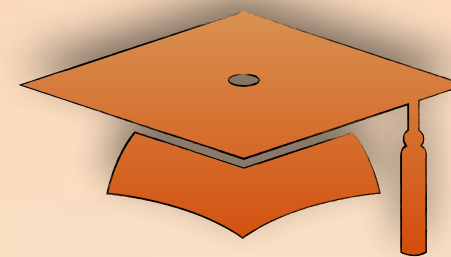


# The Fundamentals of C# Part 1

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## Programming Languages

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# Programming Languages

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## Low Level

- Difficult to learn
- Far from human language
- Fast in execution
- Hard to modify
- Hardware level
- Used to write hardware programs
- E.g., machine language and assembly

## High Level

- Easier to learn
- Near to human language
- Slower in execution
- Easier to modify
- Not much facility at hw level
- Used to write programs
- E.g., C++, C#, Python and Java

# Programming Languages

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Human languages

English: How are you?  
German: Wie geht's dir?

High-level programming language

```
Console.WriteLine("Hello, World!");
```

Low-level programming language

```
mov eax,0  
add edi,1
```

Machine language

```
01001000011011110111011100100000001100  
00101110010011001010010000000111100101  
1011110111010100111111
```

# Programming Languages

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A 01000001

a 01100001

B 01000010

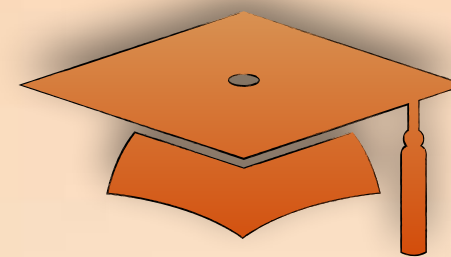
b 01100010

<https://www.convertbinary.com/alphabet/>

<https://www.binarytranslator.com/>

# The Fundamentals of C# Part 1

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## Compilers

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# The Compiler

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A compiler is computer software that transforms computer code written in one programming language (the source language) into another computer language (the target language). Compilers are a type of translator



# The Compiler

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## Compiler

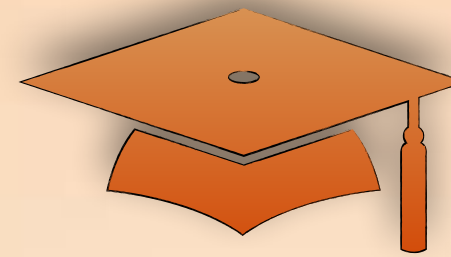
- **Compiled Languages: C++, C#, Swift, TypeScript**
- **Takes an entire program as input**
- **Executes faster**
- **Requires more memory**
- **Not cross-platform**

## Interpreter

- **Interpreted Languages: JavaScript, Python, PHP**
- **Takes a single line of code as input**
- **Executes slower**
- **Requires less memory**
- **Cross-platform**

# The Fundamentals of C# Part 1

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## Installing Visual Studio

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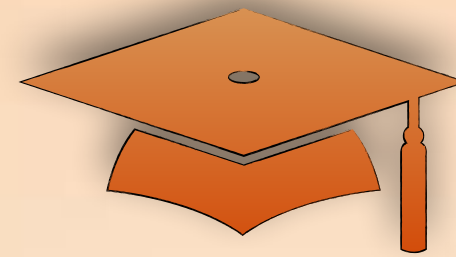
# Visual Studio

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An Integrated Development Environment (IDE) is a software application that provides comprehensive facilities to computer programmers for software development

# The Fundamentals of C# Part 1

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## Types and Variables

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# Types and Variables

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## Variables

Name given to a storage area that our programs can manipulate.

***int x = 1;***

***string name = “Jon”;***

# Types and Variables

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`int` : used to store integer numbers (3 or 2000)

`float` : used to store floating point numbers (3.5 or 9.8)

`double` : used to store floating point numbers

`decimal` : used to store money values (2000\$)

`string` : used to store text (“Ned” or “Vienna”)

`bool` : used to store true or false