

Chapter 1 WS

List input devices.

Input devices:

Keyboard

Mouse

Touchscreen

Scanner

Microphone

Webcam

Joystick

Gamepad

Digital Pen

MIDI Keyboard

List output devices.

Output devices:

Monitor/Display

Printer

Speakers

Headphones

Projector

Plotter

Actuators (e.g., motors, LEDs)

Braille display

Haptic devices (e.g., vibration motors)

Define hertz (Hz).

Hertz (Hz) is a unit of frequency that measures the number of cycles per second in a periodic signal or waveform. In computing, it is commonly used to measure the clock speed of processors, indicating the number of instructions a processor can execute per second.

Which speed are processors measured at now?

Processors are currently measured in gigahertz (GHz), which represents billions of cycles per second. It is a measure of the processor's clock speed and indicates how quickly it can execute instructions.

What is a bit?

A bit (short for binary digit) is the smallest unit of data in computing. It can have a value of either 0 or 1 and is the fundamental building block of digital information.

What is a byte?

A byte is a unit of data storage that typically consists of 8 bits. It is used to represent a single character or a small amount of numerical data.

Define and explain RAM.

RAM stands for Random Access Memory. It is a type of computer memory that is used to store data and instructions that are currently being used by the computer's operating system, software programs, and processes. RAM allows for fast and temporary storage of data that can be quickly accessed by the processor.

List a high-level language.

A high-level language is a programming language that is designed to be easily understood by humans and provides abstractions and features that simplify programming tasks. Examples of high-level languages include Java, Python, C++, and JavaScript.

List 3 operating systems.

Three operating systems:

Windows

macOS

Linux

Define the following acronyms:

API

JDK

JRE

IDE

Acronyms:

API: Application Programming Interface. It is a set of rules and protocols that allows different software applications to communicate and interact with each other.

JDK: Java Development Kit. It is a software development kit provided by Oracle Corporation that includes tools and libraries necessary for developing Java applications.

JRE: Java Runtime Environment. It is a software package that provides the necessary runtime components for executing Java applications.

IDE: Integrated Development Environment. It is a software application that provides comprehensive tools and features to facilitate software development, including code editing, debugging, and project management.

What kind of file is generated when a .java file is compiled?

When a .java file is compiled, it generates a bytecode file with a .class extension. This file contains the compiled Java bytecode, which can be executed by the Java Virtual Machine (JVM).

What does JVM stand for?

JVM stands for Java Virtual Machine.

What does JVM do?

It is a virtual machine that executes Java bytecode. It provides an environment where Java programs can run independently of the underlying hardware and operating system.

Is the JVM an interpreter or a compiler?

The JVM is an interpreter. It interprets the bytecode instructions line by line and executes them at runtime.

Does Java use a compiler, or an interpreter?

Java uses both a compiler and an interpreter. The Java compiler (part of the JDK) compiles Java source code into bytecode. The JVM then interprets and executes the bytecode.

What are the ways comments can be displayed in Java?

In Java, comments can be displayed in two ways:

Single-line comments: These start with two forward slashes (//) and can be placed at the end of a line or on a line by themselves. They are ignored by the compiler and are used for adding explanatory notes or documentation within the code.

Multi-line comments: These start with /* and end with */. They can span multiple lines and are also ignored by the compiler. They are commonly used for longer explanations or temporarily excluding blocks of code from execution.

Which two styles can blocks be defined by?

Blocks in Java can be defined by two styles:

Curly braces style: Blocks are defined by enclosing statements within curly braces ({}) to indicate a block of code.

Indentation style: Some programming styles in Java use indentation to define blocks. In this style, the statements within a block are indented to visually represent the block structure.

What are three programming errors?

Three common programming errors are:

Syntax errors: These occur when the code violates the rules of the programming language, resulting in the code being grammatically incorrect. Syntax errors are caught by the compiler and prevent the code from being compiled.

Runtime errors: Also known as exceptions, these occur during the execution of a program. They indicate that something unexpected or erroneous happened while the program was running, such as division by zero or accessing an invalid memory location.

Logic errors: These occur when the code does not produce the desired output or behaves incorrectly due to flawed logic or algorithmic mistakes. Logic errors do not cause the program to crash or generate error messages but lead to incorrect results. They can be challenging to

detect and fix as they are not caught by the compiler or runtime environment.

List the most common errors.

The most common errors encountered in programming are typically syntax errors and runtime errors. Logic errors are specific to the design and implementation of the program and can vary widely depending on the context and requirements of the program.