German University in Cairo
Media Engineering and Technology
Assoc. Prof. Haythem Ismail

Compilers Lab, Spring term 2019

Task 6

LL(1)

Please read the following instructions carefully:

- Read Rules & regulations first
- It is **YOUR responsibility** to ensure that you have:
  - Submitted before the deadline.
  - Submitted the correct file(s).
  - Submitted the correct file(s) names.
  - Submitted correct logic of the task as it will be tested both publicly & privately.
  - Submitted your code in the format XX_XXXX_lab_6.zip where XX_XXXX is your ID for example 34_8000_lab_6.zip if your ID is 3 digits, append a zero to the left to be 34_0800_lab_6.zip to the correct google form link https://goo.gl/forms/5SIB8NLdUx2KZtwz2.

  .
- Good luck! =D

1 LL(1)

In this part, you are required to implement the LL table for any given grammar then check whether the input string belongs to the language or not.

- You should submit all files contains your python code for the solution.
- All files should have the extension ".py" & the "main" method should be in a file with the name "task_6_1.py".
- You should make sure that the first output is produced in a text file with the name "task_6_1_result.txt". It should contain the LL(1) table in the correct format.
- You should make sure that the second output is produced in a text file with the name "task_6_2_result.txt". It should contain the result of input string to the given language in the correct format.
- "Assignment 6 sample file" on the course web site contains a piece of code that you must include in your "task_6_1.py"in order to read inputs from a text file.

(All tokens must be separated by space characters)
(Epsilon will be represented with the word "epsilon")

For example, the first input file will contain the grammar and the first & follow as follows:

Listing 1: Format

```
Line #1 non terminal colon set of production rules then
colon first then colon follow.
e.g.: A : B c | D a d | epsilon : a b ( + : $ + b
...
```

```
1 S : F | ( S + F ) : a ( : $ +
2 F : a : a : $ )
```

For example, the second input file will contain the input as follows:

```
1 a
```

The output “task_6_1_result.txt” would be:

Listing 2: Format

```
Line #1 non terminal colon alphabet colon production
e.g.: A : a : ( S + F )
...
```

```
S : ( : ( S + F )
S : ) :
S : a : F
S : + :
S : $ :
F : ( :
F : ) :
F : a : a
F : + :
F : $ :
```

The output “task_6_2_result.txt” would be:

Listing 3: Format

```
Line #1 "yes" or "no"
    e.g.: yes
```

```
yes
```