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***Name* :-** Abrar Mahedavi

***Roll No.* :-** 21035

***Title* :-** A vegetable and fruit mall wants to organize its vegetables and fruits in combination of purchase pattern of customers. Solve the problem by suggesting appropriate data structures. Design necessary class.

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***Program :***

#include<iostream>

#include<string.h>

#define MAX 30 //Macro to assign 30 to MAX.

using namespace std;

class mall //Node for single item.

{

public:

int Purchase;

char Name[MAX];

};

class Priority\_Queue //Declaration of class

{

private:

char P\_Queue[MAX][MAX]; //2-D Array of Character

int PC[MAX]; //1-D Array of Integer

int Rear,Front,count,n1,n2,NEW1,NEW2;

public:

void Input(); //Prototype for Input function

void Initialize(); //Prototype for Initialize function

void Display(); //Prototype for Display function

void Insert\_By\_Priority(char [MAX],int );//Prototype Insert\_B\_P function

};

void Priority\_Queue::Initialize() //Function Definition for Initialize

{

NEW1 = 0;

NEW2 = 0;

n1 = 0;

n2 = 0;

count = 0;

Rear = -1;

Front = -1;

}

void Priority\_Queue::Input() //Function Definition for Input

{

int i,n;

mall m;

do

{

cout<<"\n\n\n\n\nWHAT DO U WANT TO PURCHASE FROM THE MALL"<<endl;

cout<<"\t\t\t1.Vegetables"<<endl;

cout<<"\t\t\t2.Fruits"<<endl;

cout<<"\t\t\t3.EXIT"<<endl;

cout<<"Enter A Choice from above \t\t\t:";

cin>>n;

switch (n)

{

case 1:

cout<<"Enter the Number of vegetables\t\t\t:";

cin>>n1;

for(i=1;i<=n1;i++)

{

cout<<"Enter the name of vegetable \t\t\t:";

cin>>m.Name;

cout<<"Enter the priority of "<<m.Name<<"\t\t\t:";

cin>>m.Purchase;

Insert\_By\_Priority(m.Name,m.Purchase);

}

NEW1=n1+NEW1;

break;

case 2:

cout<<"Enter the Number of Fruits\t\t\t:";

cin>>n2;

for(i=1;i<=n2;i++)

{

cout<<"Enter the name of Fruits \t\t\t:";

cin>>m.Name;

cout<<"Enter the priority of "<<m.Name<<"\t\t\t:";

cin>>m.Purchase;

Insert\_By\_Priority(m.Name,m.Purchase);

}

NEW2=n2+NEW2;

break;

case 3:

cout<<"-----------------THANK YOU FOR PUCHASING DO VISIT US AGAIN------------------"<<endl;

break;

default:

cout<<"----------------------------Entered Wrong Choice----------------------------"<<endl;

}

}while(n==1||n==2||n!=3);

}

void Priority\_Queue ::Insert\_By\_Priority(char Name[],int Purchase)

{

int i,j,temp;

char ch[MAX];

if(Rear>=MAX-1)

{

cout<<"Priority Queue IS FULL"<<endl;

}

else

{

if((Front==-1)&&(Rear==-1)) //QUEUE IS EMPTY

{

Front++;

Rear++;

strcpy(P\_Queue[Rear],Name);

PC[Rear]=Purchase;

}

else

{

Rear++;

strcpy(P\_Queue[Rear],Name);

PC[Rear]=Purchase;

for(i=0;i<Rear;i++)

{

for(j=i;j<=Rear;j++)

{

if(PC[i]<PC[j])

{

temp=PC[j];

PC[j]=PC[i];

PC[i]=temp;

strcpy(ch,P\_Queue[i]);

strcpy(P\_Queue[i],P\_Queue[j]);

strcpy(P\_Queue[j],ch);

}

}

}

}

}

}

void Priority\_Queue ::Display() //Function Definition for Display

{

int i,n;

n=NEW1+NEW2;

cout<<"-------------------MODERN EDUCATION SOCIETY MALL-------------------"<<endl;

cout<<"Sr. No."<<"\t\t\t NAME\t\t\t FREQUENCY COUNT"<<endl;

for(i=0;i<n;i++)

{

cout<<i+1<<"\t\t\t";

cout<<P\_Queue[i]<<"\t\t\t\t"<<PC[i]<<endl;

}

}

int main()

{

Priority\_Queue P;

P.Initialize(); //Calling of Initialize function

P.Input(); //Calling of Input function

P.Display(); //Calling of Display function

}

***Output :***

compeng-sl2-08@compeng-sl2-08:~$ cd Abrar

compeng-sl2-08@compeng-sl2-08:~/Abrar$ g++ MALL.cpp

compeng-sl2-08@compeng-sl2-08:~/Abrar$ ./a.out

WHAT DO U WANT TO PURCHASE FROM THE MALL

1.Vegetables

2.Fruits

3.EXIT

Enter A Choice from above :1

Enter the Number of vegetables :3

Enter the name of vegetable :Tomato

Enter the priority of Tomato :35

Enter the name of vegetable :Potato

Enter the priority of Potato :25

Enter the name of vegetable :Cabbage

Enter the priority of Cabbage :30

WHAT DO U WANT TO PURCHASE FROM THE MALL

1.Vegetables

2.Fruits

3.EXIT

Enter A Choice from above :2

Enter the Number of Fruits :2

Enter the name of Fruits :Apple

Enter the priority of Apple :65

Enter the name of Fruits :Banana

Enter the priority of Banana :50

WHAT DO U WANT TO PURCHASE FROM THE MALL

1.Vegetables

2.Fruits

3.EXIT

Enter A Choice from above :1

Enter the Number of vegetables :1

Enter the name of vegetable :Cucumber

Enter the priority of Cucumber :20

WHAT DO U WANT TO PURCHASE FROM THE MALL

1.Vegetables

2.Fruits

3.EXIT

Enter A Choice from above :2

Enter the Number of Fruits :2

Enter the name of Fruits :Mango

Enter the priority of Mango :105

Enter the name of Fruits :Orange

Enter the priority of Orange :65

WHAT DO U WANT TO PURCHASE FROM THE MALL

1.Vegetables

2.Fruits

3.EXIT

Enter A Choice from above :3

-----------THANK YOU FOR PUCHASING DO VISIT US AGAIN------------------

---------------------MODERN EDUCATION SOCIETY MALL-------------------------

Sr. No. NAME FREQUENCY COUNT

1 Mango 105

2 Apple 65

3 Orange 65

4 Banana 50

5 Tomato 35

6 Cabbage 30

7 Potato 25

8 Cucumber 20