



Introduction to java

- History of java
 - Features of java
 - Modules in java
 - Java API
 - Concepts of JDK,JSL,JRE
 - How java Works
 - Installation of JDK
- Set up path and class path
- Structure of java program
- Design, Compile and execute first java program through command prompt
- Analysing the output in command prompt

Introduction to IDE:

- What is IDE
- Purpose of IDE
- Different IDE's in the market
 - Benefits of using IDE
- Installing IDE
 - Creating java project in IDE
 - Creating package, class in IDE
 - Designing and executing a java program in IDE
 - Analyse the results in console

Data types

- What is a data type
 - Types
 - Differences among different datatypes

- Variables and constants in java
 - What is a variable
 - Instance or non static variables
 - static variables
 - final variables





- local variables
- What is a constant
- How to convert a variable into constant

Comments in java

- What is a comment
- Single line comments
- Multiline comments

Operators

- Arithmetic Operator
- Relational Operator
- Incrementation Operator
- Decrementation Operator
- Logical Operator
- Assignment Operator
- Conditional or ternary Operator
- Bitwise Operator

Decision making and branching

- if
- if-else
- if-else ladder
- Nested if
- switch keyword

Looping

- for loop
- while loop
- do-while loop
- Nested loops
- break keyword
- continue keyword
- goto keyword

Methods in java





- What is a method
- Types
 - Parameterless methods
 - Parameterized methods
- Parameter passing techniques to a method

Object Oriented programming Language

- What is OOPS
- Relation between java and OOPS
- What is a class
- What is an object
- Examples of classes and objects

Naming conventions in java

- What is naming convention
- Conventions for class
- Conventions for methods
- Conventions for keywords

Pillars of java

- Encapsulation
- Polymorphism
 - Method Overloading
 - Method Overriding
- Inheritance
 - Single
 - Hierarchical
 - Multi level
 - Multiple
 - Hybrid
- Abstraction

Constructors

- What is a constructors





- Purpose of it
- Default constructors
- Parameterless constructors
- Parameterized constructors
- Overloaded constructors
- this keyword
- super keyword
- Field shadowing

Destructors

- What is a destructor
- What is garbage Collection
- How to implement destructor concept in java

How to accept input from the user

- Scanner class
- BufferedReader class
- DataInputStream class

Arrays

- What is an array
- Purpose of an array
- 1D and 2D arrays
- Enhanced for loop/for each loop

Command Line Arguments

- What are Command Line Arguments
- Purpose of Command Line Arguments
- How to execute program by passing Command Line Arguments

Strings

- What is a String
- Purpose of using String
- String Tokenizer





- split method
- StringBuffer and StringBuilder classes

Interfaces

- Problems with multiple inheritance
- What is an interface
- Purpose of an interface
- Dynamic method dispatch
- How interfaces supports multiple inheritance
- Extending interfaces

enum keyword

- What is enum
- Purpose of it
- Advantages of using enum keyword

Packages

- What is a package
- Purpose of using packages
- Advantages
- How to create a package and how to use the classes under a package
- How to avoid naming collisions using packages
- Access specifiers
- Sub packages

MultiThreading

- What is a thread
- How to run multiple pieces of codes simultaneously using threads
- Different methods in thread class
- Creating threads by using Thread class
- Creating threads by using Runnable interface
- Synchronization
- Synchronized methods
- Synchronized blocks
- Types of locks
- Purpose of join method





- Thread priority
- Inter thread communication

Exception handling

- What is an exception
- How to handle exceptions
- try keyword
- catch keyword
- throw keyword
 - throws keyword
 - finally keyword
 - Types of exceptions
 - Checked exceptions
 - Unchecked exceptions
 - Custom exceptions

Collection framework

- Disadvantages with the arrays
- What is a collection
- Purpose of using collections
- Types of collection
- Different classes and interfaces in collection framework
- What are Wrapper classes
- What is an iterator
- Types of iterators
 - Normal iterator
 - List iterator
 - Enumeration
- Generics in collections
- Type diamond rule or Diamond operator

Annotations

- What is an annotation
- Benefits of using annotations in our program
- Types of annotations





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Core java

I/O Streams

- What is a stream
- Working with files
- What is Serialization
- What is Deserialization
- What is transient keyword
- What is marker interface
- instanceof operator



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