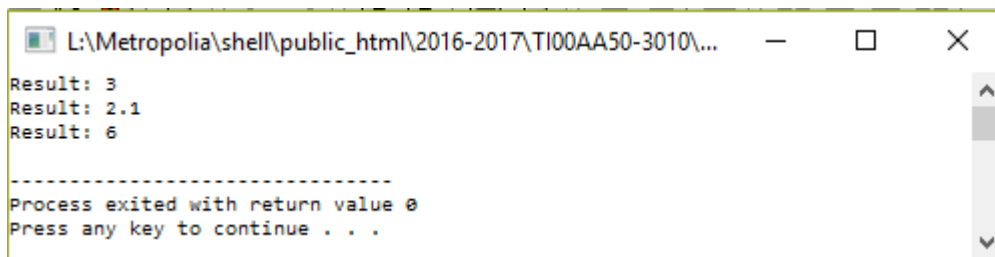


Notice: Return your C++ source codes into **Oma before deadline. Only so you can get credits from this homework. You can't return these source codes after deadline.**

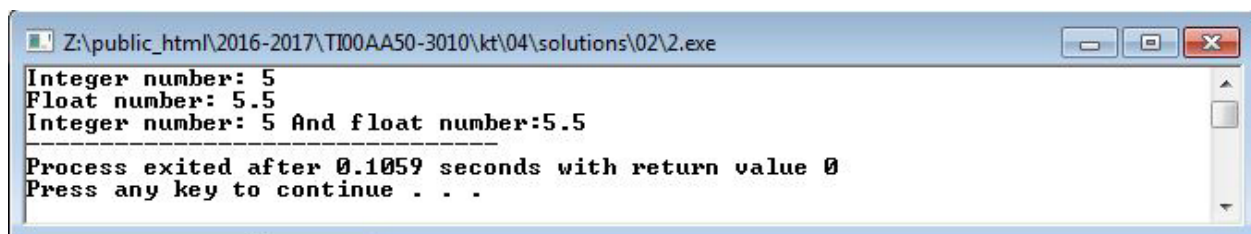
1. **Multiple parameter overloading.** Implement a program where the types of parameters of the overloaded functions **add** and the number of parameters may be different. In the first **add** implementation are two integer parameter. In the second **add** implementation are integer parameter and double parameter. In the third **add** implementation are three integer parameters. In main function are definitions A = 1, B = 2, C = 3 and D = 1.1. Furthermore in main program are calls add (A,B), add (A,D) and add (A,B,C). Sample print is in figure 1.



```
L:\Metropolia\shell\public_html\2016-2017\TI00AA50-3010\...
Result: 3
Result: 2.1
Result: 6
-----
Process exited with return value 0
Press any key to continue . . .
```

Figure 1. Sample print in Dev C++ -program

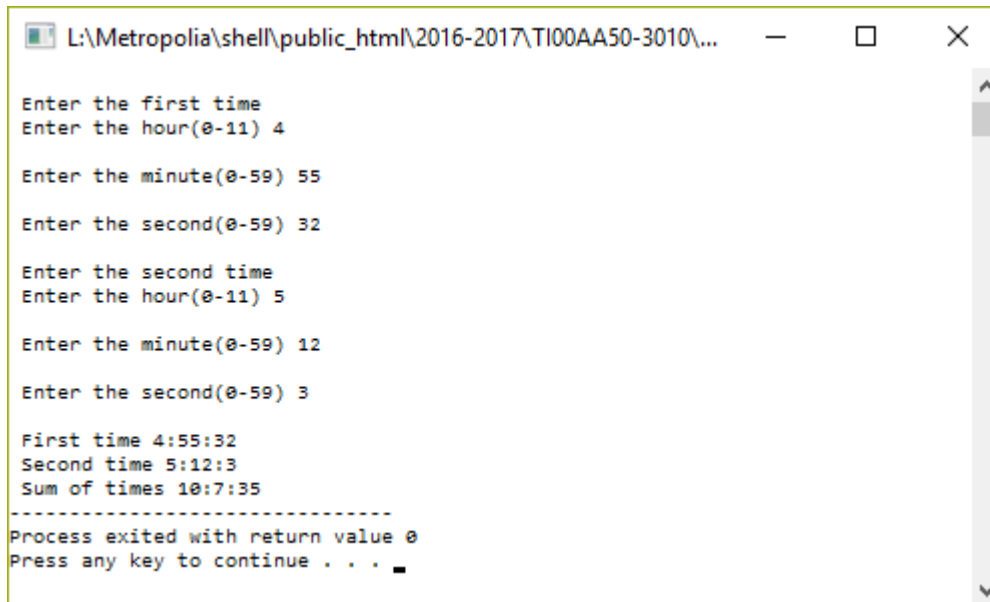
2. **Function overloading.** Implement a program where the types of parameters of the overloaded functions **test** and the number of parameters may be different. In the first **test** implementation is one integer parameter. In the second **test** implementation is one float parameter. In the third **test** implementation are one integer parameter and one double parameter. In main function are definitions int a = 5 and float b = 5.5. Furthermore in main program are calls test (a), test (b) and test (a,b). Sample print is in figure 2.



```
Z:\public_html\2016-2017\TI00AA50-3010\kt\04\solutions\02\2.exe
Integer number: 5
Float number: 5.5
Integer number: 5 And float number:5.5
-----
Process exited after 0.1059 seconds with return value 0
Press any key to continue . . .
```

Figure 2. Sample print in Dev C++ -program

3. **Overloading Arithmetic Operator.** Implement a program where you overload **+** operator you add to Time(hh:mm:ss) objects. In figure 3 you can see input and output.



```
L:\Metropolia\shell\public_html\2016-2017\TI00AA50-3010\...  -  □  X

Enter the first time
Enter the hour(0-11) 4

Enter the minute(0-59) 55

Enter the second(0-59) 32

Enter the second time
Enter the hour(0-11) 5

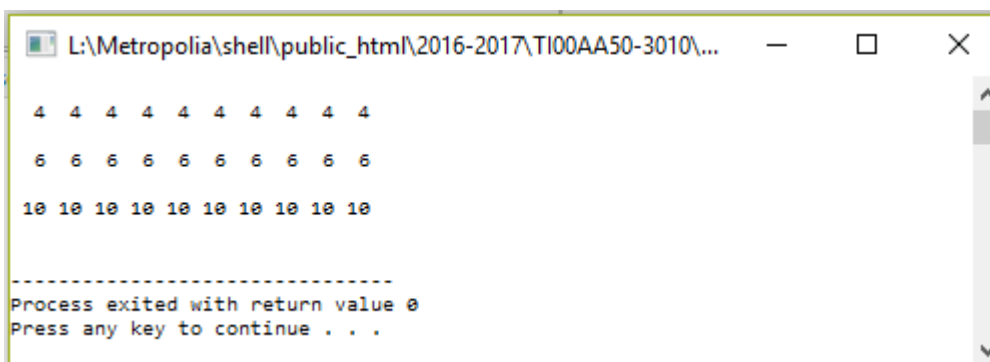
Enter the minute(0-59) 12

Enter the second(0-59) 3

First time 4:55:32
Second time 5:12:3
Sum of times 10:7:35
-----
Process exited with return value 0
Press any key to continue . . .
```

Figure 3. Sample print in Dev C++ -program

4. **Overloading + operator.** Implement a class **Plus** which consists one attribute **int Array [10]**, constructor **Plus (int InitValue)**, table printing method void **PrintArray ()** and **+** overloading method **Plus operator+ (Plus &AnotherObject)**. In main program you create two **Plus** object with clauses **Plus FirstObject (4)** and **Plus SecondObject (6)**. Immediately after that you print the contents of both table an in figure 4 you can see output. Then you create one **Plus** object with clause **Plus DifferenceObject (0)** and use clause **DifferenceObject = FirstObject + SecondObject** and after that you have to print the content of object **DifferenceObject**. In figure 4 you can see output.



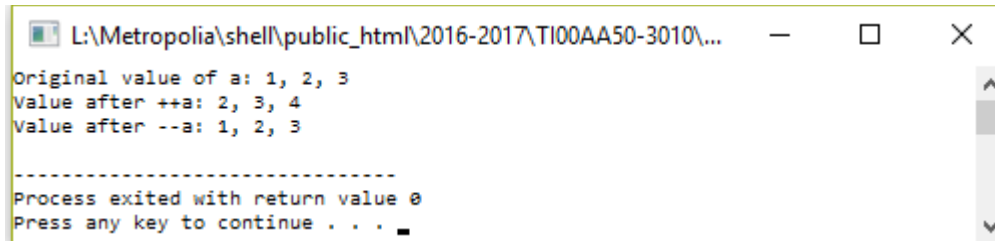
```
L:\Metropolia\shell\public_html\2016-2017\TI00AA50-3010\...  -  □  X

4 4 4 4 4 4 4 4 4 4
6 6 6 6 6 6 6 6 6 6
10 10 10 10 10 10 10 10 10 10

-----
Process exited with return value 0
Press any key to continue . . .
```

Figure 4. Sample print in Dev C++ -program

5. **Overload the ++ and -- unary operator.** Implement a class **ThreeD** which contains integer attributes x, y, z (3-D coordinates). Implement non parametric constructor and three parametric constructor. Implement unary operators **ThreeD operator++()** and **ThreeD operator--()** . Implement also function show() which prints object coordinates. In main program create one object **a** and print immediately coordinates with show() function. Then make clause ++a and print coordinates with show() function. Furthermore make clause --a and print coordinates with show() function. In figure 5 you can see output.



```
L:\Metropolia\shell\public_html\2016-2017\TI00AA50-3010\...  
Original value of a: 1, 2, 3  
Value after ++a: 2, 3, 4  
Value after --a: 1, 2, 3  
  
-----  
Process exited with return value 0  
Press any key to continue . . .
```

Figure 5. Sample print in Dev C++ -program