



**Strathmore**  
UNIVERSITY

**FACULTY OF INFORMATION TECHNOLOGY  
BACHELOR OF INFORMATICS & COMPUTER SCIENCE**

**Week Long Tasks  
Group Work  
ICS 4211: Compiler Construction**

**Time: 4 Hours**

**09/10/2023 to 13/10/2023**

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**Attempt all the tasks**

**In the tasks, you can use a programming language of your choice**

1. Write a program to identify *programming lines* (in the same programming language) as either comments or not.  
Further to this task:
  - i. Describe the *logic* used.
  - ii. Was *lexical analysis* or/and *syntax analysis concepts* important in your logic? If yes, how?
2. Write a program to test whether a given identifier is valid or not  
Further to this task:
  - i. Tools like *Lex* and *Flex* helped users develop lexers to do tasks like the one given above. Using the *Flex specification file*, develop a simple lexer to validate identifiers.
3. Write a program to construct the *LL (1)* table for a given *CFG*. [*The CFG can be static i.e. the same CFG all time or dynamic, meaning based on a given structure of your choice, one can specify any CFG and your program produces the relevant LL (1) table*].
4. Bonus tasks (Optional to do):
  - a. Using any two files of YACC and Flex, show how a parser is generated.
  - b. Write a program to implement operator precedence parsing.

**Submission Instructions**

- Task 1 and 2 should be submitted on Tuesday 10<sup>th</sup> at 7pm.
- Task 3 and optionally 4 submitted on Friday 13<sup>th</sup> 🐱 ☺ at 7pm.

*As usual, submit a notepad with a link to the repo hosting the notebook you implemented the work.*

*FYI: Organizing your notebook with proper titles, headings, subheadings, comments and texts etc improves the quality of your work and cultivates a good programming culture.*

- These tasks will account for your attendance in the week starting 9<sup>th</sup> October.
- Also, marks will be awarded based on program/work uniqueness and initiative/resourcefulness (i.e. those who go far and beyond will get **A LOT OF MARKS**).