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ADS LAB 04

FUNCTION AND CASS TEMPLATES

SOURCE CODE :

```
#include <iostream>
#include <string.h>
using namespace std;
// Function Template
template <typename X>
X fmax(X &a,X &b)
{
    if(a<b){
       return b;
    }
    else{
       return a;
    }
}
// Function Templates with Multiple Parameters
template <typename X,typename Y>
void mfun(X a,Y b){
   cout<<"Number of pens in pack : "<<a<<"\n"
   <<"Price of the single pen in the pack is : "<<b<<"\n"
   <<"Total price of the pack is : "<<a*b<<"\n"<<endl;
```

```
}
// Overloading a Function Template
template <typename X> void ovrld(X a){
   cout<<"Number of packs avaliable in stationery : "<<a<<endl;
}
template <typename X,typename Y,typename Z> void ovrld(X b ,Y c,Z d){
   cout<<"Number of packs sold : "<<b<<endl;
   cout<<"Price of the single pack : "<<c<<endl;
   cout<<"Remaining packs in stationery : "<<d<<"\n"<<endl;
}
// Class Template
template <class X>
class P {
   public:
   X pack = 14;
   X pen = 5;
   X sold = 6;
   void max()
   {
      cout<<"Total number of pens in the stationery : "<<pack*pen<<endl;
      cout<<"Number of pens sold : "<<sold*pen<<endl;
      cout<<"Remaining pens in the stationery : "<<(pack-sold)*pen<<"\n"<<endl;
   }
};
// Class Templates with multiple parameters
```

```
template<class X1, class X2,class X3,class X4>
class Q {
   X1 pack;
   X2 pen;
   X3 sold;
   X4 price;
   public:
   Q(X1 m,X2 n,X3 o,X4 p){
      pack = m;
      pen = n;
      sold = o;
      price = p;
   }
   void display(){
      cout<<"Amount by selling "<<sold*pen<<" pens : "<<(sold*pen)*price<<endl;
      cout<<"Price of remaining pens in the stationery : "
      <<(pack-sold)*pen*price<<endl;
   }
};
int main(){
   float x = 5.00; // Price of first pen
   float y = 10.00;  // Price of second pen
   cout<<"The maximum price of pen is : "<<fmax(x,y)<<"\n"<<endl;
   mfun(5,10.00);
   ovrld(14);
```

```
    ovrld(6,50.00,8);

    P<int>s;

    s.max();

    Q<int,int,int,float> d(14,5,6,10);

    d.display();

    return 0;

}
```

OUTPUT :

```
The maximum price of pen is : 10

Number of pens in pack : 5
Price of the single pen in the pack is : 10
Total price of the pack is : 50

Number of packs avaliable in stationery : 14
Number of packs sold : 6
Price of the single pack : 50
Remaining packs in stationery : 8

Total number of pens in the stationery : 70
Number of pens sold : 30
Remaining pens in the stationery : 40

Amount by selling 30 pens : 300
Price of remaining pens in the stationery : 400
```

CLASS DIAGRAM :