

ALGORITHM

Step 1: Start.

Step 2: View menu.

Step 3: Choose an option.

Step 4: On choosing option 1, you can add an item record.

Step 4.1: Enter the following:

- Item number
- Item name
- Item brand
- Item price
- Item weight
- Item stock

Step 4.2: You can continue and add more records or go back to the main menu.

Step 5: On choosing option 2, you can view an item record.

Step 5.1: Enter item number whose data is to be displayed.

Step 5.2: If item number is found, all records of the item will be displayed.

Step 5.3: If item number is not found, an error message will be displayed.

Step 5.4: You can return to the main menu or exit the program.

Step 6: On choosing option 3, you can modify an item record.

Step 6.1: Enter item number.

Step 6.2: If item number is found, you can modify the following:

- *Item name*
- *Item brand*
- *Item price*
- *Item weight*
- *Item stock*

Step 6.3: If item number is not found, an error message will be displayed.

Step 6.4: You can return to the main menu or exit the program.

Step 7: On choosing option 4, you can delete an item record.

Step 7.1: Enter item number whose data is to be deleted.

Step 7.2: If item number is found, all records of the item can be deleted.

Step 7.3: If item number is not found, an error message will be displayed.

Step 7.4: You can return to the main menu or exit the program.

Step 8: On choosing option 5, you can view the records of all items.

Step 8.1: You can return to the main menu or exit the program.

Step 9: On choosing option 6, you can order items in bulk.

Step 9.1: Enter whether it is the person's first purchase.

Step 9.2: Enter the following details of the item to be purchased in bulk.

Step 9.3: You can return to the main menu or exit the program.

Step 10: On choosing option 7, you can generate a bill.

Step 10.1: Enter the invoice number.

Step 10.2: The bill will be displayed.

Step 10.3: You can calculate the amount to be payed or the balance amount.

Step 10.4: You can return to the main menu or exit the program.

Step 11: On choosing option 8, you can view all the invoices.

Step 11.1: You can return to the main menu or exit the program.

Step 12: On choosing option 9, you can exit the program.

PROGRAM LISTING

```
#include<iostream.h>
#include<fstream.h>
#include<string.h>
#include<conio.h>
#include<iomanip.h>
#include<stdio.h>
#include<stdlib.h>
#include<ctype.h>
#include<process.h>

int x=1;
struct shop
{
    long int itemno;
    float price;
    char itemname [30];
    char weight [10];
    int stock;
    char brand [15];
};
struct invoice
{ long int invno;
    long int ino;
    float iprice;
    char iname [30];
    int quantity;
};
void dispalli();
void Viewlte();
void order();
```

```

void Addlte();
void Deletelte();
void Modifylte();
void ViewAll();
void bill();
void reduceq(long int i, int qt);

```

```

void main()
{char ch;
int opt;

```

```

    do
    { clrscr();

```

```

cout<< "*****" <<endl;
cout<< " * AA SUPERMARKET CHAIN & co. * " <<endl;
cout<< "*****" <<endl;
cout<< " *          MENU          * " <<endl;
cout<< " *          * " <<endl;
cout<< " * 1.To Add Item details * " <<endl;
cout<< " * 2.To View Item Details * " <<endl;
cout<< " * 3.To Modify Item Details * " <<endl;
cout<< " * 4.To Delete Item Details * " <<endl;
cout<< " * 5.To View All Item details * " <<endl;
cout<< "*****" <<endl;
cout<< " *          TRANSACTION          * " <<endl;
cout<< " *          * " <<endl;
cout<< " * 6.To order Items in Bulk * " <<endl;
cout<< " * 7.Generate Bill * " <<endl;
cout<< " * 8.View all invoices * " <<endl;
cout<< " * 9.Exit * " <<endl;
cout<< "*****" <<endl;
cout<< "Enter option (1-9)" <<endl;

```

```
cin>>opt;
cout<<endl;
switch(opt)
{case 1:Addlte();
                                break;

  case 2:Viewlte();
                                break;

  case 3:Modifylte();
                                break;

  case 4:Deletelte();
                                break;

  case 5:ViewAll();
                                break;

  case 6:order();
                                break;

  case 7:bill();
                                break;

  case 8:dispalli();
                                break;

  case 9:exit(O);
                                break;

}
cout<<" Do you want to continue(Y/N): " <<endl;
```

```

        cin>>ch;
        }while(ch=='y'||ch=='Y');
    }

    void Viewlte()
    {
        shop s;
        long ino;
        int found=0;

        ifstream ifile( "SHOP.DAT", ios::binary);

        cout<<"Enter Item Number whose data is to be displayed : ";
        cin>>ino;

        while(ifile.read((char*)&s, sizeof(s)))
        {
            if(ino==s.itemno)
            {
                found=1;

                cout<<"Item name:" <<setw(20)<<"Item
price:" <<setw(10)<<"Brand" <<setw(10)<<"Weight:" <<setw(10)<<
"Stock:" <<endl;

                cout<<s.itemname<<setw(20)<<s.price<<setw(15)<<s.brand<<setw
(8)<<s.weight<<setw(12)<<s.stock<<endl;
            }

        }

        ifile.close();
        if (found==0)
            cout<<"ITEM NOT FOUND!" <<endl;
    }

```



```
void Addlte()
{ shop s;
  char ch;

  ofstream ofile( "SHOP.DAT", ios::binary|ios::app);

  do
  {
    cout<<"Enter Item number: ";
    cin>>s.itemno;

    cout<<"Enter Item name: ";
    gets(s.itemname);

    cout<<"Enter Brand: ";
    gets(s.brand);

    cout<<"Enter Price: ";
    cin>>s.price;

    cout<<"Enter weight: ";
    gets(s.weight);

    cout<<"Enter stock: ";
    cin>>s.stock;

    ofile.write((char*)&s, sizeof(s));

    cout<<"Do you want to add more items? (Y/N) : ";
    cin>>ch;

    cout<<endl;
```

```

        }while(ch=='y'||ch=='Y');

        ofile.close();

        cout<<"Item(s) details Added" <<endl;
    }

void Modifylte()
{
    shop s;
    int ino;
    int found=0;
    char ch;

    cout<<"Enter Item number whose data is to be modified: ";
    cin>>ino;

    ifstream ifile("SHOP.DAT", ios::binary);
    ofstream ofile("Temp.DAT", ios::binary);

    while(ifile.read((char*)&s, sizeof(s)))
    {
        if(ino!=s.itemno)
            ofile.write((char*)&s, sizeof(s));

        else
        {
            found=1;

            cout<<"Do you want to change Item Name? ";
            cin>>ch;
            if(ch=='y'||ch=='Y')
            {
                cout<<"Enter New Name of the Item: ";
            }
        }
    }
}

```

```

        gets(s.itemname);
    }

    cout<<" Do you want to change Item Brand? ";
    cin>>ch;
    if(ch=='y' || ch=='Y')
    {
        cout<<" Enter New Brand of the Item: ";
        gets(s.brand);
    }

    cout<<" Do you want to change Item Price? ";
    cin>>ch;
    if(ch=='y' || ch=='Y')
    {
        cout<<" Enter New Price of the Item: ";
        cin>>s.price;
    }

    cout<<" Do you want to change the weight of the Item? ";
    cin>>ch;
    if(ch=='y' || ch=='Y')
    {
        cout<<" Enter the New Weight of the Item : ";
        gets(s.weight);
    }

    cout<<" Do you want to change the stock of the Item? ";
    cin>>ch;
    if(ch=='y' || ch=='Y')
    {
        cout<<" Enter the New Stock of the Item: ";
        cin>>s.stock;
    }

```

```

        }
        ofile.write((char*)&s, sizeof(s));
    }
}
ifile.close();
ofile.close();

remove("SHOP.DAT");
rename("Temp.DAT", "SHOP.DAT");

if(found==0)
{
    cout<<endl;
    cout<<"ERROR-ITEM NOT FOUND!" <<endl;
}

else
{
    cout<<endl;
    cout<<"DATA MODIFIED!" <<endl;
}
}

```

```

void Deletelte()

```

```

{ shop s;
  int ino;
  int found=0;

```

```

  cout<<"Enter Item number whose data is to be deleted: ";
  cin>>ino;

```

```

  ifstream ifile("SHOP.DAT", ios::binary);
  ofstream ofile("Temp.DAT", ios::binary);

```

```

while(ifile.read((char*)&s, sizeof(s)))
{
    if(ino!=s.itemno)
        ofile.write((char*)&s, sizeof(s));

    else
        found=1;
}

ifile.close();
ofile.close();

remove("SHOP.DAT");
rename("Temp.DAT", "SHOP.DAT");

if(found==0)
{
    cout<<endl;
    cout<<"ERROR-ITEM NOT FOUND!"<<endl;
}

else
{
    cout<<endl;
    cout<<"DATA DELETED!"<<endl;
}
}

```

```

void ViewAll()
{ shop s;
    ifstream ifile("SHOP.DAT", ios::binary);

```

```

        cout<<"Item List: " <<endl;
        cout<<"ITEM NO " <<setw(15)<<"ITEM
NAME " <<setw(20)<<"BRAND " <<setw(10)<<"WEIGHT " <<setw(1
0)<<"PRICE " <<setw(10)<<"STOCK " <<endl;

```

```

        while(ifile.read((char*)&s, sizeof(s)))
        {

            cout<<s.itemno<<setw(11)<<s.itemname<<setw(24)<<s.brand
<<setw(9)<<s.weight<<setw(12)<<s.price<<setw(10)<<s.stock<<end
l;

        }

        ifile.close();
    }

```

```

void order()
{shop s;
invoice n;
int op,q; char option,choice,ch;long int ino;float amt=0.0,total=0.0;
fstream invfile;
ifstream ifile;

```

```

    invfile.open( "INVOICE_REC.DAT",ios::binary|ios::app);
    cout<<" Is it your first purchase with us?(Y/N)" <<endl;
    cin>>option;
    if((option=='y' || option=='Y'))
    {n.invno=1;}
    else
    {while(invfile.read((char*)&n, sizeof(n)))
        {x=n.invno;}
        x++;
    }
}

```

```

}
invfile.close();

do
{ invfile.open( "INVOICE_REC.DAT",ios::binary|ios::app);
  ifile.open( "SHOP.DAT",ios::binary);
  start:
  cout<<endl<<"Enter the item number:";
  cin>>ino;

  while(ifile.read((char*)&s, sizeof(s)))
  {if(s.itemno==ino)
    {cout<<"Item Name:" <<s.itemname<<endl;
      cout<<"Price:" <<s.price<<endl;

      if(s.stock==0)
        cout<<"This item is not available." <<endl;

      else
        {cout<<"Quantity:" <<s.stock<<endl;
          cout<<"Enter the required quantity:";
          cin>>q;
        }

        if(q>s.stock)
          {cout<<" " <<(q-s.stock)<<" " <<"Quantity not
available. Would you like to be billed for " <<s.stock<<"
quantity?(Y/N)" <<endl;
            cin>>choice;
            if((choice=='Y'||choice=='y'))
              {q=s.stock;
                break;
              }
          }
        }
    }
  }
}

```

```

        else goto start;
    }
    reduceq(ino,q);

    amt=(s.price*q);
    total=amt;
    cout<<endl;

    n.invno=x;
    n.ino=ino;
    n.quantity=q;
    n.iprice=total;
    invfile.write((char*)&n, sizeof(n));
}

}

ifile.close();
invfile.close();

cout<<" Do you want to add more items? " <<endl;
cin>>ch;
}while((ch=='y')||(ch=='Y'));
}

void bill()
{float total=0.0;
float change;
float cash;
long int ino;
int i=0;

ifstream ifile;
ifile.open("INVOICE_REC.DAT",ios::binary);
shop s; invoice n;

```



```

cout<<"Enter the invoice number "<<endl;
cin>>ino;

cout<<"***** "<<endl;
cout<<"          AA SUPERMARKET CHAIN & co.          "<<endl;
cout<<"***** "<<endl;
cout<<"Invoice number: "<<ino<<endl;
cout<<"***** "<<endl;
cout<<"S.NO "<<" ITEM NO. "<<"      DESCRIPTION
"<<"QTY"<<"      "<<"VALUE "<<endl;
cout<<"***** "<<endl;
while(ifile.read((char*)&n, sizeof(n)))
{if (ino==n.invno)
    {cout<<"+i<<"      "<<n.ino<<"      ";

        ifstream sfile;
        sfile.open("SHOP.DAT",ios::binary);
        while(sfile.read((char*)&s, sizeof(s)))
            if(n.ino==s.itemno)
                cout<<s.itemname<<" "<<s.brand<<" "<<s.weight<<"      ";
        sfile.close();

        cout<<n.quantity<<"      "<<n.iprice<<endl;
        total+=n.iprice;
    }
}

cout<<endl;
cout<<"Amount due.....DHS. "<<total<<endl;
cout<<"Amount paid.....DHS. ";
cin>>cash;
change=cash-total;

```

```

    cout<<" Amount returned.....DHS. " <<change<<endl;
}
void dispalli()
{
    invoice n;

    ifstream ifile( "INVOICE_REC.DAT",ios::binary);
    cout<< " *****
***** " <<endl;
    cout<<endl<<" Inv no. " <<setw(10)<<" Item
no. " <<setw(15)<<" Quantity " <<setw(15)<<" Final price " <<endl;
    cout<< " ***** " <<endl;
    while(ifile.read((char*)&n, sizeof(n)))
    {
        cout<<" " <<n.invno<<" " <<n.ino<<"
" <<n.quantity<<" " <<n.iprice<<endl;
    }
    cout<< " ***** " <<endl;
}

void reduceq(long int i, int qt)
{ int found=0; shop s;
  ifstream ifile( "SHOP.DAT",ios::binary);
  ofstream ofile( "Temp.DAT",ios::binary);

  while(ifile.read((char*)&s, sizeof(s)))
  { if(i==s.itemno)
    { found=1;
      s.stock-=qt;
    }
    ofile.write((char*)&s, sizeof(s));
  }
  if(found==0)

```

```
        cout<<"Item not found"<<endl;
    else
        cout<<"Quantity has been modified"<<endl;

    ofile.close();
    ifile.close();
    remove("SHOP.DAT");
    rename("Temp.DAT", "SHOP.DAT");
}
```

SAMPLES

1. Main menu:

[illegible]

2. Option 1: To add an item record.

```
*          MENU          *
*          *             *
* 1.To Add Item details  *
* 2.To View Item Details *
* 3.To Modify Item Details *
* 4.To Delete Item Details *
* 5.To View All Item details *
* *****              *
*          TRANSACTION   *
*          *             *
* 6.To order Items in Bulk *
* 7.Generate Bill         *
* 8.View all invoices     *
* 9.Exit                  *
* *****              *
Enter option <1-9>
1
```

```
*          MENU          *
*          *             *
* 1.To Add Item details  *
* 2.To View Item Details *
* 3.To Modify Item Details *
* 4.To Delete Item Details *
* 5.To View All Item details *
* *****              *
*          TRANSACTION   *
*          *             *
* 6.To order Items in Bulk *
* 7.Generate Bill         *
* 8.View all invoices     *
* 9.Exit                  *
* *****              *
Enter option <1-9>
1

Enter Item number: 2001
Enter Item name: Milk
Enter Brand: Al Rawabi
Enter Price: 5
Enter weight:1L
Enter stock:40
Do you want to add more items? <Y/N> :N
```

3. Option 2: To view an item record.

```
*      AA SUPERMARKET CHAIN & co.      *
*****
*              MENU                      *
*                                          *
* 1.To Add Item details                  *
* 2.To View Item Details                  *
* 3.To Modify Item Details                *
* 4.To Delete Item Details                *
* 5.To View All Item details              *
*****
*              TRANSACTION                *
*                                          *
* 6.To order Items in Bulk                *
* 7.Generate Bill                        *
* 8.View all invoices                     *
* 9.Exit                                  *
*****
Enter option <1-9>
2
```

```
*      AA SUPERMARKET CHAIN & co.      *
*****
*              MENU                      *
*                                          *
* 1.To Add Item details                  *
* 2.To View Item Details                  *
* 3.To Modify Item Details                *
* 4.To Delete Item Details                *
* 5.To View All Item details              *
*****
*              TRANSACTION                *
*                                          *
* 6.To order Items in Bulk                *
* 7.Generate Bill                        *
* 8.View all invoices                     *
* 9.Exit                                  *
*****
Enter option <1-9>
2

Enter Item Number whose data is to be displayed : 2001
Item name:      Item price:      Brand      Weight:      Stock:
Milk            5                Al Rawabi    1L              40
Do you want to continue(Y/N):Y
```

4. Option 3: To modify an item record.

```
*****
*      AA SUPERMARKET CHAIN & co.      *
*****
*              MENU                      *
*              *                        *
* 1.To Add Item details                  *
* 2.To Uiew Item Details                 *
* 3.To Modify Item Details               *
* 4.To Delete Item Details              *
* 5.To View All Item details            *
*****
*              TRANSACTION               *
*              *                        *
* 6.To order Items in Bulk               *
* 7.Generate Bill                       *
* 8.Uiew all invoices                   *
* 9.Exit                                *
*****
Enter option <1-9>
3
```

```
*****
*      AA SUPERMARKET CHAIN & co.      *
*****
*              MENU                      *
*              *                        *
* 1.To Add Item details                  *
* 2.To Uiew Item Details                 *
* 3.To Modify Item Details               *
* 4.To Delete Item Details              *
* 5.To View All Item details            *
*****
*              TRANSACTION               *
*              *                        *
* 6.To order Items in Bulk               *
* 7.Generate Bill                       *
* 8.Uiew all invoices                   *
* 9.Exit                                *
*****
Enter option <1-9>
3

Enter Item number whose data is to be modified: 2002
Do you want to change Item Name?n
Do you want to change Item Brand?n
Do you want to change Item Price? n
Do you want to change the weight of the Item?n
Do you want to change the stock of the Item?y
Enter the New Stock of the Item:40

DATA MODIFIED!
Do you want to continue(Y/N):Y
```

5. Option 4: To delete an item record.

```
*****
*      AA SUPERMARKET CHAIN & co.      *
*****
*              MENU                      *
*              *                          *
* 1.To Add Item details                  *
* 2.To Uiew Item Details                 *
* 3.To Modify Item Details               *
* 4.To Delete Item Details               *
* 5.To View All Item details             *
*****
*              TRANSACTION                *
*              *                          *
* 6.To order Items in Bulk               *
* 7.Generate Bill                       *
* 8.Uiew all invoices                   *
* 9.Exit                                *
*****
Enter option <1-9>
4
```

```
*****
*      AA SUPERMARKET CHAIN & co.      *
*****
*              MENU                      *
*              *                          *
* 1.To Add Item details                  *
* 2.To View Item Details                 *
* 3.To Modify Item Details               *
* 4.To Delete Item Details               *
* 5.To View All Item details             *
*****
*              TRANSACTION                *
*              *                          *
* 6.To order Items in Bulk               *
* 7.Generate Bill                       *
* 8.Uiew all invoices                   *
* 9.Exit                                *
*****
Enter option <1-9>
4

Enter Item number whose data is to be deleted: 2003

DATA DELETED!
Do you want to continue(Y/N):Y
```


6. Option 5: To view all records.

```
*****
*      AA SUPERMARKET CHAIN & co.      *
*****
*              MENU                      *
*              *                          *
* 1.To Add Item details                  *
* 2.To Uiew Item Details                 *
* 3.To Modify Item Details               *
* 4.To Delete Item Details               *
* 5.To View All Item details            *
*****
*              TRANSACTION                *
*              *                          *
* 6.To order Items in Bulk               *
* 7.Generate Bill                       *
* 8.Uiew all invoices                   *
* 9.Exit                                *
*****
Enter option <1-9>
5
```

```
*****
*              MENU                      *
*              *                          *
* 1.To Add Item details                  *
* 2.To Uiew Item Details                 *
* 3.To Modify Item Details               *
* 4.To Delete Item Details               *
* 5.To View All Item details            *
*****
*              TRANSACTION                *
*              *                          *
* 6.To order Items in Bulk               *
* 7.Generate Bill                       *
* 8.Uiew all invoices                   *
* 9.Exit                                *
*****
Enter option <1-9>
5

Item List:
ITEM NO    ITEM NAME      BRAND      WEIGHT    PRICE    STOCK
2001      Milk           Al Rawabi   1L        5        40
2002      Bread            Al Marai   600g      6        40
Do you want to continue(Y/N): Y
```

7. Option 6: To order items in bulk.

```
*****
*      AA SUPERMARKET CHAIN & co.      *
*****
*              MENU                      *
*              *                          *
* 1.To Add Item details                  *
* 2.To Uiew Item Details                 *
* 3.To Modify Item Details               *
* 4.To Delete Item Details              *
* 5.To View All Item details            *
*****
*              TRANSACTION                *
*              *                          *
* 6.To order Items in Bulk               *
* 7.Generate Bill                       *
* 8.Uiew all invoices                   *
* 9.Exit                                *
*****
Enter option <1-9>
6
```

```
*****
*      AA SUPERMARKET CHAIN & co.      *
*****
*              MENU                      *
*              *                          *
* 1.To Add Item details                  *
* 2.To View Item Details                 *
* 3.To Modify Item Details               *
* 4.To Delete Item Details              *
* 5.To View All Item details            *
*****
*              TRANSACTION                *
*              *                          *
* 6.To order Items in Bulk               *
* 7.Generate Bill                       *
* 8.Uiew all invoices                   *
* 9.Exit                                *
*****
Enter option <1-9>
6

Is it your first purchase with us?(Y/N)
y

Enter the item number:2001
Item Name:Milk
Price:5
Quantity:40
Enter the required quantity:10
Quantity has been modified

Do you want to add more items?
n
```

8. Option 7: To generate bill.

```
*****
*      AA SUPERMARKET CHAIN & co.      *
*****
*              MENU                      *
*              *                         *
* 1.To Add Item details                  *
* 2.To Uiew Item Details                 *
* 3.To Modify Item Details               *
* 4.To Delete Item Details               *
* 5.To View All Item details             *
*****
*              TRANSACTION                *
*              *                         *
* 6.To order Items in Bulk                *
* 7.Generate Bill                        *
* 8.Uiew all invoices                    *
* 9.Exit                                  *
*****
Enter option <1-9>
7
```

```
*****
*      AA SUPERMARKET CHAIN & co.      *
*****
*              MENU                      *
*              *                         *
* 1.To Add Item details                  *
* 2.To Uiew Item Details                 *
* 3.To Modify Item Details               *
* 4.To Delete Item Details               *
* 5.To View All Item details             *
*****
*              TRANSACTION                *
*              *                         *
* 6.To order Items in Bulk                *
* 7.Generate Bill                        *
* 8.Uiew all invoices                    *
* 9.Exit                                  *
*****
Enter option <1-9>
7

Enter the invoice number
1
*****
*      AA SUPERMARKET CHAIN & co.      *
*****
Invoice number:1
*****
S.NO ITEM NO.      DESCRIPTION      QTY      VALUE
*****
1      2001      Milk Al Rawabi 1L      10      50

Amount due.....DHS.50
Amount paid.....DHS.100
Amount returned.....DHS.50
Do you want to continue<Y/N>:Y
```

9. Option 8: To view all invoices.

```
*****
* AA SUPERMARKET CHAIN & co. *
*****
* MENU *
* *
* 1.To Add Item details *
* 2.To Uview Item Details *
* 3.To Modify Item Details *
* 4.To Delete Item Details *
* 5.To View All Item details *
*****
* TRANSACTION *
* *
* 6.To order Items in Bulk *
* 7.Generate Bill *
* 8.Uview all invoices *
* 9.Exit *
*****
Enter option <1-9>
8
```

```
*****
* AA SUPERMARKET CHAIN & co. *
*****
* MENU *
* *
* 1.To Add Item details *
* 2.To Uview Item Details *
* 3.To Modify Item Details *
* 4.To Delete Item Details *
* 5.To View All Item details *
*****
* TRANSACTION *
* *
* 6.To order Items in Bulk *
* 7.Generate Bill *
* 8.Uview all invoices *
* 9.Exit *
*****
Enter option <1-9>
8
```

```
*****
Inv no. Item no. Quantity Final price
*****
1 2001 10 50
*****
```

Do you want to continue(Y/N):Y