

# C# Fundamentals

Preparation 2 – logical and  
conditional operators

# Last time

- We created a program that writes text on the screen.
- A program that reads text from screen, manipulates it, and writes it out again.

# Today

- We will look at some logic, and how it can be expressed using C#.
- We will mainly focus on the if statement.

# C# and ToK

- Familiar with:
  - if
  - and
  - or
  - not
  - xor
- New to:
  - while
  - for loop
  - do while

# Conditional operations

- You probably remember “true premises, true conclusions, and valid arguments” from ToK!
- In a programming language, this can be expressed much easier.

# Relational

==	Equal
!=	Not Equal
<	Less than
>	Bigger than
=<	Less than or equal
<=	Bigger than or equal

# Age checker

- Can you tell what this is doing?

```
int age = 19;

if (age < 18)
{
    Console.WriteLine("You are too young to drink alcohol!");
}
else
{
    Console.WriteLine("Still, alcohol is not healthy, drink juice instead!");
}

Console.ReadLine();
```

# Statements & Expressions

- A statement is an instruction
  - A method is a series of statements
  - Statements end with semicolons
  - Statements are executed in order they appear
- Expressions are statements that produce a value
  - Typically involve an operator (not required)
  - Can assign the expression value to a new variable, or test it



# Garçon!

```
int age = 19;
```

```
if (age < 3)
```

```
{
```

```
    Console.WriteLine("Serve milk");
```

```
}
```

```
else if (age < 18)
```

```
{
```

```
    Console.WriteLine("Serve juice!");
```

```
}
```

```
else
```

```
{
```

```
    Console.WriteLine("Serve wine");
```

```
}
```

 Expression  
 Statement

# If statement inside another

```
int temperature = -1;

if (temperature < 10)
{
    if (temperature < 0)
    {
        Console.WriteLine("Take a winter jacket!");
    }
    else
    {
        Console.WriteLine("It's cold, take a warm jacket!");
    }
}
else
{
    Console.WriteLine("No jacket required!");
}
```

# Logic inside C#

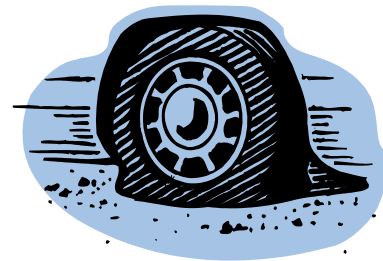
&&	And
	Or
^	Xor
!	Not

# Logic inside C#

```
//IN WORDS:  
// if the temprature is bigger than 0 AND if the temperature  
// is less than 10, then, write "It's cold, take a wam jacket!"  
  
int temperature = -1;  
  
if (0 < temperature && temperature < 10)  
{  
    Console.WriteLine("It's cold, take a warm jacket!");  
}  
else  
{  
    Console.WriteLine("No jacket required!");  
}  
  
Console.ReadLine();
```

# For loops, whiles, do while

- When we need to perform a specific action given amount of times, we usually create a loop.



## Instead of

```
Console.WriteLine(0);  
Console.WriteLine(1);  
Console.WriteLine(2);  
Console.WriteLine(3);  
//...  
Console.WriteLine(99);
```

# For Loop

- This will output numbers from 0 to 99

```
for (int i = 0; i < 100; i++)  
{  
    Console.WriteLine(i);  
}
```

# While

- Be careful with *while*. It might create an infinite loop!

```
int i = 0;
```

```
while (i < 100)  
{  
    Console.WriteLine(i);  
    i++;  
}
```



# Do While

- In pairs, try to compare the *do while* with *while*. Reflect!

```
int i = 0;

do
{
    Console.WriteLine(i);
    i++;
}while(i < 99);
```

# While vs Do While

- *While* and *Do While* are almost the same.

```
while (2 == 3)
{
    Console.WriteLine("You will not see this text!");
}

do
{
    Console.WriteLine("You will see this text!");
} while (2 == 3);

Console.ReadLine();
```

# Summary

- Conditional operations (ToK)
  - Relational operators
  - If statements
  - Logical operators
  - *For loops, while, and do while*



# Thank you for watching!

- Next lecture is at 28.09.2012.
- Any questions, please let me know:
  - [vcs@clizware.net](mailto:vcs@clizware.net)
  - [vcs@artemlos.net](mailto:vcs@artemlos.net)