Lab 2: Interfaces and Polymorphism

Learning Goals:

- To learn how to use interfaces
- To learn how the principle of polymorphism allows us to write generic classes
- To learn how to use the strategy pattern.

Assignment 2.1: A person has a name and height in centimeters. Use the implementation of the DataSet class for **the strategy pattern** (see slides of lecture 2) to process a collection of `Person` objects. Display the average height and the name of the tallest person.

Assignment 2.2: Define an interface `Filter` as follows:

```
public interface Filter
{
     boolean accept(Object x);
}
```

Modify the implementation of the DataSet class for **the strategy pattern** (see slides of lecture 2) to use both a `Measurer` object and a `Filter` object. Only objects that the filter accepts should be processed. Demonstrate your modification by having a data set process a collection of bank accounts, filtering out all accounts with balances less than 1000 euros.

Assignment 2.3: Look up the definition of the standard `Comparable` interface in the Java API documentation. Modify the `DataSet` class based on **the `Measurable` interface** (see slides of lecture 2) to accept `Comparable` objects. With this interface, it is not longer meaningful to compute the average. The `DataSet` class should record the minimum and maximum data values. Test your modified `DataSet` class by adding a number of `String` objects. (The `String` class implements the `Comparable` interface.)