Basic C++ Problems (1-50)

1. Print "Hello, World!"
2. Input and output two numbers
3. Add two numbers
4. Check even or odd
5. Find the maximum of two numbers
6. Find the minimum of two numbers
7. Swap two numbers using a third variable
8. Swap two numbers without using a third variable
9. Find the sum of digits of a number
10. Reverse a number
11. Check if a number is a palindrome
12. Check if a number is prime
13. Find the greatest common divisor (GCD)
14. Find the least common multiple (LCM)
15. Check if a number is Armstrong
16. Find the factorial of a number
17. Print Fibonacci series up to N terms
18. Check if a number is part of the Fibonacci series
19. Calculate simple interest
20. Calculate compound interest
21. Find ASCII value of a character
22. Convert Celsius to Fahrenheit
23. Convert Fahrenheit to Celsius
24. Check leap year
25. Find the sum of first N natural numbers
26. Find the sum of first N even numbers
27. Find the sum of first N odd numbers
28. Find the sum of squares of first N natural numbers
29. Find the sum of cubes of first N natural numbers
30. Count number of digits in a number
31. Convert decimal to binary
32. Convert binary to decimal
33. Convert decimal to octal
34. Convert octal to decimal
35. Convert decimal to hexadecimal
36. Convert hexadecimal to decimal
37. Print a number pattern
38. Print a star pattern
39. Print an inverted pyramid pattern
40. Print Pascal’s triangle
41. Find the power of a number using loops
42. Find the power of a number using recursion
43. Find the nth term of an arithmetic progression
44. Find the nth term of a geometric progression
45. Find sum of an arithmetic progression
46. Find sum of a geometric progression
47. Print first N prime numbers
48. Count prime numbers in a given range

49. Find sum of prime numbers in a given range
50. Check if a number is perfect

Intermediate C++ Problems (51-100)

51. Reverse a string
52. Check if a string is palindrome
53. Count vowels and consonants in a string
54. Count words in a sentence
55. Convert lowercase string to uppercase
56. Convert uppercase string to lowercase
57. Sort characters of a string
58. Remove spaces from a string
59. Find frequency of characters in a string
60. Find the length of a string without using built-in functions
61. Find the second largest number in an array
62. Find the second smallest number in an array
63. Reverse an array
64. Sort an array using bubble sort
65. Sort an array using selection sort
66. Sort an array using insertion sort
67. Search an element using linear search
68. Search an element using binary search
69. Merge two sorted arrays
70. Remove duplicates from an array
71. Find common elements between two arrays
72. Find union of two arrays
73. Find intersection of two arrays
74. Find the missing number in an array
75. Find the first repeating element in an array
76. Find the first non-repeating element in an array
77. Find the largest sum subarray (Kadane’s Algorithm)
78. Find the longest increasing subsequence
79. Matrix addition
80. Matrix multiplication
81. Transpose of a matrix
82. Check if a matrix is symmetric
83. Check if a matrix is identity
84. Calculate determinant of a matrix
85. Calculate inverse of a matrix
86. Find the GCD of two numbers using recursion
87. Find the LCM of two numbers using recursion
88. Find factorial using recursion
89. Implement a simple calculator using switch case
90. Implement a menu-driven program for array operations
91. Implement a program for stack operations
92. Implement a program for queue operations
93. Implement circular queue

94. Implement a program for linked list operations
95. Implement a doubly linked list
96. Implement a circular linked list
97. Reverse a linked list
98. Implement stack using linked list
99. Implement queue using linked list
100. Convert infix expression to postfix

Advanced C++ Problems (101-150)

101. Convert infix expression to prefix
102. Evaluate a postfix expression
103. Implement binary search tree (BST)
104. Insert a node in a BST
105. Delete a node in a BST
106. Find the height of a BST
107. Find the depth of a BST
108. Find the lowest common ancestor (LCA) in a BST
109. Check if a BST is valid
110. Find the diameter of a tree
111. Implement Depth First Search (DFS)
112. Implement Breadth First Search (BFS)
113. Find shortest path using Dijkstra's algorithm
114. Find shortest path using Bellman-Ford algorithm
115. Find shortest path using Floyd-Warshall algorithm
116. Implement Kruskal's algorithm
117. Implement Prim's algorithm
118. Implement Topological Sorting
119. Implement Floyd's cycle detection in linked list
120. Find articulation points in a graph
121. Find strongly connected components in a graph
122. Find bridges in a graph
123. Implement Rabin-Karp string matching algorithm
124. Implement KMP string matching algorithm
125. Implement Boyer-Moore string matching algorithm
126. Find the longest common subsequence
127. Find the longest palindromic subsequence
128. Implement Trie data structure
129. Implement a Trie-based word search
130. Find the median of two sorted arrays
131. Find kth smallest element in an array
132. Implement heap sort
133. Implement quicksort
134. Implement merge sort
135. Implement dynamic programming for Fibonacci
136. Solve the 0/1 Knapsack problem
137. Solve the longest increasing subsequence problem using DP
138. Solve the coin change problem

139. Solve the rod cutting problem
140. Find the maximum sum subarray with DP
141. Implement LRU Cache
142. Implement LFU Cache
143. Implement a priority queue
144. Implement a min/max heap
145. Find the maximum rectangle in a binary matrix
146. Find the largest histogram area
147. Implement a memory management system using linked lists
148. Simulate a process scheduling algorithm
149. Implement an event-driven simulation
150. Implement a real-world banking system