Problem statements in java

Day 1

1. Write a java program to print the "Hello World" program.?

2. Write a java program to print all data types.?

3. Write a java program to print your Aadhar details.?

4. Write a java program to print swapping of two numbers using temp variable.?

5. Write a java program to print swapping of two numbers without temp variable.?

6. Write a java program to print swapping of two numbers without temp variable.?using scanner class.?

Day 2

7. Write a java program to print sum of two numbers.?

8. Write a java program to print multiplication of two numbers.?

9. Write a java program to print all conditional operators.?

10. Write a java program to print all logical operators.?

Day 3

11. Write a java program to check the given number is positive using if.?

12. Write a java program to check the given number is positive or negative using else if.?

13. Write a java program to check the given number is even or odd.? using scanner .?

14. Write a java program to check the given year is leap year or not.?

15. Write a java program to check the given number is positive or negative or zero.? using scanner

Day 4

16. Check if a Character is a Vowel or Consonant:

Given a character, determine if it is a vowel (a, e, i, o, u) or a consonant using conditional statements.

17. Find the biggest among two numbers.?

18. Find the number belonging to which group above 50, between 40 to 50, less than 19. Write a Program to check the given number is divisible by both 3&4 if it is so print "Good Morning". If a number is divisible by only 4 but not 3 then print "Good Afternoon", If it is divisible by only 3 but not 4 then print "Good Evening" otherwise print "Good Night".?

Day 5

20. Write a program that takes a score as input and prints out the corresponding grade according to the following grading scheme:

- 90 or above: A
- 80-89: B
- 70-79: C
- 60-69: D
- Below 60: F.?

21. Write a java program to print the days using switch case.?

22. Develop a simple program to calculation to perform an operation we have four choices if you choose

1.Addition

2.Subtraction

3.Multiplication

4.Division

Day 6

Looping Statements:

Using For Loop Problems:

23. Print Numbers from 1 to N: Write a program to print numbers from 1 to N using a for loop.

24. Sum of First N Natural Numbers: Write a program to find the sum of the first N natural numbers using a for loop.

25. Multiplication Table: Write a program to print the multiplication table of a number N using a for loop.

26. Factorial of a Number: Write a program to find the factorial of a given number using a for loop.

27. Write a program to generate the Fibonacci series up to a certain number of terms n.?

28. Write a program to check the given number is prime or not.?

29. Find Prime Numbers in a Range: Write a program to print all prime numbers between 1 and N using a for loop.

Day 7

While Loop Problems:

30. Print Numbers from 1 to N: Write a program to print numbers from 1 to N using a while loop.

31. Sum of Digits of a Number: Write a program to calculate the sum of digits of a given number using a while loop.

32. Find the Largest Digit in a Number: Write a program to find the largest digit in a given number using a while loop.

34. Count Even Numbers in a Range: Write a program to count how many even numbers are there between 1 and N using a while loop.

Day 8

Using Do-While Loop Problems:

35. Print Numbers from 1 to N: Write a program to print numbers from 1 to N using a do-while loop.

36. Find the Sum of Digits of a Number: Write a program to find the sum of digits of a number using a do-while loop.

37. Calculate Power of a Number: Write a program to calculate the power of a number (base raised to the exponent) using a do-while loop.

Day 9

Using nested loops:

Example Pattern Problem Statements:

38. Square Star Patter

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****

****

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39. Increasing Triangle Star Pattern

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* *

* * *

* * * *

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* * * * *
```

40. Decreasing Triangle Star Pattern

```
* * * * *
* * * *
* * *
* *
*
```

41. Right Triangle Star Pattern

```
*
* *
* * *
* * * *
* * * * *
```

42. Left Triangle Star Pattern/ Inverted

```
* * * * *
  * * * *
    * * *
      * *
        *
```

43. Hill Pattern Star Pattern/Pyramid Star Pattern or Equilateral Triangle Star Pattern

```
   *
  * *
 * * *
* * * *
* * * * *
```

44. Reverse Hill star Pattern/ Inverted Pyramid Star Pattern or Reverse Pyramid Star Pattern.

```
* * * * *
 * * * *
  * * *
   * *
    *
```

Day 10

45. Diamond star Pattern/ Sandglass Star Pattern

```
      *
     ***
    *****
   *******
  *********
 ***********
*************
 ***********
  *********
```

```
*******
 *****
  ***
   *
```

46.

```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

47.

```
1
1 4
1 4 9
1 4 9 16
1 4 9 16 25
```

48.

1	2	3	4	5
2	4	6	8	10
3	6	9	12	15
4	8	12	16	20
5	10	15	20	25

Day 11

Methods:

49. Using static any problem statement

1. Method without return type and without parameters
2. Method without return type and with parameters
3. Method with return type and without parameters
4. Method with return type and with parameters

50. Using static any problem statement

1. Method without return type and without parameters
2. Method without return type and with parameters
3. Method with return type and without parameters
4. Method with return type and with parameters

Day 12

Using methods:

51. Write a Java method that takes an integer as input and returns true if it is a prime number, otherwise returns false.

52. Write a Java method to calculate the factorial of a given number.

53. Write a Java method to generate the Fibonacci series up to a specified number of terms.

54. Write a Java method to calculate the power of a number raised to an exponent.

55. Write a Java method to calculate the greatest common divisor (GCD) of two numbers.

56. Write a Java method to calculate the least common multiple (LCM) of two numbers.

57. Write a Java method to check if a given number is an Armstrong number.

58. Write a Java method to check if a given number is a perfect number.

Day 13

Using Recursion:

59. Power of a Number –

60. Prime Number –

61. Largest element in an array –

62. Smallest element in an array –

63. Reversing a Number –

64. HCF of two numbers –

65. LCM of two numbers –

Day 14

Arrays:

66. Find Largest element in an array :
67. Find Smallest Element in an Array :
68. Find the Smallest and largest element in an array :
69. Find Second Smallest Element in an Array :
70. Calculate the sum of elements in an array :
71. Reverse an Array :
72. Sort first half in ascending order and second half in descending :
73. Sort the elements of an array :
74. Finding the frequency of elements in an array :
75. Sorting elements of an array by frequency :
76. Finding the Longest Palindrome in an Array :

Day 15

77. Counting Distinct Elements in an Array :
78. Finding Repeating elements in an Array :
79. Finding Non Repeating elements in an Array :
80. Removing Duplicate elements from an array :
81. Finding Minimum scalar product of two vectors :
82. Finding Maximum scalar product of two vectors in an array :
93. Counting the number of even and odd elements in an array :
94. Find all Symmetric pairs in an array :
95. Find maximum product sub-array in a given array :

Day 16

96. Finding Arrays are disjoint or not :
97. Determine Array is a subset of another array or not :
98. Determine can all numbers of an array be made equal :
99. Finding Minimum sum of absolute difference of given array :
100. Sort an array according to the order defined by another array :
101. Replace each element of the array by its rank in the array :

Day 17

102. Finding equilibrium index of an array :
103. Rotation of elements of array- left and right :
104. Block swap algorithm for array rotation :
105. Juggling algorithm for array rotation :
106. Finding Circular rotation of an array by K positions :
107. Balanced Parenthesis Problem :

Strings:

Day 18

108. Write a java program to print the characters of the string “India”.?
109. Write a java program to count the number of alphabets present in the given String.?
110. Write a java program to count the number of alphabets, number of digits and number of special characters present in given string.?
111. Write a java program to print vowels present in the given string.?

112. Write a java program to print the reverse of a String.?

113. Write a java program to check whether given string is palindrome or not.?

114. Write a java program to print the Ascii Value of All Characters.?

115. Write a java program to find the sum of the digits present in given string.?

116. Write a java program to convert first half of the string to lower case and remaining half to uppercase .?

117. Write a java program to count number of words present in the given sentences of a String.?

Day 19

118. Length of the string without using strlen() function :

119. Toggle each character in a string :

120. Count the number of vowels :

121. Remove the vowels from a String :

122. Check if the given string is Palindrome or not :

123. Print the given string in reverse order :

124. Remove all characters from string except alphabets :

125. Remove spaces from a string :

126. Remove brackets from an algebraic expression :

127. Count the sum of numbers in a string :

Day 20

128. Capitalize the first and last character of each word of a string :

129. Calculate frequency of characters in a string :

130. Find non-repeating characters in a string :

131. Check if two strings are Anagram or not :

132. Replace a sub-string in a string:

133. Replacing a particular word with another word in a string –

134. Count common sub-sequence in two strings :

135. Check if two strings match where one string contains wildcard characters :

136. Print all permutations of a given string in lexicographically sorted order :

Day 21

Advanced Codes related to Arrays

137. Given an array which consists of only 0, 1 and 2. Sort the array without using any algorithm –

138. Find the “Kth” max and min element of an array –

139. Move all the negative elements to one side of the array –

140. Find the Union and Intersection of the two sorted arrays. –

141. Find Largest sum contiguous Subarray –

Day 22

142. Minimize the maximum difference between heights –

143. Minimum no. of Jumps to reach the end of an array –

144. Find duplicate in an array of N+1 Integers –

145. Merge 2 sorted arrays without using extra space. –

Day 23

146. Kadane’s Algorithm –

147. Merge Intervals –

148. Count Inversion –

149. Best time to buy and Sell stock –

150. Find all pairs on integer array whose sum is equal to given number –

Day 24

151. Find if there is any subarray with sum equal to 0 –

152. Find factorial of a Large Number –

153. Find common elements In 3 sorted arrays –

154. Rearrange the array in alternating positive and negative items with O(1) extra space –

155. Given an array of size n and a number k, find all elements that appear more than ” n/k ” times. –

Day 25

156. Maximum profit by buying and selling a share atmost twice –

157. Next Permutation –

158. Find longest consecutive subsequence –

159. Trapping Rain water problem –

160. Chocolate Distribution problem –

161. Smallest Subarray with sum greater than a given value –

162. Three way partitioning of an array around a given value –

163. Minimum no. of operations required to make an array palindrome –

164. Median of 2 sorted arrays of equal size –

165. Median of 2 sorted arrays of different size –

Day 26

Codes related to Matrix

166. Spiral traversal on a Matrix –

167. Search an element in a matrix –

168. Find median in a row wise sorted matrix –

169. Find row with maximum no. of 1's –

170. Print elements in sorted order using row-column wise sorted matrix –

171. Find a specific pair in matrix –

172. Rotate matrix by 90 degrees –

173. Kth smallest element in a row-column wise sorted matrix –

174. Common elements in all rows of a given matrix –

Day 27

Program to calculate length of the string using recursion-

175. Print All Permutations of a String-

176. Given an integer N the task is to print the F(N)th term.-

177. Given a list arr of N integers, print sums of all subsets in it-

178. Last non-zero digit in factorial-

179. Given a positive integer N, return the Nth row of pascal's triangle –

180. Given an integer N representing the number of pairs of parentheses, the task is to generate all combinations of well-formed(balanced) parentheses –

Day 28

181. Find the Factorial of a number using recursion –

182. Find all possible Palindromic partitions of the given String –
183. Find all the N bit binary numbers having more than or equal 1's than 0's –
184. Given a set of positive integers, find all its subsets –
185. Given a string s, remove all its adjacent duplicate characters recursively –

Day 29

186. Automorphic number :
187. Harshad number :
188. Abundant number :
189. Friendly pair :
190. Highest Common Factor(HCF):
191. Lowest Common Multiple (LCM) :
192. Greatest Common Divisor :
193. Binary to Decimal to conversion :
194. Octal to Decimal conversion :
195. Hexadecimal to Decimal conversion:
196. Decimal to Binary conversion:
197. Decimal to Octal Conversion:
198. Decimal to Hexadecimal Conversion:
199. Binary to Octal conversion :
200. Octal to Binary conversion :

Day 30

201. Quadrants in which a given coordinate lies :
202. Permutations in which n people can occupy r seats in a classroom :

203. Maximum number of handshakes:
204. Addition of two fractions:
205. Replace all 0’s with 1 in a given integer :
206. Can a number be expressed as a sum of two prime numbers :
207. Count possible decoding of a given digit sequence :
208. Calculate the area of a circle :
209. Find the prime numbers between 1 to 100 :
210. Calculate the number of digits in an integer :
211. Convert digit/number to words :
212. Counting number of days in a given month of a year:
213. Finding Number of times x digit occurs in a given input :
214. Finding number of integers which has exactly x divisors:
215. Finding Roots of a quadratic equation :