Shri Ramdeobaba College of Engineering and Management, Nagpur
Department of Computer Science and Engineering
Session: 2021-2022 [EVEN SEM]

Compiler Design Lab

PRACTICAL No. 3

Topic: Parser Construction

Platform: Windows or Linux

Language to be used: Python or Java (based on the companies targeted for placement)

Aim:

(A) Write a program to find FIRST for any grammar. All the following rules of FIRST must be implemented.

For a generalized grammar: $A \rightarrow \alpha XY$

FIRST (A) = FIRST (αXY)

= α if α is the terminal symbol (Rule-1)

= FIRST (α) if α is a non-terminal and FIRST (α) does not contain ε (Rule-2)

= FIRST (α) - ε $\cup$ FIRST (XY) if a is a non-terminal and FIRST (α) contains ε (Rule-3)

Input: Grammar rules from a file or from console entered by user.
Following inputs can be used:

Batch A1:
A→ SB | B
S→ a | Bc | ε
B→ b | d

Batch A2:
S→ A | BC
A→ a | b
B→ p | ε
C→ c

Batch A3:
S→ AB | C
A→ a | b | ε
B→ p | ε
C→ c

Batch A4:
S→ ABC | C
A→ a | bB | ε
B→ p | ε
C→ c

Implementation: FIRST rules
Output: FIRST information for each non-terminal

(B) Calculate Follow for the given grammar manually, input the follow information and Construct the LL (1) parsing table using the FIRST and FOLLOW values computed above.

Submission Format: Pdf should contain- Aim, scanned copy of hand solved numerical (batch specific), code, and execution screen shot.