```
#include <iostream> #include <bits/stdc++.h> #define MAX 150
using namespace std;



int top=100;

int demand[MAX] =
{ 30,40,120,120,120,30,30,30,30,120,60,60,50,40,20,120,60,60,240,120,80,60,60,20,60,60,60,20,
100,70,60,30,30,5300,10,400,50,1,2,480,15,1,1,1,1,1,1,8,8,1,5,10,3,10,8,7,10,15,2,1,8,10,15,3,1,
2,8,10,4,4,3,1,3,2,1,9,8,15,5,10,20,3,9,20,50,60,12,3500,250,120,65,10,8,1,8,10,9,10,25,46,88, };

int price[MAX] =
{1175,500,144,350,150,100,90,100,80,50,82,190,140,110,105,270,400,160,40,80,750,25,20,600,
170,310,35,230,500,120,45,50,155,22,150,210,810,650,400,100,210,80,630,200,300,158,360,30
00,2000,500,1100,200,165,250,40,725,250,200,900,399,45000,210,120,100,500,250,450,110,17
490,550,2150,4100,12000,15000,25000,120,750,1100,1500,2000,900,1200,950,180,45,40,200,1
03,96,10,5,100,1500,2200,1700,45,1700,1400,50,10,20 };

string names[MAX] = { Rice(25Kg Sona Masoori),Wheat(10Kg),Moong Dal (1Kg),Toor  dal     (2kg),Channa
Dal(1Kg),Urad   Dal(0.5Kg),Ragi     Flour(1Kg),Jowar Flour(1Kg),Bajra           Flour(1Kg),Corn     Flour
(1/2Kg),Maize           Flour(1Kg),Chilli Powder(500g),Turmeric     Powder(500g),Black  Pepper(200g),Mustard
Small(500g),Gingelly Oil(1L),Pure               Coconut         Oil(1L),Tooth               Paste(150g),Bathing
       Soap (125g),Toothbrush,Shampoo(1L),Handwash(80ml),Anti-bacterial Sanitizer,N95 Mask(pack of five),
Mosquito      Repellent   Machine(+2  refills),Duracell(8     pcs),Iodised    Salt(1Kg),Refined Sugar(5Kg),
Coffee             Powder(200g),Jaggery(1Kg),      Honey(50g),Cotton       Balls,Volini Spray(60g),Aavin Toned
Milk(500ml),Vicks Vaporub(50g),Chicken(1Kg),Mutton(1Kg),Blue Crab(1Kg),Prawns,Water             Can(20L),
Mosquito                  Bat(1),Lipstick(1),Ladies Watch(analog),Facewash(100ml),Eyeliner(5ml),Kajal(0.35g),
Nail Polish(set  of      12)(each 7ml),Hair Straightener,Beard Trimmer,Hair Dryer,Handbag,Wallet,Deodorant(150ml
),Mysore Pak(250g),Palkova(100g),Laddu(1Kg),Almonds(100g),Raisins(100g),Thermo flask(0.5l),Exhaust   fan,Office
laptop,Emergency    light,Storage basket,Power bank(10,000 Mah),Tea cup set,Wall clock,Shaving mirror,Tropicana
fruit juice,TV(32 inch),Earphones,Head

phone,Sound bar(for tv),Fridge one door(170 L),Washing machine(6.2 kg),Split Air conditioner(1 ton),Stapler
,Steel dinner plate,School bag,Office bag,Smart phone,Water bottle(1L),Sports shoe,Scientific calculator,Pencil
pouch,Butter biscuit packet(200g),Milk rusk(182g),Egg(30pcs),Petrol(1L),Diesel(1L),Eraser,Sharpener,Geometry box
,Table fan,Ceiling fan,Study table,Dates (100g),Bike helmet ,Plastic chair,Fevi stick(25g),Maggi Noodles (70g),
Lays (52g) };

float value[MAX]; float cperc;
float cumulative[MAX]; char iclass[MAX];
int sov=0; double q[MAX];


void sortingalgo()

{

for(int i=0; i<=top; i++)

{

for(int j=i+1; j<=top; j++)

{

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

{

int temp = value[i];

string tempname = names[i]; names[i] = names[j]; value[i] = value[j];

value[j] = temp; names[j] = tempname;
}
```

```
51
52  }
53
54  }
55
56  }
57
58  void additem()
59
60  {
61
62  top++;
63
64  cout<<"\nEnter item name: "; cin>>names[top]; cout<<"\nEnter item price: "; cin>>price[top]; cout<<"\nEnter
item demand: "; cin>>demand[top]; cout<<"Item Added\n";
65
66
67  }
68
69  void display()
70
71  {
72
73  for(int i=0; i<=top; i++)
74
75  {
76
77  cout<<names[i]<<" : Class "<<iclass[i]<<"\tEOQ: "<<q[i]<<"\n";
78
79  }
80
81  }
82
83
84
85  void valuecalc()
86
87  {
88
89  for(int i=0; i<=top; i++)
90
91  {
92
93  value[i]= price[i]*demand[i];
94
95  }
96
97  }
98
99
100
101 void classassign()
102
103 {
104
105 sov=0;
106
107 for(int i=0; i<=top; i++)
108
109 {
110
111 sov+=value[i];
112
113 }
114
115 for(int i=0; i<=top; i++)
```

```
116
117 {
118
119 cperc= float(value[i] * 100 / sov);
120
121
122
123 cumulative[i] = cumulative[i - 1] + cperc;
124
125
126
127 if(cumulative[i]<85&&cummulative[i]>0)
128
129 {
130
131 iclass[i]='A';
132
133 }
134
135 else if(cumulative[i]>85 && cumulative[i]<95)
136
137 {
138
139 iclass[i]='B';
140
141 }
142
143 else
144
145 {
146
147 iclass[i]='C';
148
149 }
150
151 }
152
153 }
154
155
156
157 void eoq()
158
159 {
160
161 for(int i=0; i<=top; i++ )
162
163 {
164
165 q[i]=sqrt( 2 * demand[i] * 1000 / 5);
166
167 }
168
169 }
170
171
172
173 int main(){
174
175 char ch='y'; int c; valuecalc(); sortingalgo(); classassign(); eoq(); while(ch=='y')
176 {
177
178 cout<<"1)Add item\n2)Display Items and their class\n(Enter 1/2)"; cin>>c;
179 switch(c)
180
181 {
```

```
182
183 case 1: additem(); valuecalc(); sortingalgo(); classassign(); eoq();
184 break; case 2: display();
185
186 break; default:
187 cout<<"Entered an invalid option";
188
189 }
190
191 cout<<"Do you want to continue(y/n)?"; cin>>ch;
192 }
193
194 return 0;
195
196 }
197
```