

Lex Programming Practice Sheet

Level 1: Basics of Pattern Matching

1. Identifier Check - Check if input is a valid C identifier.
2. Even or Odd Number - Identify if input integer is even or odd.
3. Vowel or Consonant - Check if a character is a vowel or consonant.
4. Count Vowels, Consonants, Digits, and Special Characters.
5. Detect and Remove Whitespaces from input.

Level 2: Validation Tasks

6. Email Validator - Check if input is a valid email address.
7. Phone Number Validator - Validate 10-digit phone numbers.
8. Date Validator - Match DD/MM/YYYY format.
9. URL Validator - Validate http, https URLs.
10. IP Address Validator - Validate IPv4 addresses.

Level 3: Tokenization and Analysis

11. Arithmetic Expression Analyzer - Identify numbers and operators.
12. Keyword Counter - Count keywords like if, else, while, for.
13. Lexical Analyzer for C Code - Tokenize identifiers, keywords, etc.
14. Detect Palindromes - Check if words are palindromes.
15. Longest Word Finder - Print the longest word in input.

Level 4: Output Formatting & Transformation

16. Add Line Numbers - Prefix lines with line numbers.
17. Replace Multiple Spaces - Normalize input spacing.
18. Convert to UPPERCASE - Transform all text to uppercase.
19. Insert # at End - Add '#' to the end of every line.
20. Remove Extra Occurrences - Keep only the first instance of a word.

Bonus Challenges

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21. Check Balanced Parentheses - Validate expressions.
22. Mini wc Tool - Count lines, words, and characters.
23. Detect HTML Tags - Identify and print HTML tags.
24. Letter Frequency - Count frequency of each letter (a-z).
25. Comment Remover - Strip `//` and `/* */` comments from code.