

Modules	Topic
Module 1: Introduction to Java	Overview of Java
	Setting up Java Environment
	Basic syntax of java
	Variables, Data Types, Automatic type conversion, Explicit type conversion
	Operators, Scanner class
	Control Flow Statements
	Control Flow Statements
Module 2:String and Array	Strings and Arrays

Module 3: OOP Concepts	Java OOP concepts
Module 4: Inheritance and Polymorphism	Inheritance
	Polymorphism
	Encapsulation
	Abstraction
	Packages

Module 5:Package and exception handling	Exception Handling
Module 6: Java I/O	File handling and I/O, File Class and it's methods
	Try with resources, Closeable and Autocloseable interface
	Byte streams, InputStream, OutputStream
	Character stream classes, Reader, Writer
	Wrapper classes, basic Generics concept, autoboxing, unboxing, varargs
	Overview of Java Collections

Module 7: Collections
Framework

List Interface, ArrayList

Queue interface, Deque interface,
LinkedList

Set Interface, SortedSet Interface,

NavigableSet Interface , HashSet,
TreeSet classes

Map Interface, SortedMap Interface

NavigableMap Interface; HashMap,

Swing Concepts, Hierarchy,
Component, Container

Module 8: GUI

Container and Components

MVC Architecture, UI Delegate
Model Architecture

Event handling

Creating a Frame

JButton class and it's methods and
event handling

JLabel class, it's methods

JRadioButton class and it's methods
and event handling, JOptionPane

JCheckBoxclass and it's methods
and event handling

JPanel class, it's methods

Layout managers

Curriculum
<i>Sub Topic</i>
Java
Installing JDK and IDE
Lexical issues, Identifier, Keyword, literal, , writing java program, compiling and executing it
Variables, Primitive Data Types, Automatic type conversion, Explicit type conversion
Arithmetic, relational, logical, conditional, compound assignment operators, etc, operator precedence, associativity, input from user through Scanner class
if-else, nested if, else if ladder, switch, while loop, do while loop, for loop, nested loops
Break, continue, labelled break, labelled continue, return statements
String class and its methods
Converting data types to/from String
StringBuilder
Array and Multi-dimensional Array

Class, object, creating objects, reference variable, instance variable, static variable, instance methods, static methods, accessing members, constructors, parameterized constructors, this keyword, passing objects as parameter and returning objects

single inheritance, multilevel inheritance, constructor invocation from subclass, super keyword, super()

Compile time polymorphism, Method overloading, runtime polymorphism, method overriding, constructor overloading

public, private, protected, default Access Modifiers, Getters, Setters

Abstract methods, Abstract Classes, Interfaces, run time polymorphism through abstract classes as well as interface, concept of final variable, final methods, final class

Built in packages, user defined packages

Exception classes hierarchy,
Exception types, Some examples of
Checked exceptions as well as
unchecked exceptions

Try, catch, finally, throw, throws
keyword, multiple catch clauses

Custom exceptions

File Class, constructors, File class
methods, try-with-resources

Try with resources, Closeable and
Autocloseable interface

Byte streams, InputStream,
OutputStream,
FileInputStream,FileOutputStream,
BufferedInputStream,
BufferedOutputStream classes

Character streams,Reader,Writer,
FileReader, FileWriter,
BufferedReader, BufferedWriter

Wrapper Classes, basic Generics
concept, Autoboxing, Unboxing

Collections Framework Hierarchy,
Collection Interface and its methods

List interface, it's methods, ArrayList class, it's methods along with example program

Queue interface and it's methods, Deque interface, it's methods, LinkedList methods

Set Interface, HashSet and methods

SortedSet, NavigableSet, TreeSet and their methods

Map interface and it's methods, HashMap class and it's methods

SortedMap, NavigableMap,

Swing Concepts, Features of Swings, Difference between Swing and AWT

Swing Hierarchy, Container and Components, Lightweight and heavy weight components

MVC Architecture, UI Delegate
Model Architecture

Delegation Event Handling mechanism, Registration methods and listener interfaces, Event Classes

Creating a Frame using association and inheritance

JButton class and it's methods and event handling

JLabel class, it's methods

JRadioButton class and it's methods and event handling, JOptionPane

JCheckBox class and it's methods and event handling

JPanel class, it's methods

FlowLayout, BorderLayout, GridLayout

<i>Detail</i>
History, features, and applications of Java
Steps to install JDK, configure PATH, installation of IDE
Structure of a Java program, writing the first program
Primitive types, reference types, variable declaration, Implicit type conversion, Explicit type conversion(type casting)
Use of different operators in Java and Scanner class for user input
Using if-else, switch, while loop, for loop, nested loops
Using break and continue in loops
String manipulations
Converting data types to/from String
Mutable strings
Arrays in Java

Introduction to OOP, instance and static variables, instance and static methods, creating classes and objects, this, constructors

Implementing inheritance

Method overloading and overriding

Encapsulating data within classes

Abstracting functionality

Creating and using packages

Understanding hierarchy

Handling exceptions

Creating custom exceptions

Creating, deleting, checking properties of files

using Try with resources, Closeable and Autocloseable interface

Using Byte streams,InputStream, OutputStream, FileInputStream,FileOutputStream, BufferedInputStream, BufferedOutputStream classes

Using Reader and Writer classes

How to use concepts related to Wrapper classes, autoboxing, unboxing

Overview of Collections, different types of collections

List interface , ArrayList methods along with example program

Queue interface, Duque interface, LinkedList methods along with example program

Concept of Set, HashSet methods along with example program, SortedSet interface and methods, NavigableSet interface and it's methods, TreeSet methods along with example program

Concept of SortedSet interface and methods, NavigableSet interface and it's methods, TreeSet methods along with example program

Concept of Map, Map methods, HashMap methods along with example program, SortedMap interface and methods, NavigableMap interface and it's methods, TreeMap methods along with example program

SortedMap, NavigableMap, TreeMap

Understand Swing Concepts, its hierarchy, Difference between Swing and AWT

Understanding Container and Components

Understanding MVC Architecture, UI
Delegate Model Architecture

Building GUI applications, handling events

Creating a JFrame using association and
inheritance

JButton class and it's methods and event
handling

JLabel class, it's methods

JRadioButton class and it's methods and
event handling, JOptionPane

JCheckBox class and it's methods and event
handling

JPanel class, it's methods

FlowLayout, BorderLayout, GridLayout