

ITT8060 Advanced Programming

Some notes on unit testing

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NUnit

- We use the NUnit <http://www.nunit.org/> framework
 - There are several others for .Net (XUnit, MsUnit, ...)
- NUnit provides:
 - Attributes for defining tests
 - E.g. [`<Test>`] and [`<TestFixture>`]
 - Various assertions (for checking results)
 - `Assert.That(...)`
 - `Expect (...)`
 - Test runners
 - NUnit GUI: `nunit.exe`
 - `nunit-console.exe`

FsUnit: Unit test integration with F#

- FsUnit is a wrapper around some other unit testing library.
- <https://github.com/fsharp/fsunit>
 - to make unit-testing feel more at home in F# , i.e., more functional.
 - to leverage existing test frameworks while at the same time adapting them to the F# language in new ways.
- Note that there is a function **not'** that is different the **not** function in Fsharp core library.

FsUnit assertions:

- "ships" |> should not' (startsWith "ss")
- "ships" |> should endWith "ps"
- "ships" |> should not' (endWith "ss")
- [1] |> should contain 1
- [] |> should not' (contain 1)
- anArray |> should haveLength 4
- aCollection |> should haveCount 4

FsUnit assertions

- Expecting an exception:
 - `(fun () -> failwith "BOOM!" |> ignore) |> should throw typeof<System.Exception>`
 - `(fun () -> failwith "BOOM!" |> ignore) |> should (throwWithMessage "BOOM!") typeof<System.Exception>`

FsUnit assertions

- `true |> should be True`
- `false |> should not' (be True)`
- `"" |> should be EmptyString`
- `"" |> should be NullOrEmptyString`
- `null |> should be NullOrEmptyString`
- `null |> should be Null`
- `anObj |> should not' (be Null)`
- `anObj |> should be (sameAs anObj)`
- `anObj |> should not' (be sameAs otherObj)`
- `11 |> should be (greaterThan 10)`
- `9 |> should not' (be greaterThan 10)`