



TECHNOLOGIES

Basic Computer Programming Concepts

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Why Programming?

- To Automate
 - Interaction between people and machines
 - Computers and machines are able to do things so efficiently and accurately
 - Computer programming to make use of that computing power
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What is computer Programming?

- Valid Input (X, Y)
 - Set of instructions ($Z = X + Y$)
 - Desired output (Z)
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How computer program works?

- Input: *(Provided by the user)*
keyboards, mouse, scanner, camera ...
 - Storage: *(To store this information)*
Primary & Secondary Memory
 - Processing: CPU
 - Memory unit
 - Control unit
 - Arithmetic Logic unit
 - Output: *(Human-readable form)*
Monitor, Printer ...
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Basic Concepts

- Algorithm
 - Procedure for solving a problem
 - Source code
 - Text listing of commands
 - Compiler, Interpreter
 - Convert source code into machine code
 - Data Type
 - Variable
 - Data Structures
 - Keywords
 - Logical and Arithmetic Operators
 - Conditionals
 - Loop
 - Function
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Types

- Low-level Language
- High-level Language



Low-level

- Hardware dependent
 - Difficult to understand
 - Machine Language
 - Instructions that processors use
 - Can only be represented by 0s and 1s
 - Assembly Language
 - Intermediary language
 - Use numbers, symbols, and abbreviations instead of 0s and 1s
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High-level

- Procedural: Matlab, GO ...
- Functional: Lisp, Haskell ...
- Object-Oriented: Java, Scala ...
- Scripting: PHP, VBScript ...
- Markup: HTML, XML ...
- Query: SQL, PQL ...
- ...



Skills Required For Programming

- Thinking
- Attention to Detail
- Problem-solving
- Logic
- Language
- Related Knowledge
- ...



Thank You ... Questions?
