

Core java

OOPS

March 2 →

→ **Classes and Objects**

- Creating classes and objects
- Constructors (default, parameterized, copy)
- this and super keywords

→ encapsulation and access modifiers

Private, Public, Protected, Default

Getters and Setters

→ Inheritance

Single & Multilevel Inheritance

Method Overriding and super keyword

Final keyword (method, variable, class)

→ **Polymorphism**

Method Overloading vs. Method Overriding

Static vs. Dynamic Binding

Theory from geeks for geeks

March 3 →

4. **Abstraction & Interfaces**

- Abstract Classes vs. Interfaces
- Multiple Inheritance using Interfaces

5. **Static and Non-Static Members**

- Static Variables & Methods
- Static Blocks
- Final Static Constants

➔ Strings in java

4-8 practice questions on above topics

9→ Java script

1. Basics of JavaScript

✓ Learn **Syntax & Fundamentals**

- Variables (let, const, var)
- Data types (String, Number, Boolean, etc.)
- Operators (+, -, *, /, %, ==, ===)
- Conditionals (if-else, switch)
- Loops (for, while, do-while)

Problems on java script

10→ java arrays

11→collections and frame works

- List (ArrayList, LinkedList, Vector)
- Set (HashSet, LinkedHashSet, TreeSet)
- Map (HashMap, LinkedHashMap, TreeMap, Hashtable)
- Queue (PriorityQueue, Deque)
- Iterator and Streams API

12→ java generics and collection continues

13-15 practice

16-22 mid's

23→ java script

Learn **Functions**

- Function Declaration & Expression
- Arrow Functions
- Callback Functions

✓ Learn **Objects & Arrays**

- Object properties & methods
- Array methods (map(), filter(), reduce(), forEach())

✓ Learn **ES6+ Features**

- Destructuring

- Template Literals
- Spread & Rest Operators
- Modules (import/export)
- Promises & Async/Await

Practice questions

24→

- try, catch, finally
- Checked vs. Unchecked Exceptions
- throw, throws keywords
- Custom Exceptions

25→ **Multi-threading & Concurrency**

- Thread Class vs Runnable Interface
- Thread Lifecycle
- Synchronization and Locks
- Executor Framework

26-29 practice

30→ javascript

DOM Manipulation

- ✓ Select elements (document.querySelector, getElementById)
- ✓ Modify elements (innerText, innerHTML, style)
- ✓ Add event listeners (click, mouseover, keydown)
- ✓ Form handling & validation

31→file handling &i/o strams

FileReader, FileWriter

BufferedReader, BufferedWriter

Object Serialization

1-> Additional Concepts

 *Goal: Understand Java's modern capabilities*

Lambda Expressions & Functional Programming

- Functional Interfaces
- Streams and Parallel Streams
- Method References

JVM Internals

- Memory Management (Heap, Stack)
- Garbage Collection (GC Algorithms)
- Class Loading Mechanism

Reflection API & Annotations

- Using Reflection for Runtime Analysis
- Built-in & Custom Annotations

2-3 practice

4→ java script

Asynchronous JavaScript

- ✓ Callbacks & Promises
- ✓ Async/Await
- ✓ Fetch API (fetch(), axios)
- ✓ Handling API responses & errors

5-7 practice

8-9 revision whole core java

10th try to develop projects like

- **Coding Challenges**
 - Solve problems on LeetCode, CodeChef, HackerRank
- **Small Projects**
 - Console-based To-Do List
 - Banking System Simulation
 - Student Management System

- **Larger Projects**
 - Library Management System
 - Employee Payroll System
 - E-commerce Product Catalog

11→ javascript

JavaScript in Web Development

Frontend (If you want to be a frontend developer)

- ✓ Learn **HTML & CSS** (if not already)
- ✓ Master **CSS Frameworks** (Bootstrap, Tailwind CSS)
- ✓ Learn a **JavaScript Framework** (React.js, Vue.js, or Angular)
- ✓ Learn **State Management** (Redux, Vuex, or Context API)

Backend (If you want to be a backend developer)

- ✓ Learn **Node.js**
- ✓ Learn **Express.js** (Framework for backend development)
- ✓ Learn **Databases** (MongoDB, PostgreSQL, Firebase)
- ✓ Learn **Authentication** (JWT, OAuth)

Full-Stack Development (Both Frontend + Backend)

- ✓ Master both **React.js (Frontend)** and **Node.js/Express (Backend)**
- ✓ Learn **API Development** (REST API, GraphQL)
- ✓ Learn **Deployment** (Vercel, Netlify, Heroku)

April 11 varaku core java inka java script fundamentals appovali

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