Contents

Java

1. What are the main features of java 8?

2. What is flat map in java?

3. What is stream API in java with example?

4. What is garbage collection java?

5. What are the types of exception handling in java?

6. Oops concept with example (abstraction, polymorphism, inheritance, and encapsulation)

7. What is dependency injection in java?

8. Overriding / overloading concept

9. Private method can we override?

10. Advantages/disadvantages of Java 8 features

11. For lambda expressions, streams and optional was able to write code with the same.

12. What is deadlocked and write the program for deadlock in eclipse

13. What is out of memory, how will get, give example (hint if your loop condition is running infinite times then it will give java.lang.OutOfMemoryError)

14. Write the step for JDBC connection (also explain about Statement, Prepared Statement, and Callable Statement

15. JSP explicit object

16. When I will use Synchronization

17. Java concepts – OOPS, Multi-threading and Exception Handling

18. Linked List that adds elements at the beginning.

19. Implementation of Honking pattern

20. Different design patterns

21. Singleton classes. Write the code for singleton in eclipse.

22. Factory Design pattern

23. Creative design pattern explanation and examples

24. Behavioural design patterns explanation and examples

25. Difference between Comparator and Comparable

26. Comparable - Method

27. Abstract Class and Interface

28. Drawback of Abstract Class

29. Abstract class with only abstract method

30. Abstract class with concrete method

31. In collections what kind of data set we used for sorting

32. Tree Set in Collections

33. Explain about Builder Design Pattern & Decorator Pattern

34. Types of Logs

35. Heap memory and Stack memory

36. What are shallow copy and deep copy in java?

37. Difference between IS-A and HAS-A relationship in java.

38. Loose coupling and tight coupling in java, which one is better and why?

39. Difference between List and Set

40. What is NullPointerException?

41. Output of below code:
    ```
    String s = null;
    System.out.println(s.length());
    ```

42. Primitive Data Types

43. Difference between Class and Interface

44. Use of static, final, this and super keywords

Thread

1. Difference between thread and Process

2. Code implementation for thread and how threads work.

3. What is Multithreading, and how we implement it?

4. How do you create multi threads in java

5. What is demon Thread?

6. What is Thread pool and write the program for print 1 to 100 in eclipse?

7. What is thread and write the program for simple thread. (just start the thread and print any think in run method)

Spring Boot

1. What is difference between @SpringBootApplication, @EnableAutoConfiguration And @ComponentScan

2. Difference between spring boot and spring.

3. Inversion of control in spring

4. What is Actuator and its use?

5. Difference between IOC and DI

6. Configuring bean in Spring boot

7. Spring is based on the basic concepts of _____.

8. Dependency injection means.

9. Conditional beam creation in Spring

10. Difference between @RestContoller and @controller

API

1. Write code for various APIs of library management system.

2. Difference between monolithic and microservice architecture

3. What is difference between REST and SOAP?

4. Session tracking in servlet

5. How to communicate one microservice to another microservice

6. Definition of base path URL for RESTFUL Services

7. How to increase security for REST APIs Identification in Rest API

8. Authorization, Authentication explanation and differences in Rest API

9. HTTP response status codes

10. What to do if an API is throwing 5xx error? How to know it's due to which exception and how to deal with it thereafter?

11. What to do if an API has high response?

Java Programs

1. Write a program for Reverse a string without affecting special characters (Input: str = "Wal@ma&rt" Output: str = "tra@ml&aW")

2. Write a program to find middle element of list (not using inbuilt function)
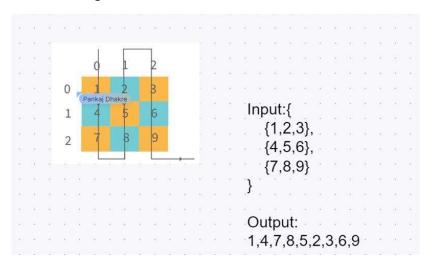
3. Find Output

```
public static void main (String args[])
  {
     System.out.println(100 + 100 + "Str");
     System.out.println(Str" + 100 + 100);
  }
```

4. Array Sort Problem

1, 1, 0, 1, 0, 1, 0, 0, 0
Elements in Array - Binary array
Dynamically find number of 0 and 1

   a. Explain the approach.

   b. To add element in tree set, what is the Logic to add?

5. Coding

Input:{
    {1,2,3},
    {4,5,6},
    {7,8,9}
}

Output:
1,4,7,8,5,2,3,6,9

6. Given a set of songs, say 10 songs. Play the songs such that:

   a. All the songs in a set will get played.

   b. songs will get played in random order.

   (Write pseudo code for the logic applied and explain the time and space complexity. Answer should have only Big O(n) time and space complexity)

7. We wanted to design a system Price comparator.

   Samsung galaxy s10

   Flipkart -- 40K

   Amazon -- 40.6k

   Reliance -- 42k

   Tata cliq - 39.9k

   Write REST API such that:

   a. Takes product name as input.
   b. Calls respective REST API of all given e-commerce platforms (Assume we have a contract with all e-commerce platform, and they haven us REST API) (REST API SLA is 5sec for each platform)
      i. Flipkart
      ii. Amazon
      iii. Reliance
      iv. Tata CLiQ
   c. Return lowest price selling platform in our example tata CLiQ (Answer should be done using multithreading concept)

8. Given a parking lot system in a mall, where there are 3 categories of parking lot available, small, medium, and large, each of which can accommodate only two wheelers, four wheelers and heavy-duty vehicles, respectively. Every incoming vehicle is to be parked to its corresponding category if the space is available or given a message that the parking lot is full if there's no availability in that category.
   a. Design a system according to the above conditions. Explain architecture type (monolithic/microservices), tech stack used, database design in detail.
   b. If the same system must support multiple parking lots in various malls, what should be the modifications to be done for the same.

      c.   How to deal with multiple incoming or outgoing vehicles at the same time at different check points of the mall. (Multithreading / Distributed systems)

SQL & Database

1. Use of count and group by in SQL

2. Concept of Joins in SQL

3. Atomicity in Database

4. ACID properties in Database

5. How to maintain isolation in database design

6. Foreign key concepts in Database

7. Identifying which fields to index in Database.

General Questions

1. CPU optimization - Best Practices

2. Which tool do you use for monitoring?

3. Where do you check your logs?

4. Discussion on any P1 or P2 incidents that you came across.

5. Splunk query writing skills.

6. Use of time chart in Splunk

7. Discussion on any recent issue you came across while monitoring.

8. What will you do if you find an application is down/crashed?

9. Discussion on any Splunk dashboard you were part of while creating.