# INTRODUCTION TO **COMPUTER PROGRAMMING**

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### Content

- · Basic concepts in computer programming
- · Developing algorithms (algoritma)
- Creating flowcharts (is akis cizelgesi)
- Computer Programming Language : C
  - Data types
  - (temel komutlar) Basic instructions
  - · Control flow instructions (koşul ve döngü komutları)

(kütük işlemleri)

(göstergeler)

(veri türleri), Variables (değişkenler)

- Functions (işlevler) (diziler)
- Arrays
- File Operations
- Pointers

### Books

- Problem Solving and Program Design in C 'Jeri R. Hanly, Elliot B. Koffman'
- The C Programming Language 'Brian W. Kernighan, Dennis M. Ritchie'

### **Computer Structure**



### **Computer Systems**

- A computer program is...
  - A set of instructions for a computer to follow

#### Computer software is ...

- The collection of programs used by a computer
  - Includes:
    - Editors
    - TranslatorsSystem Managers

#### • An algorithm is

- · A sequence of precise instructions which leads to a solution
- Program is an algorithm expressed in a language that the computer can understand

### Pseudocode

#### Pseudocode

- Artificial, informal language that helps us develop algorithms
- Similar to everyday English
- Not actually executed on computers
- Helps us "think out" a program before writing it
  - Easy to convert into a corresponding C++ program
  - · Consists only of executable statements

### Software Development



# **Program Design**

- Programming is a creative process
  - No complete set of rules for creating a program
- Program Design Process
  - Problem Solving Phase
    - Result is an algorithm that solves the problem
  - Implementation Phase
    - Result is the algorithm translated into a programming language

## Problem Solving State

- · Be certain the task is completely specified
  - What is the input?
  - What information is in the output?
  - How is the output organized?
- · Develop the algorithm before implementation
  - Experience shows this saves time in getting your program to run.
  - Test the algorithm for correctness

## **Implementation State**

- Translate the algorithm into a programming language
  - Easier as you gain experience with the language
- Compile the source code
  Locates errors in using the programming language
- Run the program on sample data
  Verify correctness of results
- Results may require modification of the algorithm and program

# Flowchart – İş Akış Çizgesi

- A flowchart is a type of diagram, that represents an algorithm or process.
  - The steps of algorithms and data → boxes of various kinds
  - The order of steps → connecting these with arrows.



### Basic Symbols Used in Flowcharts 1/2

Start / Stop	
Input	
Sequence	
Output	



### Basic Symbols Used in Flowcharts 1/2