NAV BHARAT
COMPUTER EDUCATION
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Core Java

- INTRODUCTION TO JAVA Why Java was Developed
  - Application Areas of Java
  - History of Java
  - Platform Independency in Java
  - USP of Java: Java Features
  - Sun-Oracle Deal
  - Different Java Platforms
  - Difference between JDK,JRE,JVM
  - Java Versions
  - JVM Architecture
  - Installing Java on Windows
  - Understanding Path Variable: Why Set Path
- CREATING FIRST JAVA PROGRAM
  - Understanding Text Editors to Write Programs
  - How to compile java file
  - Byte Code and class file
  - How to run class file
- JAVA LANGUAGE FUNDAMENTALS
  - Identifiers
  - Keywords
  - Variables
  - Literals
  - Data Types
  - Operators
  - Comments
  - Looping Statements
  - Condition Statements
  - TypeCasting

- OOP IMPLEMENTATION (PIE)
  - Why OOP
  - OOP Concepts with Real life examples
  - Class & it's Syntax
  - Object & it's Syntax
  - Reference Variable
  - Constructors
  - Instance (Non-Static) & Static Variables
  - Instance(Non-Static) & Static Methods
  - This Keyword and it's usages
  - Object & Static Initializers (Anonymous Blocks)
  - Understanding '+' Operator
  - Inheritance& it's Syntax
  - Types of Inheritance
  - Object Class as Root of Java Class Hierarchy
  - Variable Hiding
  - Method Hiding
  - Method Overriding
  - Method Overloading
  - Super keyword and it's usages
  - Final keyword and it's usages
  - Constructor Chaining
  - Upcasting and Downcasting
  - Static &Dynamic Binding
  - Run Time Polymorphism
  - Abstract Keyword(Abstract classes and methods)
  - Understanding Interfaces
  - Implementation of Encap -sulation
  - Association with Imple -mentation
- PACKAGES
  - Understanding Packages
  - Setting Class path
  - Reading Input from Keyboard
  - Access Modifiers
  - With in Package & Outside Package Implements
- NESTED TYPES
  - Static Nested Class
  - Non-static Nested Class
  - Local Class

- Anonymous Class
- Nested Interface

- ARRAYS
  - General Definition of Array
  - Advantages from Array
  - Arrays in Java
  - 1-d Arrays
  - 2-d Arrays
  - Jagged Arrays
  - Array of reference type
  - Operations on Arrays
  - User Define Array & Object Type
- COMMAND LINE ARGUMENTS AND WRAPPER CLASSES
  - How to read command line arguments
  - Wrapper Classes
  - Parsing of Numeric Strings
  - String representation of Primitives
- EXCEPTION HANDLING
  - Types of Runtime Errors
  - Understanding Exceptions
  - Exception Class Hierarchy
  - Try & Catch Blocks
  - Patterns of Catch Block
  - Nested Try statements
  - Throw, throws and finally
  - Creating Custom Exceptions
  - Checked & Unchecked Exceptions
  - Assertion
- WORKING WITH STRINGS
  - What is String?
  - String Class
  - Creating String Object
  - Operations on String
  - String Buffer Class and it's Methods
  - Difference between String and StringBuffer class
  - String Builder Class and it's Methods
  - Difference between String Buffer and String Builder
- SWING
  - Introduction to AWT

- Introduction to Swing Components
- Look And Feel of Swing Components
- MVC Architecture of Swing Components
- Working with Image
- Advance Swing Components
- OptionPane, Jtree, Jtable, JTabbedPane
- Jfile Chooser, Jcolor Choose

- **Menu Components**
  - JMenu, JMenuItem
  - JMenubar
- **MULTITHREADED PROGRAM -MING**
  - Multitasking: Why Concurrent Execution?
  - Multiprocessing v/s Multithreading
  - Main Thread (Default Java Thread)
  - Creating Child Threads and understanding context switching
  - Thread States
  - Thread Group
  - Thread Synchronization: Methods and Blocks
  - Inter-Thread communication
  - Daemon Threads
  - Deadlock
- **I/O STREAMS**
  - What is I/O?
  - Why Need Streams?
  - Byte Streams and Character Streams
  - Read/Write operations with file
  - Scanner Class
  - Object Serialization & Deserialization
  - Transient keyword
  - File Class and it's Methods
- **SOCKET PROGRAMMING**
  - Understanding Fundamentals of a Network
  - Socket and Server Socket Classes
  - Inet Address Class
  - Datagram Socket and Datagram Packet Classes
  - URL, URL Connection, Http URL Connection Classes
- **REFLECTION**
  - Understanding the Need Of Reflection

- Getting information about class's modifiers, fields, methods, constructors and super classes
- Finding out constant and method declaration belong to an interface
- Creating an instance of the class whose name is not known until runtime
- Getting and setting values of an object's field if field name is unknown until runtime
- Invoking a method on an object if the method is unknown until runtime
- Invoking Private Methods

- **EXTENDED & UTILITY CONCEPTS**
  - Generics
  - Lambda Expression
  - Annotations
  - Object Cloning
  - Vargs
  - Static-import
  - Enum
  - Static, Default and Private Methods of Interface
  - Var Type
  - Java Modules
  - Stream API
- **INTRODUCTION TO SQL (PROJECT BASED)**
- **DATABASE PROGRAMMING USING JDBC**
  - Need Of JDBC
  - JDBC Drivers Comparable Interfaces
  - Statement, PreparedStatement, CallableStatement
  - Scrollable and Up datable Result Set
  - Batch Updates
  - Transaction
  - Metadata
  - Connection Data Base
  - Oracle
  - My SQL