<"\nPress any key to return to main menu...";
getch();
}
else
{
file.close();
clrscr();
cout<<"Welcome to McDonalds!\n\n";
show();
const int MAX=50; char ch='Y';
unsigned int pno[MAX], qty[MAX]; int k=-1;
cout<<"Place your order here: "<<endl;
cout<<"----------------------"<<endl<<endl;
do
{
k++;
cout<<"Food item code:\t\t"; cin>>pno[k];
cout<<"Quantity:\t\t"; cin>>qty[k];
cout<<"Place another order? (y/n) ";ch=getche();
cout<<endl<<endl;
} while ((k<=50)&&((ch=='y')||(ch=='Y')));
if ((k>50)&&((ch=='y')||(ch=='Y')))
{
cout<<"\nSorry! Bill limit full. Need to place order."
<<"Press any key to continue.";
getch();
ch='N';
}
if ((ch=='n')||(ch=='N'))
{
cout<<"\nThank you for placing an order. "
 <<"Press any key to get your bill";
getch();
}
clrscr();
cout<<"\n----------------------INVOICE----------------------"<<endl<<endl;
cout<<setw(6)<<setiosflags(ios::left)<<"Qty";
cout<<setw(30)<<setiosflags(ios::left)<<"Food Item";
```

```cpp
cout<<"Price";
cout<<"\n----------------------------------------------------\n";
fstream file; food item;
file.open("List.dat",ios::binary|ios::in);
float BILL=0; int i=0;
while((i<=k)&&(file.read((char*)&item,sizeof(food))))
{
if (item.retpno()==pno[i])
{
cout<<setw(6)<<qty[i];
cout<<setw(30)<<item.retname();
cout<<"Rs. "<<qty[i]*item.retprice();
BILL+=(qty[i]*item.retprice());
cout<<endl;
i++;
}
}
file.close();
cout<<"\nSubtotal = "<<BILL;
cout<<"\nVAT = "<<12.5<<'%';
cout<<"\nTotal = "<<BILL+((BILL*12.5)/100);
getch();
}
}
void show()
{
cout<<setw(6)<<setiosflags(ios::left)<<"#";
cout<<setw(30)<<setiosflags(ios::left)<<"Food Item";
cout<<"Price";
cout<<"\n====================================================\n";
fstream file; food item;
file.open("List.dat",ios::binary|ios::in);
while(file.read((char*)&item,sizeof(food))) {item.show(); cout<<endl;}
file.close();
}
void admin_menu()
{
clrscr();
show();
char ch;
cout<<"---------------------Admin Menu---------------------"<<endl;
cout<<"1. Add item\n2. Modify item\n3. Delete item\n4. Sort by item no."
<<"\n5. Sort by item name\n6. Sort by price (low to high)\n7. Exit\nInput: ";
```

```cpp
ch=getche();
cout<<endl<<endl;
switch(ch)
{
case '1': write(); admin_menu(); break;
case '2': modify(); admin_menu(); break;
case '3': del(); admin_menu(); break;
case '4': sortNum(); admin_menu(); break;
case '5': sortName(); admin_menu(); break;
case '6': sortPrice(); admin_menu(); break;
case '7': break;
default: cout<<"\a"; ch=getche(); admin_menu(); break;
}
}
void write()
{
fstream file; food item;
file.open("List.dat", ios::binary|ios::app);
char ch='Y';
do
{
item.create();
file.write((char*)&item,sizeof(food));
cout<<"\nAnother item? (y/n)"; ch=getche();
cout<<endl;
} while((ch=='y')||(ch=='Y'));
file.close();
}
void modify()
{
fstream file; food item;
file.open("List.dat",ios::binary|ios::in|ios::out);
int item_no;
cout<<"Item number to be modified: ";cin>>item_no;
while (file.read((char*)&item,sizeof(food))&&(item.retpno()!=item_no));
//reaches the position where item.retpno()==item_no
cout<<"Enter new details\n";
item.create();
int temp=file.tellg()-sizeof(food);
file.seekp(temp);
file.write((char*)&item,sizeof(food));
file.close();
}
```

```cpp
void del()
{
fstream file1, file2; food item;
file1.open("List.dat", ios::binary|ios::in);
file2.open("New.dat", ios::binary|ios::out);
int item_del;
cout<<"Item number to be deleted: "; cin>>item_del;
while(file1.read((char*)&item,sizeof(food)))
{
if(item_del!=item.retpno()) file2.write((char*)&item,sizeof(food));
}
file1.close();
file2.close();
remove("List.dat");
rename("New.dat", "List.dat");
}
void sortNum()
{
fstream file; food item;
file.open("List.dat",ios::binary|ios::in|ios::out);
food item1, item2;
file.seekg(0,ios::end); //Move to the last record
int N=file.tellg()/sizeof(food); //To find number of records in the file
for (int i=0;i<N-1;i++)
{
for (int j=0;j<N-i-1;j++)
{
file.seekg(j*sizeof(food)); //To move the file pointer to jth position
file.read((char*)&item1,sizeof(food)); //reads jth record
file.read((char*)&item2,sizeof(food)); //reads (j+1)th record
if (item1.retpno()>item2.retpno())
{
file.seekp(j*sizeof(food));
file.write((char*)&item2,sizeof(food));
file.write((char*)&item1,sizeof(food));
}
}
}
file.close();
}
void sortName()
{
fstream file; food item;
```

```cpp
file.open("List.dat",ios::binary|ios::in|ios::out);
food item1, item2;
file.seekg(0,ios::end); //Move to the last record
int N=file.tellg()/sizeof(food); //To find number of records in the file
for (int i=0;i<N-1;i++)
{
for (int j=0;j<N-i-1;j++)
{
file.seekg(j*sizeof(food)); //To move the file pointer to jth position
file.read((char*)&item1,sizeof(food)); //reads jth record
file.read((char*)&item2,sizeof(food)); //reads (j+1)th record
if(strcmpi(item1.retname(),item2.retname())>0)
{
file.seekp(j*sizeof(food));
file.write((char*)&item2,sizeof(food));
file.write((char*)&item1,sizeof(food));
}
}
}
file.close();
}
void sortPrice()
{
fstream file; food item;
file.open("List.dat",ios::binary|ios::in|ios::out);
food item1, item2;
file.seekg(0,ios::end); //Move to the last record
int N=file.tellg()/sizeof(food); //To find number of records in the file
for (int i=0;i<N-1;i++)
{
for (int j=0;j<N-i-1;j++)
{
file.seekg(j*sizeof(food)); //To move the pointer to jth position
file.read((char*)&item1,sizeof(food)); //reads jth record
file.read((char*)&item2,sizeof(food)); //reads (j+1)th record
if (item1.retprice()>item2.retprice())
{
file.seekp(j*sizeof(food));
file.write((char*)&item2,sizeof(food));
file.write((char*)&item1,sizeof(food));
}
}
}
```

```
    file.close();
}
```