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

1. Write a program that defines a class **Shape** with a two parametric function **set_value** that gives value to **width** and **height**. Define two subclasses **Rectangle** and **Triangle** both of which calculate with method **area** the area of the shape. In the main you have to define two variables a triangle and a rectangle. After that you have to give in rectangle constructor values 5 and 3. Furthermore you have to give in triangle constructor values 2 and 5. In the end you have to call first the method **area** of rectangle and then you have to call the method **area** of triangle. Sample print is in figure 1.

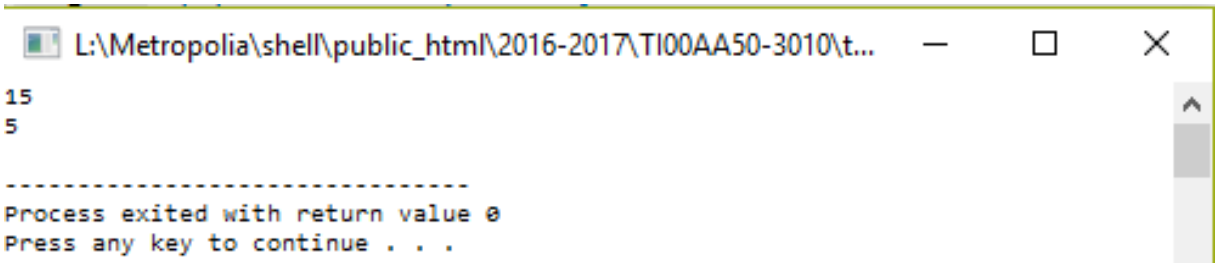

Figure 1. Sample print in Dev C++ -program

2. Write a program with a class **Mother** and an inherited class **Daughter**. Both of them should have a method **void display()** that prints a message (different for mother and daughter). In the main define a daughter and call the **display()** method on it. Sample print is in figure 2.

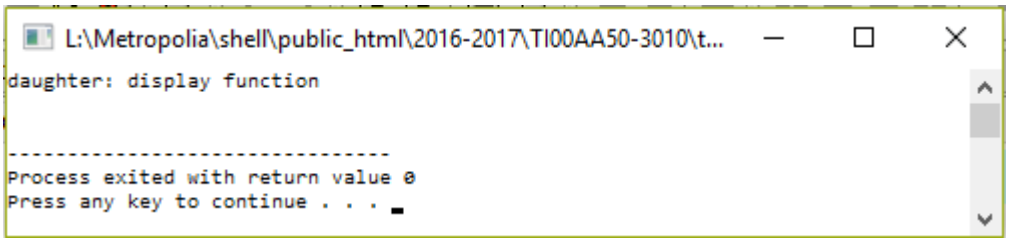

Figure 2. Sample print in Dev C++ -program

3. Write a program with a mother class **Animal**. Inside it define a **name** and an **age** variables and function **set_value()**. Then create (sub classes) two bases variables **Zebra** and **Dolphin** which write a message telling the **age**, the **name** and giving some extra **information** (e.g. place of origin). Sample print is in figure 3.

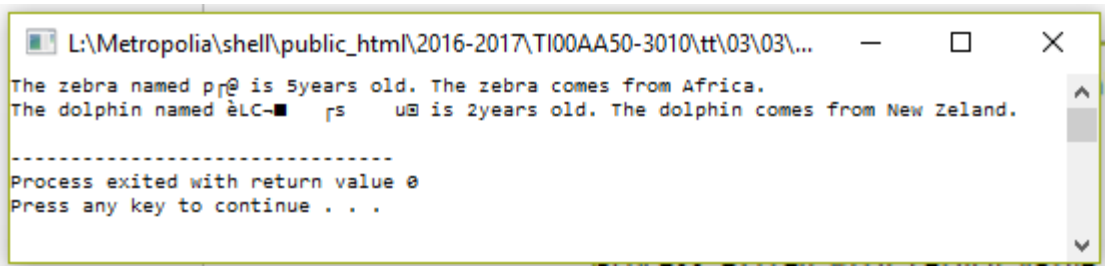

Figure 3. Sample print in Dev C++ -program

4. Suppose we would like to manipulate points in a 2D space (two dimensional space). It is natural for us to define a class for this purpose. Let's call this class **TwoD**. Suppose later on we decide to implement a class to deal with points in a 3D place (three dimensional space). In **TwoD** are attributes **X** and **Y**. Make the definition for the **ThreeD** class using inheritance. Define also two parametric constructor for class **TwoD** and three parametric constructor for class **ThreeD**. Define **set**- and **get**-methods for all properties (fields). Implement main function where you create one 2D point and after that you create one 3D point. Then you print the value of 3D point instance. Sample print is in figure 4.

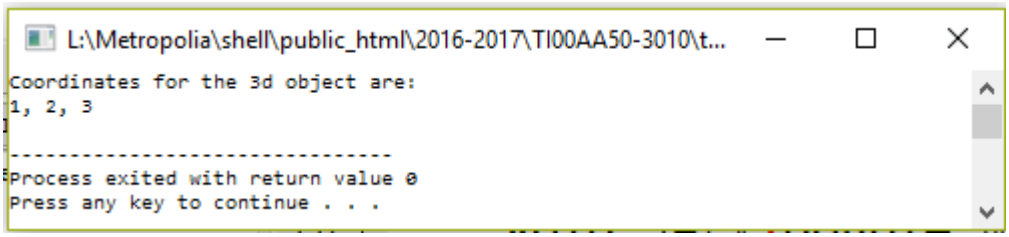

Figure 4. Sample print

5. **Function call operator () overloading in C++**. Write a program where you overload function **timesTwo**. This function **timesTwo** gets one parameter which type is **int** and **double**. You have to write two different implementation of function **timesTwo**. In main function you call this function with value 2 and 2.2. In function **timesTwo** you have to print the value. Sample print is in figure 5.

   Hint: https://www.tutorialspoint.com/cplusplus/function_call_operator_overloading.htm

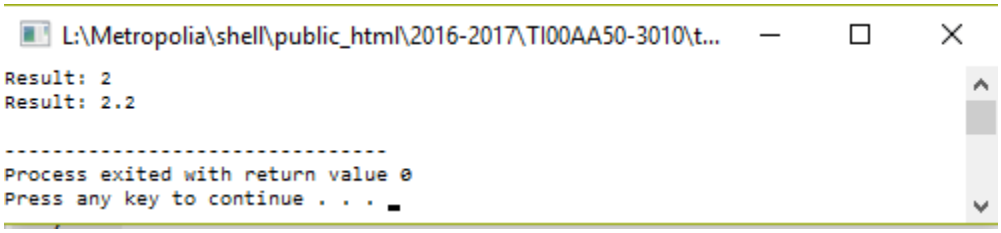

Figure 5. Sample print in Dev C++ -program

6. Write a program where you overload function **add**. In main function are next calls add(A, B), add(A, D), add(A, B, C), add(D, E, F), add(A, E, B) where values of variables are A = 1, B = 2, C = 3, D = 1.1, E = 2.2 and F = 3.3. Variables A, B and C are integer and D, E and F are double. Sample print is in figure 6.

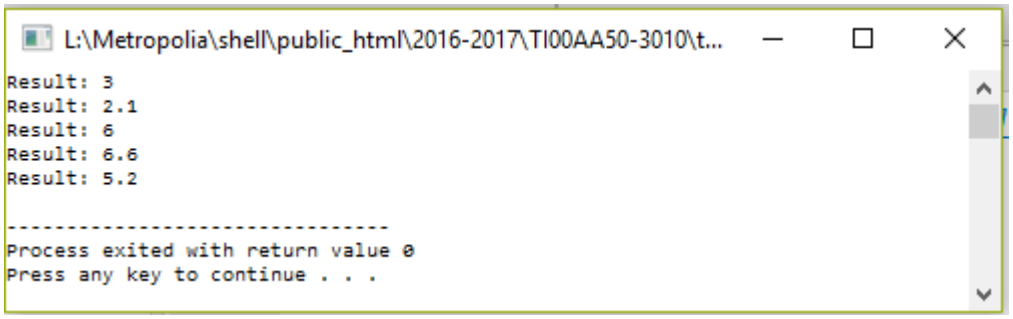

Figure 6. Sample print in Dev C++ -program