LL(1) parser🡪 left to right, leftmost derivation , 1 lookahead (Predictive Parser) //

E🡪E+T|T

T->T\*F|F

F🡪(E) |id

Solution:

1. **Remove the Left Recursion**

E->TE’

E’->+TE’ | €

T->FT’

T’->\*FT’ | €

F-> (E) | id

1. Compute First and Follow

Step 2.1: Compute First set

F-> (E) | id

First (F) = first { ( } union first {id}

= { ( , id }

T’->\*FT’ | €

Compute First (T’) =

first {\* } union first {€}

= { \* , € }

T->FT’

Compute First ( T ) = first {F} = { ( , id }

E’->+TE’ | €

First ( E’) = first { + } union first {€ }

= { + , € }

E->TE’

First ( E ) = first { T} = { ( , id }

* 1. Compute Follow

E->TE’

Follow ( E ) = ???

= { $, first{ ) } \_\_\_\_\_\_\_ }

= { $, ) }

F-> (E) | id

E’->+TE’ | €

Follow ( E’ ) = { $, ) } union follow { E’ }

= { $ , ) }

E’->+TE’ | € follow { E’ }

E->TE’ follow { E } = { $, ) }

T->FT’

Follow ( T ) = { +, $ , ) }

E->TE’

= first (E’) = { + , € } = { +, $, ) }

Because of €: follow ( E )

E’->+TE’ | €

= first {E’} = { + , € }

T’->\*FT’ | €

Follow ( T’) = { +, $ , ) union follow { T’} = { +, $ , ) }

T->FT’

Follow { T} = { +, $ , ) }

T’->\*FT’ | €

LHS = follow { T’}

F-> (E) | id

Follow { F } = { \* , +, $ , ) }

T->FT’

= first { T’} = { \* , follow { T} }

= \* { +, $ , ) }

= { \* , +, $ , ) }

T’->\*FT’ | €

= First { T’ } = = { \* , € } = { \* union Follow {T’} }