

# PROGRAMMING සිංචිලෙන

## Java Beginner Course

Lecture 01 - Introduction

**Kusal Sirimanna**  
B.Sc (Hons) in Computer Science  
University of Peradeniya

# Full Content

- Introduction
- Installation
- First Java Program
- Variables & Operators
- Control Structures
- Arrays
- String & Enums
- Class & Objects
- Methods
- Access Modifiers & Packages
- OOP Concepts
- Exception handling
- File handling

# What is software engineering?

**Software engineering** is the branch of computer science that deals with the design, development, testing, and maintenance of software applications.

# Who is software engineer?

**Software engineers** work on creating software solutions that solve problems, meet user requirements, and adhere to quality standards. They may specialize in areas such as

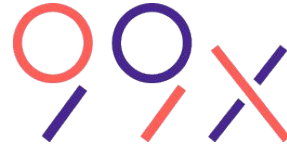
- Full stack developers
  - Frontend developers
  - Backend developers
- Android app developers
- IOS app developers
- DevOps engineers
- AI/ML engineers
- Game developers
- Data engineers
- Cybersecurity

# Salary scale of software engineer

The salary scale of software engineers in Sri Lanka ranges from approximately LKR 50,000 to LKR 600,000 per month, depending on experience and seniority levels.

# Software companies in Sri Lanka

- Virtusa Corporation
- WSO2
- Sysco LABS
- CodeGen International
- IFS
- Mitra Innovation
- 99X Technology
- hSenid Software International
- Microimage
- Cambio Software Engineering



# What is a programming language?

**Programming languages** are like translators that let humans communicate instructions to computers. These languages use a specific set of rules (syntax) to write clear instructions (code) that the computer can execute and understand.

- Python
- Java
- C++
- HTML
- CSS
- JavaScript
- PHP
- Swift
- R
- Ruby

# What is a framework?

A framework is a pre-built structure that provides a foundation and common tools to help developers create software applications more efficiently.

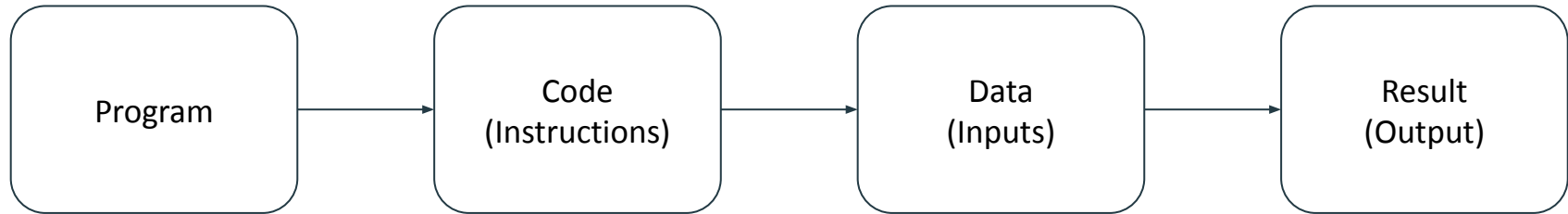
- **Web development frameworks** : Django (Python), Ruby on Rails (Ruby), Spring (Java), Angular (Javascript), ExpressJS (Javascript)
- **Machine learning frameworks** : TensorFlow, PyTorch
- **Mobile app development frameworks** : React Native, Flutter

**React is not a framework. It's a javascript library.**



# What is a program?

A program is a set of instructions that a computer can follow to perform a task.



# What is Java?

Java is a **powerful and versatile programming language** widely used for creating various software applications. Use for,

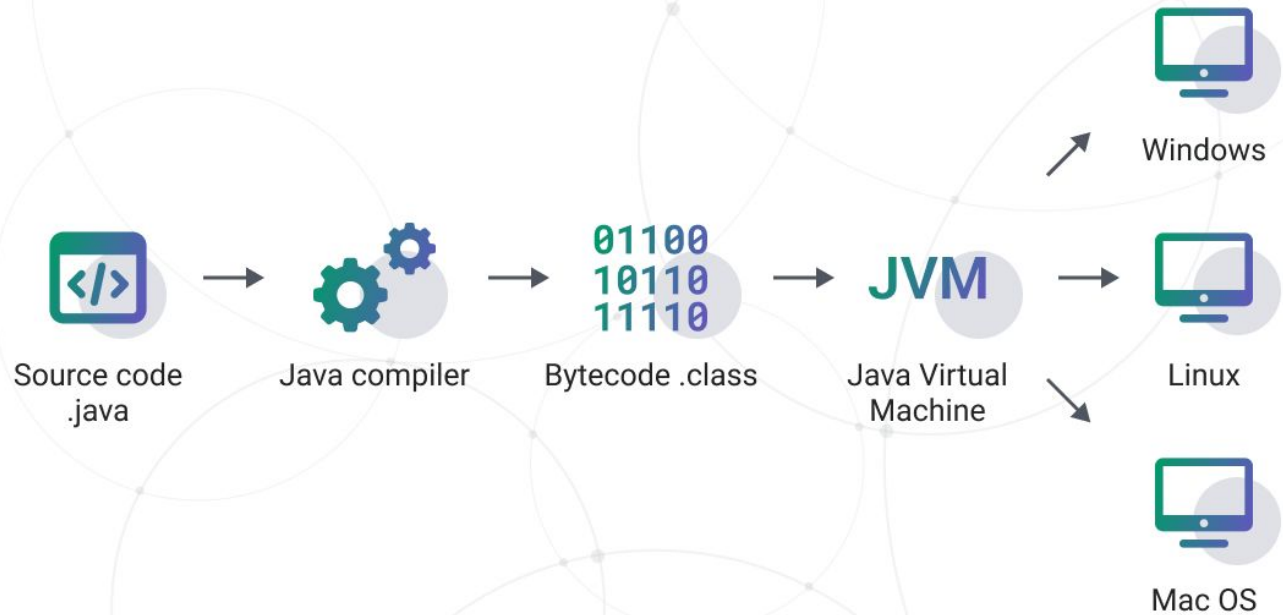
- **Enterprise Softwares**
- **Desktop Applications**
- **Web Applications**
- **Android App Development**
- **Big Data and Machine Learning**

# Characteristics of Java?

1. **General-purpose:** Java tackles a wide range of applications, from mobile to complex enterprise software.
2. **Object-oriented:** Organizes code using real-world objects for better structure and reusability.
3. **Write Once, Run Anywhere (WORA):** Runs on any platform with a Java Runtime Environment (JRE).
4. **Secure and Stable:** Popular choice for reliable and secure applications.
5. **Large Ecosystem:** Supported by a vast community and rich libraries for various functionalities.

# How Java code works?

## Execution of Java Bytecode



# Java Development Kit (JDK) vs Java Runtime Environment (JRE)

JDK(Java Development Kit) is used to develop Java applications. JDK also contains numerous development tools like compilers, debuggers, etc.

JRE(Java Runtime Environment) is the implementation of JVM(Java Virtual Machine) and it is specially designed to execute Java programs

