

CS 358 Compiler Techniques Lab

Assignment 5

Maximum Marks: 30

Start Date: 14.02.2025 02:30 pm

Submission Deadline: 20.02.2025 11:59 pm

Instructions:

1. This assignment must be done individually.
2. *For late submissions, 10% is deducted for each hour late after an assignment is due.*
3. You need to submit your code and document in Google Classroom.
4. You should submit **only one zip file** containing your code and document (ReadMe). You should name your zip file as **rollNumber&name.zip**.

Question 1 [Marks: 10]: Write a LEX code that replaces a character [a-zA-Z] with another character. Initially use any random number between 1 to 5 e.g. 2. Now, whenever you come across the first alphabet in your input, that character should be replaced with another character that is 2 places away from it in alphabetical order e.g. If the first character is 'm' then it should be replaced with 'o'. The second character should be replaced with the character 3 places away from it, the third character should be replaced with the character 4 places away from it and so on. Use one input file and one output file. Once the count crosses 25 it should start from 1.

Question 2 [Marks: 10]: Write a LEX program to count the number of printf and scanf statements in given C subroutine.

Question 3 [Marks: 10]: Write a LEX program to count the number of

(a) Positive and Negative integers

(b) Positive and Negative fractions i.e. whether the given number is positive integer, negative integer, positive fraction or negative fraction.

Hint:

1. Initialize positive and negative integers and fractions to 0.

2. A loop checks the following:

a. If a number is followed by a minus (-) sign, then the value of neg_int is incremented. `[-][0-9]* ++neg_int;`

b. If a number is followed by a plus (+) sign, then the value of pos_int is incremented. `\+?[0-9]* ++pos_int;`

c. If a fraction is followed by a plus (+) sign, then the value of pos_fraction is incremented.

d. If a fraction is followed by a minus (-) sign, then the value of neg_fraction is incremented. `\+?[0-9]*[/|.][0-9]* ++pos_frac;`