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# Java Syllabus Hinglish

## 1. Introduction to Java

- **Java kya hai?:** Java ek object-oriented programming language hai jo platform-independent hai. Iska use software applications banane ke liye hota hai.
- **JDK (Java Development Kit):** Install karna, setup karna aur basic structure samajhna.
- **IDE ka use:** Eclipse, IntelliJ, ya NetBeans me kaise code likhein.

## 2. Basic Concepts

- **Variables and Data Types:**
  - Integer (`int`), Float (`float`), Double (`double`), Character (`char`), Boolean (`boolean`), String (`String`).
  - **Constant values:** `final` keyword ka use.
- **Operators:**
  - Arithmetic Operators: `+`, `-`, `*`, `/`, `%`.
  - Relational Operators: `==`, `!=`, `>`, `<`, `>=`, `<=`.
  - Logical Operators: `&&`, `||`, `!`.
- **Control Statements:**
  - `if`, `else if`, `else`.
  - **Switch-case.**

## 3. Loops and Iterations

- For loop
- While loop

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- **Do-while loop**
- Loop ke through arrays aur lists ko process karna.

## 4. Arrays and Strings

- **One-dimensional Arrays:** Declaration, Initialization, Accessing values.
- **Multi-dimensional Arrays:** 2D arrays ka use.
- **String Class:** String ke methods jaise `length()`, `charAt()`, `substring()`, etc.

## 5. Object-Oriented Programming (OOP) Concepts

- **Classes and Objects:**
  - Class ka definition, object creation.
  - Constructor ka use.
- **Methods:**
  - Method overloading.
  - Returning values from methods.
- **Encapsulation:**
  - Private variables, getter/setter methods ka use.
- **Inheritance:**
  - Extending classes, method overriding.
- **Polymorphism:**
  - Method overriding vs. Method overloading.
- **Abstraction:**
  - Abstract classes aur interfaces ka use.
- **Access Modifiers:**
  - Public, private, protected, default.

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## 6. Exception Handling

- **Try, Catch, Finally blocks.**
- **Multiple exceptions handle karna.**
- **Custom exceptions:** Apne exceptions kaise create karein.

## 7. Java Collections Framework

- **List Interface:** ArrayList, LinkedList ka use.
- **Set Interface:** HashSet, TreeSet ke baare mein.
- **Map Interface:** HashMap, TreeMap ka use.
- **Iterator:** Collections ko traverse karne ka tareeka.

## 8. File Handling

- **Reading Files:** FileReader, BufferedReader, Scanner.
- **Writing Files:** FileWriter, BufferedWriter.

## 9. Threads and Multithreading

- **Thread class:** Thread ka basic creation.
- **Runnable Interface:** Multithreading ka basic concept.
- **Synchronization:** Thread synchronization kaise hota hai.

## 10. Java GUI (Swing/AWT)

- **Swing Basics:** Button, Label, TextField ka use.
- **AWT Components:** GUI elements like frames, panels, and buttons.

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## 11. JDBC (Java Database Connectivity)

- **Database Connection:** JDBC se database se connect karna.
- **CRUD Operations:** Create, Read, Update, Delete operations.

## 12. Java 8 Features (Optional)

- **Lambda Expressions:** Anonymous methods ka use.
- **Streams API:** Data ko process karne ka naya tareeka.
- **Default Methods:** Interface mein methods ko default values dena.

## 13. Miscellaneous Topics

- **Java 9+ Features:** Modules, JShell.
- **Garbage Collection:** JVM mein memory management.
- **Design Patterns:** Singleton, Factory, Observer.

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### Practice Tips:

- **Code regularly:** Practice karna bohot zaroori hai. Apna code likhna aur samajhna hamesha helpful hota hai.
- **Projects banayein:** Apne projects ke through Java ki depth samajhne ki koshish karein.