If you're struggling with coding fundamentals, this PDF will help strengthen your foundation. Solve the problems at least once to improve your skills. Solutions are in C, but you can use any language. Start with **Arrays, Strings, Linked Lists,** and **Recursion** to enhance logical thinking, problem-solving, and analytical skills.

Simple C Programs

- 1. Hello World Program in C
- 2. C Program to Check Whether a Given Number is Even or Odd
- 3. C Program to Find the Sum of Even and Odd Numbers
- 4. C program to Check Whether a Number is Positive or Negative
- 5. C program to Find the Largest Number Among Three Numbers
- **6.** C Program to Swap Two Numbers
- 7. C Program to Find the Number of Integers Divisible by 5
- 8. C Program to Check if Two Numbers are Equal
- 9. C Program to Find Sum of Digits of a Number
- 10. C Program to Find Sum of Digits of a Number using Recursion
- 11. C Program to Increment by 1 to all the Digits of a Given Integer
- 12. C Program that Takes Input as 2323 and Gives Output as 2332
- 13. C Program to Find the Sum of Each Row and Column of a Matrix
- 14. C Program to Print Multiplication Table
- 15. C Program to Read a Grade and Display the Equivalent Description
- 16. C Program to Input 3 Arguments and Operate Appropriately on the Numbers
- 17. C Program to Count the Number of Vowels and Consonants in a Sentence
- 18. C Program to Count No of Lines, Blank Lines, and Comments in the Program
- 19. C Program to Convert Lowercase Characters by Uppercase and Vice-Versa
- 20. C Program to Accept the Height of a Person & Categorize as Taller, Dwarf & Average
- 21. C Program to Print Environment Variables
- 22. C Program to Print the Program Name and All its Arguments

C Programs on Numbers

- 23. C Program to Find Prime Numbers in a Given Range
- 24. C Program to Check Prime Number
- 25. C Program to Check whether a Number is Prime or Not using Recursion
- 26. C Program to Check Whether a Given Number is Perfect Number
- 27. Strong Number Program in C
- 28. C Program to Check Armstrong Number
- 29. C Program to Print Armstrong Number between 1 to 1000
- 30. C Program to Find Nth Armstrong Number
- 31. C Program to Find Sum of First N Natural Numbers
- 32. C Program to Find Sum of Natural Numbers using Recursion
- 33. C Program to Find the Sum of First 50 Natural Numbers using For Loop
- 34. C Program to Reverse a Number
- 35. C Program to Reverse a Number and Check if it is a Palindrome
- 36. C Program to Reverse a Number using Recursion
- 37. C Program to Add Two Numbers
- 38. C Program to Add Two Binary Numbers
- 39. C Program to Multiply Two Binary Numbers

C Programs on Date, Time & Year

- **40.** Leap Year Program in C
- 41. C Program to Extract Last Two Digits of a Given Year
- 42. C Program to Convert Time from 12 Hour to 24 Hour Format
- 43. C Program to Convert Days into Years, Months and Days

Special C Programs

- 44. C Program without using the Main() Function
- 45. C Program to Print Statement without Semicolon
- **46.** C Program to Print Semicolon without using Semicolon
- 47. C Program to Display its own Source Code as Output
- 48. C Program to Display the ATM Transaction
- 49. C Program to Calculate EMI
- 50. C Program to Calculate Electricity Bill
- 51. Fizzbuzz Program in C
- **52.** C Program to Get IP Address
- 53. C Program to Illustrate how User Authentication is Done
- 54. C Program to Shutdown Computer in Linux

Factorial & Fibonacci Programs in C

- 55. Fibonacci Series Program in C
- 56. C Program to Find First N Fibonacci Numbers
- 57. C Program to Find Nth Fibonacci Number using Recursion
- 58. C Program to Compute First N Fibonacci Numbers using Command Line Arguments
- 59. C Program to Generate Fibonacci Series using Command Line Argument
- 60. C Program to Find the Factorial of a Number
- 61. C Program to Find the Factorial of a Number using Recursion

Pattern Programs in C

- 62. C Program to Print Diamond Pattern
- 63. C Program to Print Floyd's Triangle
- **64.** C Program to Print Pascal Triangle
- **65.** Star Pattern Programs in C
- 66. Pyramid Patterns in C

Conversion Programs in C

- 67. C Program to Convert Binary to Decimal
- **68.** C Program to Convert Binary to Hexadecimal
- 69. C Program to Convert Binary to Octal
- 70. C Program to Convert Binary to Gray Code using Recursion
- 71. C Program to Convert Binary to Gray Code without Recursion
- 72. C Program to Convert Octal to Binary
- 73. C Program to Convert Octal to Decimal
- 74. C program to Convert Decimal to Hexadecimal
- 75. C program to Convert Decimal to Octal
- 76. C Program to Convert Decimal to Binary using Recursion
- 77. C Program to Convert Decimal to Binary and Count the Number of 1s
- 78. C Program to Convert Hexadecimal to Binary
- 79. C Program to Convert Numbers to Roman Numerals
- 80. C Program to Convert Roman Number to Decimal Number
- 81. Temperature Conversion Program in C
- 82. C program to Convert Fahrenheit to Celsius
- 83. C Program to Convert Celsius to Fahrenheit

C Programming Examples on Data Types & Union

- 84. C Program to Find the Range of Basic Data Types
- 85. Union in C Programming with Examples
- 86. C Program to Find the Size of a Union

C Programming Examples on Math Functions

- **87.** C Program to Calculate the Value of sin(x)
- 88. C Program to Calculate the Value of cos(x)
- 89. C Program to Calculate the Sum of cos(x) Series
- 90. C Program to Find Quotient and Remainder
- 91. C Program to Find the Roots of a Quadratic Equation
- 92. C Program to Find Square Root of a Number
- 93. C Program to Read Coordinate Points and Determine its Quadrant
- 94. C Program to Find Simple Interest
- 95. C Program to Find Compound Interest
- **96.** C Program to Simulate a Simple Calculator
- 97. C Program to Calculate the value of nCr
- 98. C Program to Calculate the value of nPr
- 99. C Program to Evaluate the Given Polynomial Equation
- 100. C Program to Find Mean, Variance and Standard Deviation
- 101. C Program to Add Two Complex Numbers
- **102.** C Program to Find Power of a Number
- 103. C Program to Calculate Pow (x,n)

C Programming Examples on Progression Series

- 104. C program to Find the Sum of Arithmetic Progression Series C
 105. program to Find the Sum of Geometric Progression Series C
 106. program to Find the Sum of Harmonic Progression Series C
- program to Find the Sum of Harmonic Progression Series
- 107. C Program to Find Sum of Series $1 + 1/2 + 1/3 + 1/4 + \dots + 1/N$ C
- Program to Find Sum of Series 1^2 + 2^2 + + n^2

 108.

 C. Brazzara & Find Samuel & Societa 1^2 + 2^2 + + n^2
- 109. C Program to Find Sum of Series $1^3 + 2^3 + 3^3 + ... + n^3$
- 110. C Program to Find Sum of the Series $1/1! + 2/2! + 3/3! + \dots 1/N!$

C Programs on Area and Volume

- 111. C Program to Find the Area of a Circle
- 112. C Program to Find the Area of a Triangle C
- 113. Program to Find Area of Parallelogram C
- 114. Program to Find Area of Rhombus
- 115. C Program to Find Area of Trapezium
- 116. C Program to Find Area of a Right-Angled Triangle
- 117. C Program to Find the Area of Different Geometrical Shapes C
- 118. Program to Find Volume and Surface Area of Cone
- 119. C Program to Find Volume and Surface Area of Cuboid C
- 120. Program to Find Volume and Surface Area of Cylinder C
- **121.** Program to Find Volume and Surface Area of Sphere C
- 122. Program to Find Volume and Surface Area of a Cube
- 123. C Program to Find the Perimeter of a Circle, Rectangle and Triangle

C Programs on GCD, LCM & HCF

- 124. C Program to Find GCD and LCM of Two Numbers
- 125. C Program to Find GCD and LCM of Two Numbers using Euclidean Algorithm C
- 126. Program to Find GCD of Two Numbers
- 127. C Program to Find LCM of Two Numbers C
- **128.** Program to Find HCF of Two Numbers
- 129. C Program to Find HCF of Two Numbers without Recursion

C Programs on Array

- 130. C Program to Find the Number of Elements in an Array C
- 131. program to Delete an Element from an Array
- 132. C Program to Find Sum of Array Elements using Pointer
- 133. C Program to Print all Non-Repeated Elements in an Array

134.	C Program to Cyclically Permute the Elements of an Array (
135.	Program to Find Missing Numbers in Array
136.	C Program to Find Union and Intersection of Two Arrays (
137.	Program to Split the Array and Add First Part to the End C
138.	Program to Implement Bit Array
139.	C Program to Implement Variable Length Array More
140.	Advanced Question on Array Click Here!

1. C Programs on Largest & Smallest Numbers in an Array

	Program
141.	Largest Element in Array in C
142.	Find Largest Two Numbers in Array in C
143.	Second Largest and Smallest Element of an Array in C
144.	Largest Element in an Array using Recursion in C
145.	Maximum Difference b/w Two Elements in C

2. C Programs on Inserting & Deleting Elements from an Array

	Program
146.	Insert an Element in the Sorted Array in C
147.	Insert an Element in an Array in C
148.	Delete an Element from an Array in C
149.	Remove Duplicates from Array in C
150.	Reverse an Array in C
151.	Separate Odd and Even Numbers from an Array in C
152.	Cyclically Permute the Elements of an Array in C

3. C Programs on Array

	Program
153.	Find Number of Elements in an Array in C
154.	Non-Repeated Elements in an Array in C
155.	Find Missing Numbers in Array in C
156.	Find Missing Numbers of a Range [1, n] in C
157.	Array Bounds Checking in C
158.	Count Occurrences of C Keyword using Array in C
159.	Two Odd Occurring Elements in an Array in C
160.	Bit Array in C
161.	Variable Length Array in C
162.	Find Mode of an Array in C

4. C Programs on Array Operations

	Program
163.	Swap Array Elements using Pointers in C
164.	Split an Array & Add First Part to the End in C
165.	Search an Element in an Array using Recursion in C
166.	Segregate 0s and 1s in an Array in C
167.	Increment an Array by One in C

5. C Programs on Array Mathematical Operations

	Program
168.	Sum and Average of Array Elements in C
169.	Sum of Array Elements using Pointer in C
170.	Sum of Array Elements using Pointer as Arguments in C
171.	Addition of One Dimensional Array in C
172.	Largest Sum Contiguous Subarray in C

6. C Programs on Sort and Merge Operations on an Array

	Program
173.	Sort the Array in Ascending Order in C
174.	Sort the Array in Descending Order in C
175.	Sort Names in Alphabetical Order in C
176.	Merge two Sorted Arrays in C
177.	Merge and Sort Two Arrays in C

7. C Programs on Printing the Elements of an Array

	Program
178.	Pascal Triangle 1 D Array in C
179.	Odd and Even Numbers in an Array in C
180.	Kth Largest Element in an Array in C
181.	Print Alternate Elements of an Array in C
182.	Frequency of all Duplicate Elements in an Array in C

8. C Programs on Math Functions and their Applications on Arrays

Program	
183.	Print Square of Array Elements in C
184.	Print Ascii Values using Array in C
185.	Closest to Zero Program in C
186.	Union & Intersection of 2 Arrays

C Programming Examples on Matrix

187.	C Program to Perform Matrix Multiplication
188.	C Program to Display Upper Triangular Matrix C
189.	Program to Find Transpose of a Matrix
190.	C Program to Find Determinant of a Matrix C
191.	Program to Implement Adjacency Matrix
192.	C Program to Find the Frequency of Odd and Even Numbers in Matrix C
193.	Program to Find Normal and Trace of a Matrix
194.	C Program to Interchange Any Two Rows and Columns in the Matrix

1. C Programs on Matrix Operations

	Program
195.	Matrix Multiplication in C
196.	Matrix Multiplication using Recursion in C
197.	Multiplicativity of Two Matrices in C
198.	Product of Two Matrices in C
199.	Sum and Difference of Matrices in C
200.	Matrix Operations in C

201.	Matrix Addition in C
202.	Matrix Subtraction in C
203.	Find Transpose of a Matrix in C
204.	Determinant of a Matrix in C
205.	Matrix Linear Equations in C
206.	Matrix Basis and Dimension in C

2. C Programs on Matrix Types

	Program
207.	Check if Two Matrices are Equal in C
208.	Inverse Matrix in C
209.	Invertible Matrix in C
210.	Sparse Matrix Program in C
211.	Sparse Matrix Representation in C
212.	Adjacency Matrix in C
213.	Check Matrix is an Identity Matrix in C
214.	Symmetric Matrix in C

3. C Programs on Matrix Rows and Columns

	Program
215.	Interchange Rows and Columns of a Matrix in C
216.	Sort Matrix in C
217.	Row Sum and Column Sum of a Matrix in C

4. C Programs on Matrix Diagonals

	Program
218.	Sum of Diagonal Elements of a Matrix in C
219.	Find Trace & Normal of a Matrix in C
220.	Interchanging Matrix Rows in C
221.	Lower Triangular Matrix in C
222.	Upper Triangular Matrix in C

5. More Matrix Programs in C

	Program
223.	Find Frequency of Odd & Even Numbers in Matrix in C
224.	Message Encoding using Matrix in C
225.	LU Decomposition in C

C Programs on Bitwise Operation

226.	C Program to Perform Addition using Bitwise Operators
227.	C Program to Check whether the Given Integer has an Alternate Pattern C
228.	Program to Check if Bit Position is Set to One or not
229.	C Program to Check whether nth Bit is Set or not C
230.	Program to Count Trailing Zeros in Integer
231.	C Program to Round Floor of Integer to Next Lower Power of 2 C
232.	Program to Find the Highest Bit Set for any Given Integer
233.	C Program to Reverse All Bits of an 32-bit Integer using Bitwise C
234.	Program to Find MSB Position using Function

1. C Programs on Integer Bits

	Program
235.	Addition using Bitwise Operators in C
236.	Multiply Number by 4 using Bitwise Operators in C
237.	Power of 2 using Bitwise in C
238.	Power of 2 without Bitwise in C
239.	C Program to Check whether nth Bit is Set or not
240.	Reverse Bits using Bitwise in C

2. C Programs on Integer Bits

	Program
241.	C Program to Check if All Bits of Integer is One
242.	C Program to Count Trailing Zeros in Integer
243.	Find Next Higher Value with Same Number of Set Bits in C
244.	Find Highest Bit Set of Integer in C
245.	C Program to Count Set Bits in an Integer
246.	Count Leading Zeros in Number using Bitwise Operations in C

3. C Programs on Swapping and Replacing Integers

	Program
247.	Replace Bits from Position in C
248.	Replace Bits in Integer x from Bit Position a to b from Another Integer y in C
249.	Swap i th & j th Bits for a 32-Bit Integer in C
250.	Swap Numbers using Bitwise XOR Operation in C
251.	Swap Integers without Temporary Variables & Bitwise Operations in C

4. C Programs on Mathematical Applications using Bitwise Operations

	Program
252.	Alternate Pattern Program in C
253.	Integer round up to next Lower Power of 2 in C
254.	Round to Next Lower Multiple of 2 using Bitwise in C
255.	Find MSB Position using Function in C

5. C Programs on String Positions

	Program
256.	C Program to Read Byte & Return All Bits
257.	Find Position of 1-bits in C
258.	C Program to Check if Bit Position is set to One or not

6. C Programs on Strings using Bitwise Operations

	Program	
259.	Swap Two Numbers using Bitwise Operators in C	<u> </u>
<u>260.</u>	Palindrome using Bitwise Operator in C	_
<u></u> 261.	C Program to Count Set Bits using Bitwise Operations	_
<u>262.</u>	Flip the Bits to Convert X to Y in C	

C Programs on Strings

263.	C program to Compare Two Strings
264.	C Program to Delete All Repeated Words in String C
265.	Program to Replace all Characters by Lowercase
266.	C Program to Find the Frequency of a Substring in a String C
267.	Program to Count Number of Unique Words in a String C
268.	Program to Find All Possible Subsets of a String
269.	C Program to Print Ascii Value of All Characters in the String
270.	C Program to Find First and Last Occurrence of Character in a String C
271.	Program to Implement Regular Expression Matching
272.	C Program to Implement strpbrk() Function

1. C Programs on Palindrome

	Program
273.	String Palindrome Program in C
274.	Palindrome String using Recursion in C
275.	Palindrome String without Built-in Function in C
276.	Smallest and Largest Palindrome in C

2. C Programs on String Operations

	Program
277.	String Concatenation in C
278.	Concatenate Two Strings Lexically in C
279.	Compare Two Strings in C
280.	Find Substring in a String in C
281.	Length of a String without Built-in Function in C
282.	Insert Character in String in C
283.	Remove Duplicate Words from String in C

3. C Programs on String Functions

	Program
284.	Remove Word from String in C
285.	Remove Characters in Second String which are present in First String in C
286.	Replace all Characters by Lowercase in C
287.	Capitalize First Letter of Each Word in a String in C

288.	Reverse Each Word in a String in C
289.	Regular Expression Matching in C
290.	strpbrk() Function in C

4. C Programs on Strings

	Program	
291.	Sum of Numbers in String in C	
292.	Largest and Smallest Word in a String in C	
293.	Maximum Occurring Character in a String in C	
294.	Words Ending with Letter S in C	
295.	Permutation of a String in C	
296.	List All Lines Containing a given String in C	
297.	Check if Two Strings are Permutation of Each Other in C	
298.	Anagram Program in C	
299.	Find Position of 1-bits in C	
300.	ASCII Value of a String in C	
301.	Sum of ASCII Value of a String in C	
302.	Prime String Program in C	
303. C Program to Display All Combinations of Two Words from String without Repeated Combinations		
304.	Print Common Characters of Two Strings in C	
305.	Square String in C	
306.	Binary Addition of Strings in C	

307.	Add Two Binary Strings in C
308.	Convert Integer to String and Vice-versa in C
309.	Grep, Egrep and Fgrep in C

5. C Programs on Frequency of Characters in a String

	Program
310.	Highest Frequency Character in a String in C
311.	Frequency of Each Word in a String in C
312.	Frequency of "the" Word in a String in C
313.	Frequency of a Substring in a String in C
314.	Find Frequency of Characters in a String in C
315.	Count Repeated Words from a String in C
316.	Find all Subsets of a String in C
317.	Find all Subsets of given Length in String in C

6. C Programs on Count Occurrences of a Character in a String

	Program
318.	First and Last Occurrence of Character in a String in C
319.	Find Consecutive Occurrence of Vowel in a String in C
320.	Find all Occurrences of a Substring in String in C
321.	Count Particular Repeated Word in String in C

322.	Count Occurrence of Each Character in String in C
323.	Count Number of Words from a String in C
324.	Count Unique Words from a String in C

7. C Programs on String using Recursion

	Program
325.	First Uppercase Letter in a String using Recursion in C
326.	First Uppercase Letter in a String without Recursion in C
327.	String Length using Recursion in C
328.	String Copy using Recursion in C
329.	Reverse a String using Recursion in C
330.	Reverse a String using Recursion and Iteration in C

8. C Programs on String Matching

	Program
331.	Naive String Matching in C
332.	Knuth Morris Pratt Algorithm in C for Pattern Searching
333.	Knuth Morris Pratt Algorithm in C
334.	Boyer Moore Algorithm in C
335.	Rabin Karp String Matching Algorithm in C
336.	Online String Matching using Wagner and Fisher in C
337.	Levenshtein Distance Computing Algorithm in C

338.	String Matching Using Library in C
339.	String Search Algorithm in C
340.	Repeated Search Pattern in C

9. C Programs on Cryptography

	Program
341.	Monoalphabetic Cipher in C
342.	Caesar Cipher in C
343.	Vigenere Cipher in C
344.	Hill Cipher in C
345.	Affine Cipher in C
346.	Playfair Cipher Encryption Program in C
347.	RSA Algorithm in C
348.	Transposition Technique Program in C
349.	Checksum Program in C

10. C Programs on Longest Common Substrings/Subsequences

	Program
350.	Longest Repeating Subsequence in C
351.	Length of Longest Repeating Subsequence in C
352.	Longest Increasing Subsequence in C

Palindrome Programs in C

353.	C Program to Check Whether a Number is Palindrome or Not C
354.	Program to Check if a given String is Palindrome
355.	C Program to Check whether two Strings are Anagrams
356.	C Program to Check whether a String is Palindrome or not using Recursion
357.	C Program to Check if a String is a Palindrome without using Built-in Function C
358.	Program to Find the Largest & Smallest possible Word which is a Palindrome
359.	C Program to Find Smallest and Biggest Possible Word which is Palindrome in a String

C Programs on Recursion

360.	C Program to Find Sum of N Numbers using Recursion
361.	C Program Find the Length of Linked List without Recursion C
362.	Program to Find the Height of Tree using Recursion
363.	C Program to Find the Length of the String
364.	C Program to Reverse a Stack using Recursion
365.	C Program to Perform Binary Search using Recursion

1. C Programs on Mathematical Operations using Recursion

	Program
366.	Sum of Digits using Recursion in C
367.	Reverse Number using Recursion in C
368.	Integer Binary Equivalent using Recursion in C
369.	Prime Number using Recursion in C
370.	Sum of N Numbers using Recursion in C
371.	Power using Recursion in C
372.	Product of two Numbers using Recursion in C
373.	Product of two Numbers without Recursion in C
374.	Nth Fibonacci Series using Recursion in C

375.	Factorial using Recursion in C
376.	GCD using Recursion in C
377.	LCM using Recursion in C
378.	HCF using Recursion in C
379.	HCF without Recursion in C
379. 380.	HCF without Recursion in C Binary to Gray Code using Recursion in C

2. C Programs on Linked List using Recursion

	Program
383.	Search an Element in Linked List using Recursion in C
384.	Count Occurrences of Elements in a Linked List using Recursion in C
385.	Length of Linked List using Recursion in C
386.	Print All Nodes of Linked List using Recursion in C
387.	Reverse a Linked List using Recursion in C
388.	Print Alternate Nodes of a Linked List using Recursion in C

3. C Programs on Linked List without using Recursion

	Program
389.	Search an Element in Linked List without Recursion in C
390.	Count Occurrences of Elements in a Linked List without Recursion in C
391.	Length of Linked List without Recursion in C
392.	Print All Nodes of Linked List without Recursion in C
393.	Reverse a Linked List without Recursion in C
394.	Print Alternate Nodes of a Linked List without Recursion in C

4. C Programs on Tree using Recursion

	Program
395.	Find Height of Tree using Recursion in C
396.	Search Tree Element using Recursion in C
397.	Tree Traversal using Recursion in C
398.	Level Order Traversal using Recursion in C
399.	Spiral Order Traversal using Recursion in C
400.	DFS Tree Traversal using Recursion in C
401.	Inorder Traversal using Recursion in C
402.	Preorder Traversal using Recursion in C
403.	Postorder Traversal using Recursion in C

5. C Programs on Tree without using Recursion

	Program
404.	Tree Traversal without Recursion in C
405.	DFS Tree Traversal without Recursion in C
406.	Inorder Traversal without Recursion in C
407.	Preorder Traversal without Recursion in C
408.	Postorder Traversal without Recursion in C

6. C Programs on Strings using Recursion

	Program
409.	Reverse a String using Recursion in C
410.	Reverse a String using Recursion and Iteration in C
411.	First Uppercase Letter in a String using Recursion in C
412.	First Uppercase Letter in a String without Recursion in C
413.	String Length using Recursion in C
414.	String Copy using Recursion in C
415.	Palindrome String using Recursion in C

7. C Programs on Data Structures using Recursion

	Program
416.	Largest Element in an Array using Recursion in C
417.	Search an Element in an Array using Recursion in C
418.	Matrix Multiplication using Recursion in C
419.	Reverse a Stack using Recursion in C
420.	Reverse a Stack without Recursion in C
421.	Tower of Hanoi using Recursion in C
422.	Linear Search using Recursion in C
423.	Binary Search using Recursion in C
424.	Merge Sort using Recursion in C
425.	Quick Sort using Recursion in C
426.	Shell Sort without Recursion in C
427.	Magic Squares Puzzle without Recursion in C