**Java**

* Java Basics
* OOPs

1. Inheritance
2. Encapsulation
3. Abstraction
4. Polymorphism
5. Aggregation

* Exception Handling

1. Try-catch
2. Finally
3. Throw
4. Throws
5. Custom Runtime Exception and compile Time Exception

* MultiThreading

1. Life cycle of Thread
2. Creating a Thread
3. Threads Methods
4. Thread Priority
5. Synchronization and types
6. Deadlock

* Arrays and Strings
* Collections

1. List
2. ArrayList
3. LinkedList
4. Vector
5. Set
6. HashSet
7. LinkedHashSet
8. TreeSet
9. Map
10. HashMap
11. LinkedHashMap
12. TreeMap
13. HashTable
14. ConcurrentHashMap

* Wrapper classes, autoboxing and unboxing

**Java-8:**

* Streams
* Lambda Expressions
* Functional Interface
* Method reference
* Static Method
* Default method
* Predicate, Supplier, consumer

**Spring:**

* IOC container
* Dependency Injection
* Bean – bean scope
* Autowiring
* Qualifiers
* Annotations
* Spring boot crud operations - POST, GET, PUT, DELETE Mappings
* Entity designing
* Hibernate Anotations
* Hibernate mappings – oneToOne, manyToOne, OneToMany, ManyToMany
* Hibernate joining multiple tables and columns
* Enum Mappings
* Jpa repository
* Jpa anotations
* Jpa queries
* Jpql queries
* SQL -native queires
* Db connections with mysql
* H2 database connection in spring boot
* Spring Profiles
* Bean creation
* Spring boot Exception’s handlings
* Swagger ui Doc
* POST MAN
* GIT version control tool
* Lombok
* Spring cache
* Maven
* Tomcat

**More Detailed Topics for Java**

Core Java

Basics of Java

● History and Features of Java

● C++ vs Java

● Hello Java Program

● Internal How to set the path?

● JDK, JRE, and JVM (Java Virtual Machine)

● JVM Memory Management

● Internal details of JVM

● Unicode System, Operators, Keywords, and Control Statements like if-else, switch, For

loop, while loop, etc.

Class, Object, and Types of classes

● Naming convention of Java

● Classes, Objects, and Features.

● Object declaration and initialization

● Life cycle of an object

● Anonymous object in Java

Packages in Java

● Package naming conventions

● Class and Objects in Java with Realtime Example

● Sub packages

● Types of packages such as user-defined packages, built-in packages

● Importing packages in Java

Data types in Java

● Data types in Java

● Primitive data types

● Non-primitive data types

● Memory allocation of primitive and non-primitive data types, etc.

Variables, Constants, and Literals

● Variable declaration & initialization

**Constructor in Java**

● Types of constructors: Default and Parameterized constructors

● Java constructor overloading

● Constructor chaining in java

● Copy constructor in Java

Modifiers in Java

● Types of access modifiers like private, default, protected, and public

● Java Methods | Declaration & Method Signature

● Types of Non-access modifiers like abstract, final, native, static, Strictfp, synchronized

modifier, transient, volatile.

Static Keyword

● Static variable

● Static method

● Static block, Instance block

● Static Nested Class in Java

● Difference between static variable and instance variable, static method and instance

method, static block, and instance block.

**Core Java**

Final Keyword

● Final keyword

● Final variable

● Final method

● Final class.

Inner Class in Java

● Normal inner class, Method local inner class, Anonymous inner class, and Static nested

class.

Super and this Keyword

● Super keyword

● Calling of superclass instance variable

● Superclass constructor

● Superclass method.

● this keyword

● Calling of current class constructor, and method.

OOPs concepts

● class, object ,encapsulation, inheritance, polymorphism, and abstraction.

Encapsulation

● How to achieve Encapsulation

● Data hiding

● Tightly encapsulated class

● Getter and setter method in Java

● Naming convention of getter and setter method

Inheritance

● Inheritance in Java

● Is-A Relationship

● Aggregation and Composition

● Types of inheritance: Single level, Multilevel, Hierarchical, Multiple, and Hybrid

inheritance.

**Core Java**

Polymorphism

● Types of polymorphism: Compile-time polymorphism and Run-time polymorphism

● Static and Dynamic Binding

● Method overloading

● Method overriding

● Rules of method overloading and method overriding, various example programs related

to rules of overloading and overriding.

● Covariant Return type

Abstraction

● Abstraction in Java

● Abstract class

● Abstract method

● Interface in Java

● Nested interface, rules

Exception Handling in Java

● Try-catch block

● Multiple Catch Block

● Nested try block

● Finally block

● Throw Keyword

● Throws Keyword

● Throw vs Throws, Final vs Finally vs Finalize

● Exception Handling with Method Overriding Java Custom Exceptions

**Java Array**

● Types of array: single dimensional array, multidimensional array, declaration,

instantiation, and initialization of Java array

● Passing array to a method

● Anonymous array in Java

● Cloning an array in Java

String, String Buffer, String Builder

● String, Immutable String

● String Comparison, String concatenation

● Substring

● StringBuffer class

● StringBuilder class

● toString method

● StringTokenizer class

**Core Java**

Java Thread

● Java multithreading

● Multithreading life cycle of a thread creating

● Thread scheduler

● Sleeping a thread, Start a thread twice

● Calling run() method

● Joining a thread

● Naming a thread

● Thread priority

● Daemon thread

● Thread pool

● Thread group

● Shutdownhook

● Java Synchronization: synchronized method, synchronized block, static

● synchronization

● Deadlock

● Inter-thread Communication

● Interrupting Thread

Garbage Collection

Input Output Stream

● FileOutputStream, FileInputStream

● BufferedOutputStream, BufferedInputStream

● SequenceInputStream

● ByteArrayOutputStream, ByteArrayInputStream

● DataOutputStream, DataInputStream

● Java FilterOutputStream, Java FilterInputStream

● Java ObjectStream, Java ObjectStreamField

● Console

● FilePermissionWriter, Reader, FileWriter, FileReader

● BufferedWriter, BufferedReader

● CharArrayReader, CharArrayWriter

● PrintStream, PrintWriter

● OutputStreamWriter, InputStreamReader

● PushbackInputStream, PushbackReader

● StringWriter, StringReader

● PipedWriter, PipedReader

● FilterWriter, FilterReader, File FileDescriptor, RandomAccessFile, and java.util.Scanner.

Collections Framework

● List, Set, SortedSet, Queue, Deque, Map, Iterator, ListIterator, and Enumeration.

**Core Java**

● ArrayList, LinkedList, HashSet, LinkedHashSet, TreeSet, ArrayDeque,

● PriorityDeque, EnumSet, AbstractCollection, AbstractList, AbstractQueue,

● AbstractSet, and AbstractSequentialList. Map, Map Entry, SortedMap, and

NavigableMap

● HashMap, LinkedHashMap, TreeMap, IdentityHashMap, WeakHashMap, and

EnumMap.

● Comparator, RandomAccess interfaces as well as Observable class.

Serialization

● Serialization, Deserialization, and Java transient keyword.

Java Annotations

● @Override, @SuppressWarnings, @Deprecated, @Target, @Retention,

● @Inherited, @Documented, Java custom annotations, and types of annotations.

Reflection in Java

● Reflection API

● NewInstance() & Determining the class object

● Javap tool, Creating javap tool

● Creating applet viewer

● Accessing private method from outside the class

**JDBC**

● Connectivity with Oracle

● Connectivity with MySQL

● Connectivity with Access without DSN

● DriverManager

● Types of JDBC statements: Statement, Prepared statement, Callable statement

● Database Metadata, Resultset Metadata

● ResultSet, types of ResultSet,

● Storing image, Retrieving image

● Storing file, Retrieving file, Stored procedures, and functions

● Transaction Management

● Batch Processing

**Core Java**

● Advantages, and Disadvantages of Agile model

● Agile versus Waterfall method

● Important terminology: Scrum, Scrum Master, Flow of Agile Implementation, Sprint, and

Burn down Charts.

Design Pattern

● Singleton Object

● Singleton design pattern with Serialization

● Factory Pattern

● Abstract Factory