### Scenario Exercises

1. You have two threads, one is printing odd numbers and one is printing even number continuously. Manage them in such a way that they print numbers in sequence. (If you going to answer it through semaphore than they will ask you to implement it through wait notify).
2. We have a three cross three matrix, write a code such that only one thread can write at one position in matrix, but another thread can write on another thread in that matrix.---for me
3. You have two arrays one of length “n” and another of “n-1” having same numbers find the missing number. After giving its optimal solution they will change (n-1) to (n-2) and ask for optimal solution for same. After providing answer using a “Set” they will say that it may contain duplicate.
4. Traverse the Singly Linked List. Answer – Using Stack. After this they will ask for without using Stack.
5. Implement a LRU Cache in java. Answer – Using LinkedHashMap. After this they will ask you to implement your own.
6. Water – Jug puzzle.
7. Design a simple Restful Web Service
8. Write a program which have 3 different threads print 1111…, 22222…., 333333……, so that the output will be 1,2,3,1,2,3,1,2,3…..?
9. Three threads for printing numbers in sequence like Thread T1 prints 1,Thread T2 prints 2 , Thread T3 prints and so on

Thread T1 acquires class level lock and Thread t2 acquired object level lock and both are trying to access static synchronized method with class name and object of that class respectively. In such scenario which thread will get the lock and why?

1. Write a query to fetch data from student table with student id and subjects column in it, so that the result contains the total marks of each subject for every student.
2. Write a Singleton class
3. Write an immutable class.
4. Create an employee service that is RESTful which would have a domain that can be enhanced as further requirements come in. It should give back employee names and addresses via the service interface and be able to retrieve employee name and id from a legacy system, which cannot be changed. System should be able to query the information which gives all the employees that live in a certain county. We don't need to connect to database now, i.e. we would like to see them hide it behind a DAO or repository pattern and it be mocked out for testing. This coding exercise should be backed up by acceptance tests.
5. Suppose there is a component which sends data to another component which generate reports after processing that data. What should be the design diagram of the second component for processing data and generating reports?
6. Design Diagram of getting online appointment of doctors. There are only 3 kinds of doctors (Ayurveda doctor, specialized doctor, local doctor). Design diagram includes routing patient’s traffic properly to all 3 doctors.
7. How to count word frequency from a text file using plain java code.
8. How to sync threads or how to process sequential data by many threads but still maintaining sequence of data correctly (need to come up with multiple solutions)
9. How to handle large incoming data
10. Design custom connection pool
11. Design a system (Entity , DAO, Service classes) for money transfer to other account. Money should be debited from one account and credited to other account.
12. I have millions number, how would i find the unique number out of them ? what is the best way to achieve? E.g. 1,2,4, 6, 7, 1 , 5 , 3 , 8 ,9 , 22 ,14, 55, 55, 66, 1 ,2 , 4 etc
13. I have a paragraph which need to be broken into words. I am looking for below three requirement. 1. List of words in A-z order 2. list of commonly used words with count 3. If i press any character e.g. L, it should return me all the words starting with L.