

Programming Exercise Set 2

C#, Basic Exercises

March 16, 2010

1. Answer following questions regarding C#
 - (a) What is the difference between static and instance class members?
 - (b) What is wrong in having all members static?
 - (c) Is it possible to return multiple values from a method?
2. Write a C# console application which shows how *polymorphic* method calls are handled by the runtime environment *Note: The notion of Object-Oriented Polymorphism has been explained during the lecture*
3. Why do we need properties in favor of fields in the language? Please give at least three reasons to use a property instead of a field.
4. Write a C# application to show two different classes implementing the same interface. Show that you can write a client code which consumes the interface and then show that you are able to call the client code with any of the two classes implementing the interface.
5. Write the **CheckBoard** class which has two indexers.

- One-dimensional indexer which returns a column in selected row, so that the client code could look like:

```
...
CheckBoard board = new CheckBoard();
string[] column = board[0]; // return an array of fields in 1st column
```

- Two-dimensional indexer which returns a value of selected field, so that the client code could look like:

```
...
CheckBoard board = new CheckBoard();
string fieldValue = board[1, 2]; // return the value of selected field
```