**Course:** OOPS **Session:** Templates **Timestamp:** 2021-4-1 10:46:20 **Register Number:** RA2031241010094

### Q. Subtraction

Person X had purchased groceries from the shop.
He paid x Rs and need to get back the remaining.
Help him to calculate the remaining if he purchased for y Rs.

Input:
Get the 2 integer values in the input.

Mandatory:

1.Create a Template Class as
template

2.Create a "displayresult" template function to find the remaining amount need to be paid and to display it.

3.Call the displayresult function from the main method to display the remaining amount needs to be paid.

Output format:
First line: Cost of Items purchased

Second line:Total amount paid

Third line:Amount have to be paid

Refer the following testcases.

Programming Language need to be used:C++

### Source Code

```
#include <iostream>
using namespace std;
template<class T>
  T displayresult(T n1,T n2)
{
  cout<<n1<<endl<<n2<<endl<<n1-n2;
  return 0;
}
int main()
{
  float a,b;
  cin>>a>>b;
  displayresult(a,b);
 return 0;
}
```

### Sample Input

450 76

### Sample Output

450
76
374

### Result

Thus, Program " **Subtraction** " has been successfully executed

**Course:** OOPS **Session:** Templates **Timestamp:** 2021-4-1 10:46:43 **Register Number:** RA2031241010094

### Q. Division

Sudhan has bought n number of chocolates for his children. He needs to split the chocolates equally for each of them. Find each childs share if there are x children.

Input:
Get the three integer or float values in the input.

Mandatory:

Mandatory:
1.Create a Template Class as
template

2.Create a "displayresult" template function to find the share of chocolates and to display it.

3.Call the displayresult function from the main method to display the share of chocolates.

Output:

Display the output in the separate line.

Refer the following testcases.

Programming Language need to be used:C++

### Source Code

```
#include <iostream>
using namespace std;
template<class T>
  T displayresult(T n1,T n2)
{
  return n1/n2;
}
int main()
{
  float a,b;
  cin>>a>>b;
 cout<<a<<endl<<b<<endl<<displayresult(a,b);
 return 0;
}
```

### Sample Input

10 2

### Sample Output

10
2
5

### Result

Thus, Program " **Division** " has been successfully executed

**Course:** OOPS **Session:** Templates **Timestamp:** 2021-4-1 10:47:05 **Register Number:** RA2031241010094

### Q. Largest Number

Person A buys a share in NSE with the interest rate of x%. He is expecting to sell it when the interest rate raises beyond x%. The day the interest rate increases, A has sold his share for y%. Find the interest rate which A has sold his share.

Input:

1.Get the two integer values in first line of the input.

2.Get the two float values in second line of the input.

Mandatory:
1.Create a Template Class as
template

2. Create the "Large" template function that accepts two arguments n1 and n2 of integer and float type.

3.Call the Large function from the main method to display the largest number.

Output:

Display the output in the separate line to the separate data types.

Refer the following testcases.

Programming Language need to be used:C++

### Source Code

```
#include <iostream>
using namespace std;
template<class T>
  float Large(T n1,T n2)
{
  return (n1>n2)?n1:n2;
}
int main()
{
  int a,b;
  float c,d;
  cin>>a>>b>>c>>d;
  cout<<Large(a,b)<<endl<<Large(c,d);
 return 0;
}
```

### Sample Input

```
1 2
3.5 4.5
```

### Sample Output

```
2
4.5
```

### Result

Thus, Program " **Largest Number** " has been successfully executed

### Q. Adding Array

Ajay is purchasing groceries from the supermarket. Before paying the bill he wants to cross check the total items and the amount of each.

Help him to store the prices in an array and add those costs.

Input:

1.Get the 5 integer values in first five line
2.Get the 5 float values in the next five lines.

Mandatory:
1.Create a Template Class as
template

2. Create the "sum" template function to find the data length and for the addition of data.

3. Call the sum template function in the main method and print the values.

Output:

1. Print the sum of integers in first line and sum of floats in second line.

Refer the following testcases.

Programming Language need to be used:C++

### Source Code

```
#include <iostream>
using namespace std;
template<class T>
  T sum(T n1,T n2,T n3,T n4,T n5)
{
  return n1+n2+n3+n4+n5;
}
int main()
{
  int a,b,c,d,e;
  float f,g,h,i,j;
  cin>>a>>b>>c>>d>>e>>f>>g>>h>>i>>j;
  cout<<sum(a,b,c,d,e)<<endl;
  cout<<sum(f,g,h,i,j);
 return 0;
}
```

### Sample Input

```
1
2
3
4
5
1.1
2.2
3.3
4.4
5.5
```

### Sample Output

```
15
16.5
```

### Result

Thus, Program " **Adding Array** " has been successfully executed

**Course:** OOPS **Session:** Templates **Timestamp:** 2021-4-1 10:48:31 **Register Number:** RA2031241010094

### Q. Largest of Long

You are required to find the greatest of two numbers using function template
Mandatory:
1. Create a function template "template "
2. Declare a template Function as "GetMax" that takes three arguments of type long
3. Inside the function template find the greatest of two numbers and return the result to the main function.
4. In Main Function, input 3 long values
5. Invoke the template function and display the biggest of three numbers.
Input Format:
First Line Corresponds to long Values.
Output Format:
Display the greatest long number.
Programming Language need to be used:C++

### Source Code

```
#include <iostream>
using namespace std;
template <class T>
  int GetMax(T x,T y,T z)
{
  if(x>y)
  {
    if(x>z)
      cout<<x;
    else
      cout<<y;
  }
  else if(y>z)
    cout<<y;
  else
    cout<<z;
  return 0;
}
int main()
{
  long a,b,c;
  cin>>a>>b>>c;
  GetMax(a,b,c);
 return 0;
}
```

### Sample Input

537354 835383 124

### Sample Output

835383

### Result

Thus, Program " **Largest of Long** " has been successfully executed

**Course:** OOPS **Session:** Templates **Timestamp:** 2021-4-1 10:48:55 **Register Number:** RA2031241010094

### Q. Swap

Students are saying some random names they like.
They need to swap the values.
But they dont know how to swap the huge amount of random names in the school.
Help them to complete the task using template concept.
Input:
Get the different data values in the input.
Mandatory:
1. Create a function template "template"
2. Declare a template Function as "Swap" that takes two arguments
void Swap(T &x,T &y)
3. Inside the function template swap the two names.
4. Invoke the template function from the main function to print the result after swapping.
Output Format:
Refer Sample Test Cases.
Programming Language need to be used:C++

### Source Code

```
#include <iostream>
#include<string.h>
using namespace std;
template<class T>
  void Swap(T &x,T &y)
{
  T z;
  strcpy(z,x);
  strcpy(x,y);
  strcpy(y,z);
};
int main()
{
  char a[20],b[20];
  cin>>a>>b;
  Swap(a,b);
 cout<<a<<" "<<b;
 return 0;
}
```

### Sample Input

sachin dhoni

### Sample Output

dhoni sachin

### Result

Thus, Program " **Swap** " has been successfully executed

**Course:** OOPS **Session:** Templates **Timestamp:** 2021-4-1 10:49:17 **Register Number:** RA2031241010094

### Q. Sum of Numbers

We have the plan to purchase n number of items from the super market.

Also have the list and have the amount to the products.We got a little confusion to find the total amount to be paid.

Input:

Get the 4 different data values from the user end.

Mandatory:
1.Create a Template Class as
template

2. Create the "sum" template function for the addition of data.

3. Call the sum template function in the main method and print the values.

Output format:

Sum=a+b
Sum=c+d
Sum=a+c

Refer Sample testcases.

Programming Language need to be used:C++

### Source Code

```
#include <iostream>
using namespace std;
template <class T>
  T sum(T n1,T n2)
{
  return n1+n2;
}
int main()
{
  float a,b,c,d;
  cin>>a>>b>>c>>d;
  cout<<sum(a,b)<<endl<<sum(c,d)<<endl<<sum(a,c);
 return 0;
}
```

### Sample Input

10 20 12 25.5

### Sample Output

30
37.5
22

### Result

Thus, Program " **Sum of Numbers** " has been successfully executed

**Course:** OOPS **Session:** Templates **Timestamp:** 2021-4-1 10:49:42 **Register Number:** RA2031241010094

### Q. Minimum of given elements (Banglore)

Rahul Sharma is traveling from Bangalore to Chennai.

He has three different kind of route map to reach Chennai.

Help him to find the shortest route to reach Chennai on time.

Input:
Get the three integer or float values.

Mandatory:

1.Create a Template Class as
template

2.Create the "min" template function that accepts three arguments in n1,n2 and n3 as
void min(T n1,T n2,T n3)

3.Call the min template function from the main method to display the minimum value.

Output:

Print the minimum value.

Refer the following testcases.

Programming language need to be used:C++

### Source Code

```
#include <iostream>
using namespace std;
template <class T>
  void min(T n1,T n2,T n3)
{
  if(n1<n2)
  {
    if(n1<n3)
      cout<<n1;
    else
      cout<<n3;
  }
  else if(n2<n3)
    cout<<n2;
  else
    cout<<n3;
}
int main()
{
  float a,b,c;
  cin>>a>>b>>c;
  min(a,b,c);
 return 0;
}
```

### Sample Input

19 12 3

### Sample Output

3

### Result

Thus, Program " **Minimum of given elements (Banglore)** " has been successfully executed

**Course:** OOPS **Session:** Templates **Timestamp:** 2021-4-1 10:50:09 **Register Number:** RA2031241010094

### Q. Product of numbers

Person X has bought n number of basket ball for his college team. If One ball costs x Rs, find the total cost of the basket balls.

Input:
Get the 2 integer or float values in the input.
First Number Indicates number of balls
Second Number Indicates Cost of one ball

Mandatory:

1.Create a Template Class as
template
2.Create the "displayresult" template function to display the task output.

3.Collect the data from different data types and multiple the data with the cost of product.

4.Use the "displayresult" function to display the output in the main function.

Output:
Print Number of balls in first line
Print Cost of one ball in second line
Print the total cost in third line

Refer the following testcases.

### Source Code

```
#include <iostream>
using namespace std;
template<class T>
  T displayresult(T n1,T n2)
{
  cout<<n1<<endl<<n2<<endl<<n1*n2;
  return 0;
}
int main()
{
  float a,b;
  cin>>a>>b;
  displayresult(a,b);
 return 0;
}
```

### Sample Input

```
50 400.75
```

### Sample Output

```
50
400.75
20037.5
```

### Result

Thus, Program " **Product of numbers** " has been successfully executed

**Course:** OOPS **Session:** Templates **Timestamp:** 2021-4-1 10:50:31 **Register Number:** RA2031241010094

### Q. Adding Numbers

Ram has newly joined in the XXX bank. He had stuck in tallying the accounts in the month end. Help him to tally the accounts by summing up the credits to the bank for that month.

Input:

1.Get the two float values in second line of the input.

Mandatory:

1.Create a Template Class as template

2.Create a "displayresult" template function to find the sum of chocolates and to display it.

3.Call the displayresult function from the main method to display the sum of chocolates.

Output:

Display the output in the separate line.

Refer the following testcases.

Programming Language need to be used:C++

### Source Code

```
#include <iostream>
using namespace std;
template<class T>
  T displayresult(T n1,T n2)
{
  cout<<n1<<endl<<n2<<endl<<n1+n2;
  return 0;
}
int main()
{
  float a,b;
  cin>>a>>b;
  displayresult(a,b);
 return 0;
}
```

### Sample Input

3.5 4.6

### Sample Output

3.5
4.6
8.1

### Result

Thus, Program " **Adding Numbers** " has been successfully executed