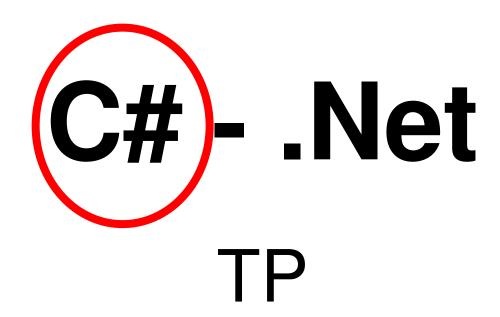
C# - .Net

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Comment puis-j'obtenir 20 pts dans ce cours???

- La note sera constitué de deux composantes:
- 1 projet (+rapport), 1 soutenance
- Projet (rapport compte moins):
 - Il marche et le rapport est acceptable? 10 pts.
 - Il est super fantastique et on gagnera 2000000 d'euros avec, et le rapport est la nouvelle bible de programmation, alors: 20 pts.
- Soutenance:
 - Je sais expliquer mon programme bien: 10 pts.
 - Je sais répondre à toutes les questions et je montre que je sais encore plus que ce qui a été demandé (et plus que le prof): 20 pts.
- Note finale:

(projet + (0.5+Epsilon)* soutenance) / 1.5



Overview

What is CSharp?

- CSharp basics
 - Types (int, float, decimal... enum) LOTS of basic classes (eg. System.Month)
 - Arrays (char [3][] …)
 - Exceptions
 - Standard outputs
 - Structs/classes (constructors (overloading), destructors, static, static constructors, properties)

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What is C#?

- simple, modern, general-purpose, object-oriented programming language.
- robustness, durability and programmer productivity:
 - strong type checking, array bounds checking, detection of attempts to use uninitialized variables, source code portability, and automatic garbage collection.
- Intended for <u>software components</u> creation (distributed environments)
- C and C++ are well-known so stay similar

What is C#?

- C# is intended to be suitable for writing applications for both hosted and <u>embedded systems</u>, ranging from the very large that use sophisticated <u>operating systems</u>, down to the very small having dedicated functions.
- The language was not intended to compete directly on performance and size with C or assembly language.
- Support for <u>internationalization</u> is very important.

Why another language?

C, C++, VB, Java, C#????

- C = really difficult, really fast
- C++ = difficult, really fast
- VB = very easy, very slow
- Java = easy, slow (more multi-platform)
- C# = easy, faster

Basic types

- Char
- Sbyte
- Byte
- Short
- Ushort
- Int32
- Uint
- Long
- Ulong

Float Double Decimal

- Enum
- String (!!!!!!!!)

My first C# program:

```
class program
{
    public static void Main()
    {
    }
}
```

How do I compile?

csc – compiler by Microsoft

csc myProgram.cs

results in an executable: myProgram.exe

BUT

myProgram.exe is NOT a standard executable.

- intermediate code!
 - compiled on the fly when program starts
- This makes C# multi platform!

Is it really so easy?

Not really...

Libraries that you use have to be present on the system! Fortunately, most will be...

Furthermore the same version number is needed!

PDAs have their own libraries

Wait a second...

- I am afraid of libraries!
- That is this weird code other people write, that always breaks and I have trouble compiling it...
- Yes, but C# has much more explanation on how to write libraries and people tend to stick to it. Like for Java.
- All this link stuff and Makefiles are still in C#?
- Thanks god: NO!!!
 Linking is just a simple compiler option:

csc myProgram.cs /r: myLib.dll

No Makefiles necessary...

And because program is compiled later: no compiler option conflicts!

And inside the program?

```
using System. Text; //there is a file System. Text.dll
class program
   public static void Main()
```

I believe this particular program executes quickly ...

But can C# compete?

Let's have a look!

That's it...

It is time for some practice!

After the break...

Currency Exchange

- Convert to currency
- Print a line
- Read a line
- Convert string to double
- Exceptions