



# E-Business management and strategy

## Lecture 5 *University of Anbar*

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Stage 2.

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# Machine Languages

**Machine Languages:** a low-level programming language consisting of **binary code or hexadecimal** representations of instructions that can be directly executed by a computer's **Central Processing Unit (CPU)**. It is the lowest level of abstraction in programming and is specific to a particular computer architecture, making it highly machine-dependent.

- ❑ Machine languages are specific to the hardware architecture of a computer and provide the fundamental means for the computer to carry out operations, making them the closest representation of the **computer's native language**.

# Assembler Languages

**Assembler Languages:** also known as assembly language, is a low-level programming language that provides a **human-readable** representation of a computer's machine language. It uses **mnemonic codes and symbols** to represent the individual instructions and data structures of a particular computer architecture.

- Assembler languages allow programmers to write code that is more **understandable** and easier to work with than raw machine code, making it a bridge between **high-level programming languages and machine code** for a specific computer system. It still requires **translation** into machine code before execution.

# High-level languages

**High-level languages:** Third-generation languages use **statements, or arithmetic** expressions as codes for instruction. This language is termed 'high-level' because it uses high-level language translator programs that allow each statement to generate numerous instructions when converted into **machine language**.

- ❑ High-level languages are simpler to learn than **assembler languages** since they are less formal and rules-based, however, it requires longer **computer time** to translate into machine language.

# Fourth generation Languages (4GL)

**Fourth generation Languages (4GL):** Many languages are available that are less procedural and formal than previously outlined. 4GL **require programmers** to specify the results they are looking for. The computer then works out the sequence of instructions that achieve the stated results.

- ❖ 4GL makes the programming process **simpler and uses** more conventional language as spoken by humans in everyday conversation. Advances in **Artificial Intelligence (AI)** technology mean that program languages are available in many naturally spoken languages.

# Object-Oriented Program (OOP) Languages

**Object-orientated programming (OOP) languages:** include languages, such as **Java**, which are tools for software development. OOP languages bind together the **data elements and the procedures** to be performed upon them to create objects.

- For example, an object could be personal financial data and the actions to be performed may convert the data **into a graph**. This capability has a number of attributes including **ease of use, increased efficiency, and increased quality of presentation**.

# java

- **Java:** one of the most important and widely used program languages that enables the **building of websites, web pages, and web-based applications** is Java. Java is an extensive, object-orientated programming language that is widely used to facilitate **e-business applications**, whether via the World Wide Web or intranets and extranets.
- Apart from its attributes of **simplicity and security**, **Java offers real-time, interactive, web-based network applications** that are the keys to enabling e-business and e-commerce activity.

# Xml (Extensible Markup Language)

The program language XML: is a subset of the Standard Generalized Markup Language (SGML) and applies identifying tags to the data in web documents to describe the content of web pages. There are very many applications of XML.

# KEY CHARACTERISTICS of xml

The designers of XML had to incorporate a number of **KEY CHARACTERISTICS** including:

- 1- Ease of use over the internet;
- 2- The capability of supporting a wide range of applications;
- 3- Compatibility with Standard Generalized Markup Language (SGML);
- 4- Legibility to the human eye;
- 5- Minimal optional features; and
- 6- Ease of program writing for processing XML documents.

# Jini

- **Jini:** is a network technology and programming framework. It was developed by Sun Microsystems (now Oracle) and is designed for building and deploying **distributed systems and services in a network**.
- ❖ Jini enables **devices and services** to join a network, discover each other, and collaborate in a dynamic and adaptable way. It simplifies the development of distributed and networked applications by providing mechanisms for service discovery, communication, and coordination, allowing for more flexible and scalable networked systems.