**1st Round :**

1. What are indexes in database ? How to create index on multiple columns ? Which columns are preferred for creating indexes ? What are the scenarios when indexes are not beneficial ?
2. Write SQL query to get the 2nd max salary from employee table ?
3. WAP to reverse string using stack and without using stack ?
4. A sorted array is rotated and find by how many elements it is rotated ? how to find if array is unsorted ?
5. WAP to swap two nodes of a single linked list ?
6. T1 thread should print increasing odd numbers(eg 1,3,5,7) and T2 threads should print increasing even numbers(2,4,6,8). WAP to print numbers alternately from both the threads i.e. 1 2 3 4 5 6 7 8. What is volatile ?
7. Four players are there and game will start after all the players are ready. How will we achieve this in multithreading ? Difference between CyclicBarrier and CowntdownLatch.
8. Basic low level class diagram of Parking lot.

**2nd Round :**

1. Explain your previous project experience.
2. What is garbage collection? Explain GC in detail using java memory diagram ?
3. On the given below program, explain what is happening in JVM runtime data on execution of each line when thread T1 calls Method() and GC will collect what items.

Class A{

B b = new B();

}

Method(){

A a = new A();

A a1 =a;

M1(a);

a1=null;

a=null;

}

M1(A a){

a =null;

int b=2,c=3;

}

1. Explain and write merge sort code with time and space complexity calculation?
2. An array contains share price value of a particular stock in the increasing order of time. Find the maximum profit we can make from these data. i.e. when to buy and when to sell.
3. What is set in collection and its properties? Write a data structure which will use set for storing data and should allow duplicate data to be stored having add and remove method ?
4. How to remove duplicates in a array ?

**3rd round :**

1. A file of 1TB is there and we have RAM of 1 GB . WAP to sort the large file ? Modify the program to preserve order as well . What is max-heap or min-heap ?
2. Which one is better fileReader or fileInputStream. ? On the following code, what happening internally in JVM level and OS level as well ?

Fis = new FileInputStream(file)

Fis.read();

Fis.read(byteArray);

Fis.close()

1. What is pagination is OS ?
2. Basic linux commands query.
3. We have an array A1 of chocolates representing weight of each  and second array A2 of bags representing weight/capacity weight it can hold.

Both the array is of different size m, n.1 bag can hold only 1 chocolate at max if capacity of bag is >= weight of chocolate. WAP to return the maximum chocolates we can carry ? Calculate the time complexity of the above ?

1. Design Parking Space System with low level class diagram ? Was asked to make the time complexity to fetch free space from O(n) to O(log n) and then to O(1). On more condition is added to find the nearest available space and also to make time complexity to O(1).
2. There are 3 table i.e Employee(e.id), Department(d.id) and association(e.id,d.id, start date, end date) table. Write a SQL query to find the count no. of employees working in each department on 10 August 2016.

**4th round :**

1. Explain your last project and its data flow.
2. What is my roles and responsibility in my last project.
3. What is most challenging thing in my last project and how we resolved it.
4. What kind of performance analysis I have done so far ?