



# DATASETS TOPICS

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**PREPARED BY: VISHNU**

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# BASIC MATH OPERATIONS

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1. CHECK EVEN OR ODD
2. FIND FACTORIAL
3. CHECK PRIME NUMBER
4. FIND GREATEST OF TWO NUMBERS
5. FIND SMALLEST OF THREE NUMBERS
6. SQUARE OF A NUMBER
7. CUBE OF A NUMBER
8. SUM OF FIRST N NATURAL NUMBERS
9. MULTIPLY TWO NUMBERS
10. CHECK IF NUMBER IS POSITIVE,  
NEGATIVE, OR ZERO

# String Manipulation

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**11. REVERSE A STRING**

**12. CHECK PALINDROME STRING**

**13. COUNT VOWELS IN A STRING**

**14. COUNT CONSONANTS**

**15. REMOVE SPACES FROM A STRING**

**16. CONVERT STRING TO UPPERCASE**

**17. CONVERT STRING TO LOWERCASE**

**18. COUNT WORDS IN A SENTENCE**

**19. FIND LENGTH OF A STRING**

**20. REPLACE CHARACTER IN A STRING**

# list operations

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**21. FIND MAXIMUM ELEMENT**

**22. FIND MINIMUM ELEMENT**

**23. SUM OF ELEMENTS IN LIST**

**24. SORT LIST ASCENDING**

**25. SORT LIST DESCENDING**

**26. REMOVE DUPLICATES FROM LIST**

**27. COUNT FREQUENCY OF AN ELEMENT**

**28. REVERSE A LIST**

**29. FIND SECOND LARGEST ELEMENT**

**30. CHECK IF LIST IS EMPTY**

**31. FIND THE INDEX OF AN ELEMENT IN A LIST**

**32. CALCULATE THE AVERAGE OF NUMBERS IN A LIST.**

# loop based problems

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- 33. PRINT NUMBERS FROM 1 TO N
- 34. PRINT MULTIPLICATION TABLE
- 35. PRINT EVEN NUMBERS IN A RANGE
- 36. PRINT ODD NUMBERS IN A RANGE
- 37. COUNT DIGITS IN A NUMBER
- 38. SUM OF DIGITS
- 39. PRODUCT OF DIGITS
- 40. PRINT ALL CHARACTERS OF A STRING
- 41. PRINT NUMBERS DIVISIBLE BY 3
- 42. PRINT SQUARES OF NUMBERS

# Function-Based Tasks

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- 43. CALCULATE THE AREA OF A CIRCLE
- 44. FIND THE AREA OF A RECTANGLE
- 45. FIND THE PERIMETER OF A RECTANGLE
- 46. FIND THE SQUARE ROOT OF A NUMBER
- 47. CALCULATE THE CIRCUMFERENCE OF A CIRCLE
- 48. CONVERT CELSIUS TO FAHRENHEIT
- 49. CONVERT FAHRENHEIT TO CELSIUS
- 50. CALCULATE SIMPLE INTEREST
- 51. CONVERT MINUTES TO HOURS AND MINUTES

# Conditional Logic Problems

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**52. CHECK VOTER ELIGIBILITY**

**53. CHECK IF NUMBER DIVISIBLE BY 5 AND 11**

**54. GRADE SYSTEM (A, B, C, ETC.)**

**55. ELECTRICITY BILL CALCULATOR**

**56. SIMPLE CALCULATOR USING IF-ELSE**

**57. CHECK TRIANGLE TYPE**

**58. CHECK LEAP YEAR**

**59. CHECK IF CHARACTER IS VOWEL OR**

**CONSONANT**

**60. CHECK IF CHARACTER IS ALPHABET OR**

**NUMBER**

**61. CHECK LOGIN USERNAME/PASSWORD**



# Basic Algorithms

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**62. LINEAR SEARCH**

**63. BINARY SEARCH**

**64 BUBBLE SORT**

**65. SELECTION SORT**

**66. INSERTION SORT**

**67. MERGE TWO SORTED LISTS**

**68. FIND ALL DUPLICATES IN LIST**

**69. FIND INTERSECTION OF TWO LISTS**

**70. FIND UNION OF TWO LISTS**

**71. SHUFFLE LIST ELEMENTS**

# Dictionary Operations

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**72. COUNT OCCURRENCES OF CHARACTERS**

**73. MERGE TWO DICTIONARIES**

**74. CHECK IF KEY EXISTS**

**75. ADD KEY-VALUE PAIR**

**76. REMOVE KEY-VALUE PAIR**

**77. SORT DICTIONARY BY VALUES**

**78. CONVERT TWO LISTS INTO DICTIONARY**

**79. INVERT DICTIONARY (SWAP KEY → VALUE)**

**80. FREQUENCY COUNT OF WORDS**

**81. FIND HIGHEST VALUE IN DICTIONARY**

# File Handling Tasks

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**82. READ TEXT FILE**

**83. WRITE TO A FILE**

**84. COUNT LINES IN A FILE**

**85. COUNT WORDS IN A FILE**

**86. COUNT CHARACTERS IN A FILE**

**87. COPY CONTENTS OF ONE FILE TO ANOTHER**

**88. APPEND TEXT TO FILE**

**89. FIND LONGEST WORD IN A FILE**

**90. REMOVE BLANK LINES FROM FILE**

**91. CHECK IF FILE EXISTS**

# Miscellaneous Logic Problems

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**92. FIBONACCI SEQUENCE**

**93. ARMSTRONG NUMBER**

**94. STRONG NUMBER**

**95. PERFECT NUMBER**

**96. SUM OF SERIES  $1 + 2 + 3...$**

**97. FIND GCD OF TWO NUMBERS**

**98. FIND LCM OF TWO NUMBERS**

**99. CONVERT DECIMAL TO BINARY**

**100. CONVERT BINARY TO DECIMAL**

**101. RANDOM NUMBER GUESSING GAME**