Software Installation:

1. JDK 11
2. Eclipse   
   <https://www.eclipse.org/downloads/packages/release/2023-09/r/eclipse-ide-enterprise-java-and-web-developers>
3. STS  
   <https://www.codejava.net/frameworks/spring/install-spring-tool-suite-windows>
4. Tomcat 9
5. MYSQL / XAMPP [ windows ]

GIT and STS

<https://www.geeksforgeeks.org/how-to-use-git-with-eclipse/>

Practice Questions

<https://www.w3resource.com/java-exercises/>

Advance – competitions [ logical based/ application based, Data structures ]

Arrays, string , collections

LeetCode

HackerRank

hackerearth

PDF or books

Kathy Sierra => OCJP6

Head First => Beginner level

Resources Links

Beginners

Javatpoint

Tutorialspoint

W3schools

Intermediate

Tutorialsteacher

Freecodecamp

digitalocean

Advance

Ofiicial website for java and spring

Baeldung

Youtube

Kaushik => java brains

Minutes

Navin Reddy => telusko

Shalini Mittal => techgatha

Refresher

**Basic Programming Concepts**

1. Java features
   1. Robust
   2. Secure
   3. Platform independent
   4. OOPS
      1. Abstarction
      2. Encapsulation
      3. Polymorphism
      4. Inheritance
   5. Multithreaded
   6. Distributed
2. Compiler and interpreter
   1. Compiler -> checks for syntax errors and if none converts .java to .class[ bytecode or intermediate code understood only by JVM]

Javac => java compiler tool

* 1. Interpreter-> responsible to convert .class file to machine understandable code and execute it
  2. Bytecode verifier
  3. Class Loaders

1. Tokens
   1. Data types
      1. Byte
      2. Char
      3. Short
      4. Int
      5. Long
      6. Float
      7. Double
      8. Boolean
   2. Variables => represent memory locations and the values can vary
   3. Separators
   4. Punctuator
   5. Literals
   6. Keywords
   7. Assignment operator => assignment always happens right to left
2. Variable declaration and initialization
3. Print and println
4. Scanner class to take input from the user
5. Type conversion
6. Pure and mixed expressions
7. Operators
   1. Unary => ++ -- - !
   2. Binary
      1. Arithmetic + - \* / %
      2. Relational < > <= >= == !=
      3. Logical & && | ||
      4. Bitwise & | ^
   3. Ternary ?:
8. Conditional statements
   1. If else
   2. Switch – case
9. Iterative Statements
   1. For
   2. While
   3. Do-while
   4. Break
   5. Continue
   6. Nested loops
10. Arrays
    1. allow to store more than 1 values of similar type
    2. [] syntax
    3. Index starts from 0
    4. new keyowrd to allocate memory

**Object Oriented Programming Concepts**

1. OOPS
   1. What is a class
      1. Blueprint
      2. Template
      3. User defined data type
      4. Composite data type
   2. Create a class
      1. Class syntax
      2. Consists of data members [ attributes/ characteristics/ instance variables] and member methods [ methods or functions that operate on the data and provide with business logic ]
   3. Create object of the class using new keyword
   4. Methods
      1. Can take input => parameters
      2. Provide BL => body of the method within {}
      3. Can return outpur => using return keyword
      4. Signature  
         <access specifier> <return type> <method name>(<0 or more parameters){}  
         public int add(int a, int b){ return a+b;}
   5. Constructors
      1. They are special methods with the name same as the classname
      2. They DO NOT HAVE A return type not even void
      3. Cannot invoke them explicity using '.' operator
      4. Constructors are automatically invoked as soon as the object of the class is created
      5. purpose is to initialize the data members of the class at the time of object creation
      6. which takes no input/parameters => default constructor
      7. if there is no constructor in the class, compiler creates one
   6. constructor overloading / method overloading
      1. More than 1 method with same name but
         1. Different types of parameters
         2. Different number of parameters
         3. Different sequence of parameters
      2. Changing return type is not overloading
2. Access Specifier
   1. private
   2. protected
   3. public
   4. default => is not a keyword for access specifier but if none mentioned its default
3. this keyword
   1. used to resolve naming conflicts if local variable and instance variable name is same
   2. used to call other methods of same class
   3. used to call other constructor of the same class
   4. If using this to call a constructor it has to be the 1st statement in the calling constructor