SPM 2102
PROGRAMMING LANGUAGE 1

Introduction to Programming

By:

NORAH MD NOOR

Computer Programming

- Why do you need to know about programming?
- Programming is used to create the application / software you use everyday
  (eg ; to calculate your BMI)
- Application software is the result of the efforts of computer programmers.
- Knowing at least the basics of the history & practices of the programming will help you to **better understand what goes on inside computer**.

Computer Programming

Important keywords:

- Computer programming / programming
  - is a multi step process for designing or creating instructions or solution.
- Programming language
  - is a set of words (or symbols) & rules used to create instructions for computer to perform.
- Program / Application
  - is a list of instructions that the computer must follow in order to perform specific assigned task.

Computer Programming

Important keywords:

- Syntax - set of rules to create program
- Code - computer instructions

Computer Programming

Example :

- Programming language

  Eg : C, *C++, HTML, PHP, Java, Basic, Fotran*
- Program / Application

  Eg : *MS Word, S.M.M, S.M.A, Attendance Record*.
- Syntax –

```
cout<<"\n\t Skor purata = ";
        cout<<purata;
        cout<<"\n\t Enter for release";
cout<<endl;
```

- Code - <html><head><body></body></head></html>

Computer Languages

Computer Languages

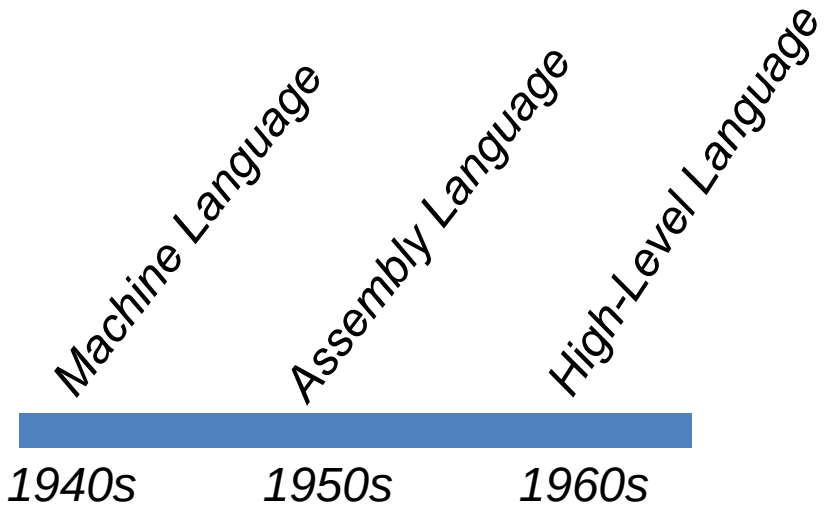
- To write a program for a computer, you must use a computer language.

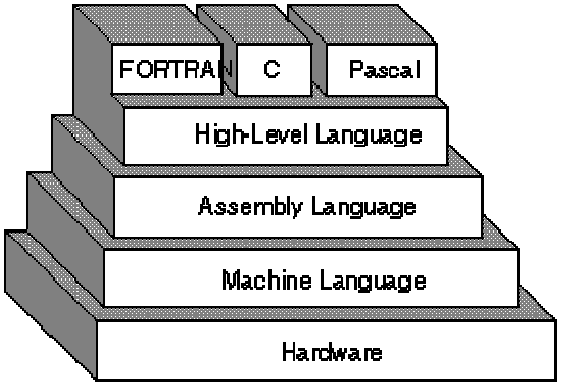
Basically, What is a computer language?

- A computer language is an artificial language that tell the computer what to do.
- It has the same meaning with programming language .

Computer Languages

- Over the year, computer languages have evolved.





Machine Language

- 1st generation of programming language.
- The only language understood by a computer without translation.
- It is a language consists of 0s and 1s – that directly correspond to the computer's electrical states.
- Also known as binary or machine code.

Machine Language

- **Advantage:**
  - Very fast in processing data. **WHY?**
- **Disadvantages:**
  - Machine (or hardware) dependent
  - Time-consuming
  - Difficult to create program (less user friendly) (100110101011001)

Assembly Language

- 2nd generation of programming language.
- Also known as symbolic language.
- Assembly language is a language that allows programmers to use symbol or mnemonics (abbreviations), to represent the various machine language.
- It uses assembler to translate assembly code into machine code.

Assembly Language

- **Advantage:**
  - fast in processing data
  - Program can be write more quickly than in machine language
- **Disadvantages:**
  - Machine (or hardware) dependent
  - Time-consuming

High-Level Language

- 3rd generation of programming language.
- Also known as procedural language.
- High-level languages use an English-like language instead of symbols and abbreviations.
- High-level languages are designed to relieve the programmer from the details of the assembly language.

High-Level Language

- Example of high-level languages are C, Fortran and COBOL.
- Advantage:
  - Easy to program
  - Machine independent
- Disadvantages:
  - Requires translator (compiler or interpreter)

Example: FORTRAN Program

```
c
c       Hello, world.
c
        Program Hello
        implicit none
        logical DONE
        DO while (.NOT. DONE)
           write(*,10)
        END DO
 10     format('Hello, world.')
        END
```

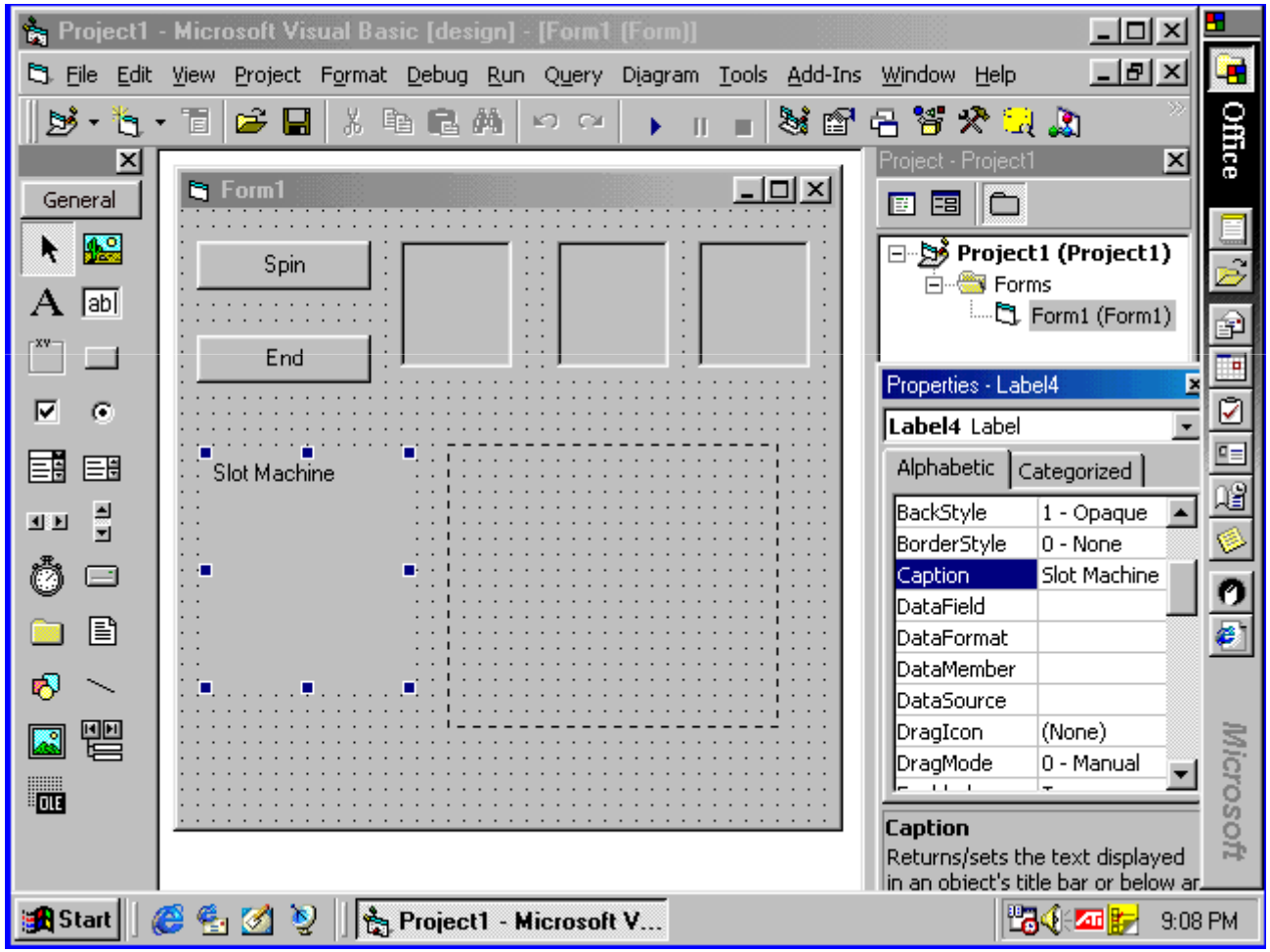
Very High-Level Language

- 4th generation of programming language.
- Also known as object-oriented or non-procedural language.
- It is much more user-oriented and allow programmers to develop programs with fewer commands.

Very High-Level Language

- Some of very high-level languages are also called RAD (*rapid application development*) tools.
- The use of visual in programming was also introduced in very high-level language.
- Example of very high-level languages are C++, Java and Visual Basic.

Example: Visual Basic Program



Example: C Program

d:\mydocu~1\spm210~1\cikguj~1\biodat~1.cpp

```
    printf ("\n\n\t ALAMAT : ");
    scanf (alamat,MAX);

    printf ("\n\n\t TARIKH LAHIR : ");
    scanf (tarikh,MAX);

    printf ("\n\n\t NO.HP : ");
    scanf (handp,MAX);

    printf ("\n\n\t EMAIL : ");
    scanf (email,MAX);


    printf ("\n\n\n\n\t\t SARJANA MUDA SAINS DAN KOMPUTER SERTA P
    ("(MATEMATIK)" );
    printf ("\n\t\n\t\t PELAJAR 2SPT");

    printf ("\n\n\n\t\t\tSEKIAN TERIMA KASIH");
    getch();

}
```

Natural Language

- 5th generation of programming language.
- Natural languages use human language to give people a more natural connection with computers.
- Natural languages allow questions or commands to be framed in a more conversational way.

Natural Language

For example:

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- Natural languages are part of the field of study known as *artificial intelligence (AI)*.
- AI are technologies that attempt to develop machine to emulate human-like qualities.

END