

Exercise paper#3

Stefano Genetti

stefano.genetti@studenti.unitn.it

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1 Exercise 1

Guglielmo is 16 and he is attending a high school in Italy. His computer science teacher explained to the class that the students are evaluated on five tests during the school year. The final mark is the average of these five evaluations. Guglielmo is very lazy and he wants a function which takes as input five marks and returns which is the final mark which will be reported on the school report.

Example:

If Guglielmo's computer science marks are:

5, 5.5, 7, 8.5, 6

on his school report he will get:

$$\frac{5+5.5+7+8.5+6}{5} = 6.4$$

2 Exercise 2

Pythagoras of Samos was an ancient clever Greek. Suppose that he has come back to life and he has launched a new start up, "Easy Right Triangle Solutions Company". In order to promote his company he wants a function called *pitagora* that: given the measure of two cathetus returns the measure of the hypotenuse.

Example:

```
cout<<pitagora(3.0, 4.0)<<endl;
```

OUTPUT: 5.0

3 Exercise 3

Expert programmers recommend to study code written by other people. According to this consideration, try to understand the following code and predict the output:

```
#include <iostream>
using namespace std;

// function declaration:
double getAverage(int arr[], int size);

int main () {
    // an int array with 5 elements.
    int balance[5] = {1000, 2, 3, 17, 50};
    double avg;

    // pass pointer to the array as an argument.
    avg = getAverage( balance, 5 );

    // output the returned value
    cout << "Average value is: " << avg << endl;

    return 0;
}

double getAverage(int arr[], int size) {
    int i, sum = 0;
    double avg;

    for (i = 0; i < size; ++i) {
        sum += arr[i];
    }
    avg = double(sum) / size;

    return avg;
}
```

4 Exercise 4

In Perfectopoly (a famous city somewhere in the universe) people use only integer values. It is absolutely illegal to use numbers like 5.3. According to this also temperatures are always expressed with integer values.

In the research center of Perfectopoly, researchers are studying temperatures which have been recorded this year. You have been asked to write a function which takes an array of temperatures as argument and returns the coldest temperature experienced in the city during the year.

Example:

```
int temperatures[10] = {5, 2, 3, 22, 21, 20, 20, 25, 10, 5}
cout<<"The output is: "<<perfectColdest(temperatures)<<endl;
OUTPUT: "The output is: 2"
```

If you are in trouble using array as function arguments, look at the previous exercise or contact me on Whatsapp (-):