

Fall 2020  
CSE 422 – Compiler Construction Lab  
Lab Assignment  
Marks: 40

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**Write rules or patterns to solve the following problems on Flex**

1. Identify vowel and consonant on a given alphabet or word. Any alphabet or word should be belonged to any combination of lower and upper case English letters.

Sample input	Sample output
AbcDe	Vowel Consonant Consonant Consonant Vowel
i	Vowel
V	Consonant

2. Count vowel and consonant on a given alphabet or word. Any alphabet or word should be belonged to any combination of lower and upper case English letters.

Sample input	Sample output
AbcDe	Vowel = 2, Consonant = 3
i	Vowel = 1, Consonant = 0
V	Vowel = 0, Consonant = 1

3. Identify the even and odd numbers for a given  $i$ , where  $i$  may be consisted by the combination of any digits (0 – 9).

Sample input	Sample output
123	Odd Even Odd
10	Odd Even
5	Odd

4. Count the even and odd numbers for a given  $i$ , where  $i$  may be consisted by the combination of any digits (0 – 9).

Sample input	Sample output
123	Even = 1, Odd = 2
10	Even = 1, Odd = 1
5	Even = 0, Odd = 1

5. Check whether the string “010” has contained on the given binary string  $S$  or not..

Sample input	Sample output
010001	010 has not contained
10100101	010 has contained
010111101	010 has contained
0110110	010 has not contained
101010101	010 has contained

6. You are given a number  $N$ . Classify the  $N$  on following category:
- If  $N$  has any combination of 0 and 1, then you will say it is a Binary number.
  - If  $N$  has any combination of digits (0 – 9), then you will say it is a Decimal number.
  - If  $N$  has any combination of digits (0 – 9) and alphabets ( $A – F$ ), then you will say it is a Hexadecimal number.

Sample input	Sample output
123	Decimal
1001	Binary
9D	Hexadecimal
000010121010101001	Decimal
89152687578EF	Hexadecimal

7. Identify a valid mail address. Note that a mail address would be composed on any upper and lower case English letters (a-z), digits (0-9) and all type of separators (. or – or \_ or @ and related others). As a vendor that should be only Gmail, Yahoo and Outlook. A mail address must start with a letter(s).

Sample input	Sample output
b123_a@yahoo.com	Valid mail
Kaysar2020@gmail.com	Valid mail
al170.rahman_2020-jalil.vai1980@gamail.com	Not a valid mail
rahim_Dark625.khan@outlook.co	Not a valid mail
k13.35-dinesh_baroi2020-chow2210@outlook.com	Valid mail

8. You are given a string  $S$ . You have to justify whether the string  $S$  is a valid identifier for C language or not. This is to be noted that a valid identifier will have a combination of English uppercase and lowercase letters, digits and underscore. However, an identifier must begin with a letter.

Sample input	Sample output
b123	Valid C identifier
Var1	Valid C identifier
_1234	Not a valid C identifier
Karim	Valid C identifier
k_13.35	Not a valid C identifier