**Ex: 11 Dt:**

**Aim:**

Create a c++ program that has a class product (prod\_id, name, price), which is inherited by other classes viz., belt (length, color, width), shoes (size, formal/casual, laced/non laced) and caps(diameter, water proof/not, color). List out the products available to the user and allow the user to select the products and the quantity. Overload \* operator for multiplying quantity with objects. Display the product wise price and total amount.

**Program:**

#include<iostream>

#include<conio.h>

using namespace std;

class product

{ public:

int p; char id[20],n[20];

};

class belt:public product

{ public:

int l,w; char color[5];

belt()

{ strcpy(id,"belt@1"); strcpy(n,"BELTS"); p=200; l=7; w=3; strcpy(color,"RED"); }

void disp()

{ cout<<"\nID: "<<id<<"\nNAME: "<<n<<"\nPRICE: "<<p;

cout<<"\nLENGTH: "<<l<<"\nWIDTH: "<<w<<"\nCOLOR: "<<color; }

int operator\*(int q)

{ return(q\*p); }

};

class caps:public product

{ public:

int d; char typ1[20],typ2[20],color[5];

caps()

{ strcpy(id,"caps@1"); strcpy(n,"CAPS"); p=300; strcpy(color,"RED");

d=90; strcpy(typ1,"WATERPROOF"); strcpy(typ2,"NONWATERPROOF");

}

void disp()

{cout<<"\nID: "<<id<<"\nNAME: "<<n<<"\nPRICE: "<<p;

cout<<"\n"<<typ1<<"\n"<<typ2<<"\nCOLOR: "<<color;

}

int operator\*(int q)

{ return(q\*p); }

};

class shoes:public product

{ public:

int sz; char typ1[20],typ2[20],typ3[20],color[5];

shoes()

{ strcpy(id,"shoes@1"); strcpy(n,"SHOES"); p=800; strcpy(color,"RED");

strcpy(typ1,"FORMAL"); strcpy(typ2,"SPORTS"); strcpy(typ3,"CASUAL");

}

void disp()

{cout<<"\nID: "<<id<<"\nNAME: "<<n<<"\nPRICE: "<<p;

cout<<"\n"<<typ1<<"\n"<<typ2<<"\n"<<typ3<<"\nCOLOR: "<<color;

}

int operator\*(int q)

{ return(q\*p); }

};

int main()

{ belt b; caps c; shoes s;

int ch,qt,at=0;

while(1)

{ cout<<"\n1.BELT\n2.CAPS\n3.SHOES\n4.EXIT "; cin>>ch;

switch(ch)

{ case 1: b.disp();

cout<<"\nQUANTITY: "; cin>>qt;

at=at+b\*qt; cout<<"TOTAL\_AMOUNT: "<<at;

break;

case 2: c.disp();

cout<<"\nQUANTITY: "; cin>>qt;

at=at+c\*qt; cout<<" TOTAL\_AMOUNT: "<<at;

break;

case 3: s.disp();

cout<<"\nQUANTITY: "; cin>>qt;

at=at+s\*qt; cout<<" TOTAL\_AMOUNT: "<<at;

break;

case 4: exit(0);

default: cout<<"INVALID ENTRY!!";

}getch();

}

}

**Sample Input-Output:**

1. **BELT**
2. **CAPS**
3. **SHOES**
4. **EXIT 1**

**ID: belt@1**

**NAME: BELT**

**PRICE: 200**

**LENGTH: 7**

**WIDTH: 3**

**COLOR: RED**

**QUANTITY: 5**

**TOTAL\_AMOUNT: 1000**

1. **BELT**
2. **CAPS**
3. **SHOES**
4. **EXIT 2**

**ID: caps@1**

**NAME: CAPS**

**PRICE: 300**

**WATERPROOF**

**NONWATERPROOF**

**COLOR: RED**

**QUANTITY: 5**

**TOTAL\_AMOUNT: 2500**

1. **BELT**
2. **CAPS**
3. **SHOES**
4. **EXIT 3**

**ID: shoes@1**

**NAME: SHOES**

**PRICE: 800**

**FORMAL**

**SPORTS**

**CASUAL**

**COLOR: RED**

**QUANTITY: 5**

**TOTAL\_AMOUNT: 6500**

1. **BELT**
2. **CAPS**
3. **SHOES**
4. **EXIT 4**