Basic Java Requirements for Learning Spring Boot

Before starting with Spring Boot, it is essential to have a solid understanding of Core Java concepts. Spring Boot heavily relies on Java fundamentals, OOP principles, and Java 8 features. Below is a checklist of the Java topics you should master before moving into Spring Boot.

1. Core Java Concepts

- ■ Variables, Data Types, Operators
- ■ Control Flow (if-else, switch, loops)
- ■ Arrays & Strings (String manipulation, StringBuilder)
- ■ Methods (arguments, return types, overloading)

2. Object-Oriented Programming (OOP)

- ■ Classes & Objects
- ■ Constructors
- ■ this, super keywords
- ■ Encapsulation (getters & setters)
- ■ Inheritance
- ■ Polymorphism (overloading, overriding)
- ■ Abstraction & Interfaces

3. Java Collections Framework

- ■ List, Set, Map
- ■ Iterators, foreach loop
- ■ Generics (e.g., List)
- ■ Common implementations (ArrayList, HashMap, HashSet)

4. Exception Handling

- ■ try, catch, finally
- ■ throw vs throws
- ■ Custom exceptions

5. Java I/O (Input/Output)

- ■ File reading/writing
- ■ Streams (FileInputStream, BufferedReader)
- ■ Serialization basics

6. Java 8 Features

- ■ Lambda Expressions
- ■ Streams API (filter, map, collect)
- ■ Functional Interfaces (Predicate, Consumer)
- ■ Optional class (handling null safely)

7. Multithreading & Concurrency (Basic)

- ■ Threads & Runnable
- ■ Executors (basic knowledge)

8. Build Tools (Maven/Gradle)

- ■ Maven basics (dependencies, pom.xml)
- ■ Gradle (optional, but useful)

Summary:
✔ Master Core Java first (OOP + Collections + Exceptions)
✔ Practice small projects (Student Management, Library System)
✔ Learn Java 8 features (Streams, Lambdas)
✔ Get comfortable with Maven before starting Spring Boot