As discussed, please find the below details:

The coderpad is a 2-way terminal session where you will be asked to code to a question or questions. The initial skeleton of the code and embedded questions as comments will be presented to you. Most important is that you complete it timely with minimal simple errors, and in the end that the code runs and you can explain it. You may be asked to walkthrough your solution and then further optimize it as well.

You can also register in Coderpad website and practice some programing to feel the environment <https://coderpad.io/>

**Important Topics:**

1. Object-oriented basics
2. Data structures and algorithms
3. Java basics
4. Exception handling
5. equals() and hashCode() methods
6. Java Collections

**Important Tips:**

1. It’s an online IDE tool for conducting interviews. It has autocomplete features (method names, class names suggestions). You can type few characters of the method/classname and press CTRL+Space to see available options.
2. **However, Coderpad does not import classes automatically for you.** Remember the import paths for the most common classes like Map, ArrayList, Set, etc. And keep in mind to import them if you use them in your code.
3. Importantly, **Coderpad will not highlight syntactical errors, so if code does not compile be cognizant of syntax and look there for issues as well**, this is a frequent scenario where candidates trip up.
4. Interviewer is most interested in testing your coding skills. Hence prepare some programming questions before appearing for the interview.
5. Read the question carefully. Take some time to breakdown the question and think about possible solutions.
6. Questions are designed to test your ability to think.
7. Writing clean code is important. Extra points if your code is also efficient.
8. Be relaxed, don’t panic if you can’t find a solution. If nothing, go with brute force approach.
9. Try to leverage Java collections to solve the question.

Please do some internet research on Goldman Sachs and Coderpad questions and be knowledgeable with the types of questions (bullets) listed below. Typically, they are asking you to dig back into your college / theoretical days. Please read up on these (below) (these are not the actual questions, but for guidance) and be ready at a working computer and clear phone signal. You can also register on Coderpad.io to get more familiar with the tool.

1. subArrayExceedsSum
2. Best Average grade of a student
3. Prime factorization
4. Find if the number is a power of 10
5. First non-repeating char in an array/ String
6. Second Smallest Integer in array
7. Print Fibonacci Series
8. Palindrome
9. Collections
10. Given two sorted linked list, combine both into a single sorted linked list
11. Given a set of words (e.g. cat, dog, God, act, tac), print each set of Anagrams on a separate line.

Eg.

cat,act,tac

dog,God

1. Given a log file search for rows containing a specified IP address
2. Find the most number of repeating IP Address in a log File
3. Given a string find the sequence have most repeated characters
4. Dot product of Array
5. Robot Graphical Positioning
6. Pascal’s Triangle
7. Average score of the Student
8. Addition of an array of Fraction.
9. Merge 2 sorted array and find median of the resulting
10. Given a string check if it is Pangram or not. A pangram is a sentence containing every letter in the English Alphabet.
11. **Trapping Rainwater** Given n non-negative integers representing an elevation map where the width of each bar is 1, compute how much water it can trap after raining.
12. Find common Substring in given 2 or 3 Strings
13. Replace the repeating characters of as Asterisk (\*) eg. aababbcccdd 🡪a\*bab\*c\*\*d\*
14. Find the longest uniform substring (eg. aabbbccdd 🡪bbb)
15. Division for 2 arrays and provide the output should in decimal
16. Minimum Spanning Tree
17. Maximum Spanning Tree
18. String parsing to get the count of a particular substring within String
19. Find nth highest in array
20. Longest substring with repeating characters in a string(From a string Apple, we have to print pp)
21. Write a program to find first non-repeating character from a given string.

Ex:

“apple” should return character a

"ffeeddbbaaclck" should return character l

**​**

1. Given a string consisting of only '(' and ')' characters, check if the string froms a valid parenthesis combination. If not, remove minimum number of characters to make it a valid parenthesis combination.
2. From the given sentence, find out the missing alphabets (anagram)

Eg: The quick brown fox jumps over a lazy dog will return null

1. Given a 2-D String array of student-marks find the student with the highest average and output his average score. If the average is in decimals, **floor it down** to the nearest integer.

Example 1:

Input: [{"Bob","87"}, {"Mike", "35"},{"Bob", "52"}, {"Jason","35"}, {"Mike", "55"}, {"Jessica", "99"}]

Output: 99

1. Given two integers representing the Numerator and Denominator of a fraction, return the fraction in string format. If the fractional part is repeating, enclose the repeating part in parentheses

**Input**: Numerator = 1, Denominator = 2

**Output**: "0.5"

1/2 = 0.5 with no repeating part.

**Input**: Numerator = 50, Denominator = 22

**Output**: "2.(27)"

50/22 = 2.27272727... Since fractional part (27)

is repeating, it is enclosed in parentheses.

\*\*  1) You are an avid rock collector who lives in southern California. Some rare   
\*\*     and desirable rocks just became available in New York, so you are planning   
\*\*     a cross-country road trip. There are several other rare rocks that you could   
\*\*     pick up along the way.   
\*\*       
\*\*     You have been given a grid filled with numbers, representing the number of   
\*\*     rare rocks available in various cities across the country.  Your objective   
\*\*     is to find the optimal path from So\_Cal to New\_York that would allow you to   
\*\*     accumulate the most rocks along the way.   
\*\*       
\*\*     Note: You can only travel either north (up) or east (right).  
\*\*  2) Consider adding some additional tests in doTestsPass().  
\*\*  3) Implement optimalPath() correctly.  
\*\*  4) Here is an example:  
\*\*                                                           ^  
\*\*                 {{0,0,0,0,5}, New\_York (finish)           N  
\*\*                  {0,1,1,1,0},                         < W   E >  
\*\*   So\_Cal (start) {2,0,0,0,0}}                             S  
\*\*                                                           v   
\*\*   The total for this example would be 10 (2+0+1+1+1+0+5).  
\*/

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2nd Questions:

Given a grid as below.

0  0  0  0  5

0  1  1   1   0

2  0  0  0  0

One should traverse from bottom left item which is 2 and collect all the non zero numbers from the grid in an optimal way. And direction of movement is either top or right.

3rd Questions:

/\*

\*\*  Instructions:

\*\*

\*\*  Given a list of student test scores, find the best average grade.

\*\*  Each student may have more than one test score in the list.

\*\*

\*\*  Complete the bestAverageGrade function in the editor below.

\*\*  It has one parameter, scores, which is an array of student test scores.

\*\*  Each element in the array is a two-element array of the form [student name, test score]

\*\*  e.g. [ "Bobby", "87" ].

\*\*  Test scores may be positive or negative integers.

\*\*

\*\*  If you end up with an average grade that is not an integer, you should

\*\*  use a floor function to return the largest integer less than or equal to the average.

\*\*  Return 0 for an empty input.

\*\*

\*\*  Example:

\*\*

\*\*  Input:

\*\*  [ [ "Bobby", "87" ],

\*\*    [ "Charles", "100" ],

\*\*    [ "Eric", "64" ],

\*\*    [ "Charles", "22" ] ].

\*\*

\*\*  Expected output: 87

\*\*  Explanation: The average scores are 87, 61, and 64 for Bobby, Charles, and Eric,

\*\*  respectively. 87 is the highest.

1. Some students are sitting in a circle. A teacher sings song of k words and eliminates students one by one by moving k steps. We have to figure out the last student standing.
2. Given an array of hills, we have to figure out the amount of snow that will be accumulated on the hills.
3. Find the numbers which are power of 10
4. **Highlight the highest average scoring student** – There were multiple entrees for students with various number of subjects and respective grades/scores. The candidate had to find the highest average student from this list.
5. **Optimal Travel** – The candidate had to reach from bottom left corner to top right corner by only travelling north and east.