Lab 3 - Report

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1 Overview

In this section, briefly listing the issues that the class today covers.

2 Results

Exercise 1: Accept a sentence starting with "Are", followed by a lowercase-word identifier, and end ing with a question mark.

Language design

```
grammar Sample;

// Define the start rule for the language
sentence : ARE ID E_Mask; // The language must begin with an identifier

// Define the identifier rule

ARE: 'Are';

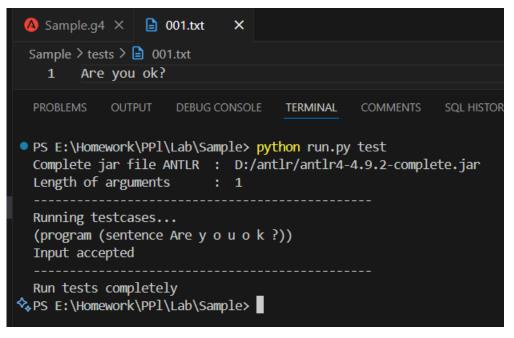
ID: [a-z]+;

E_Mask: '?';

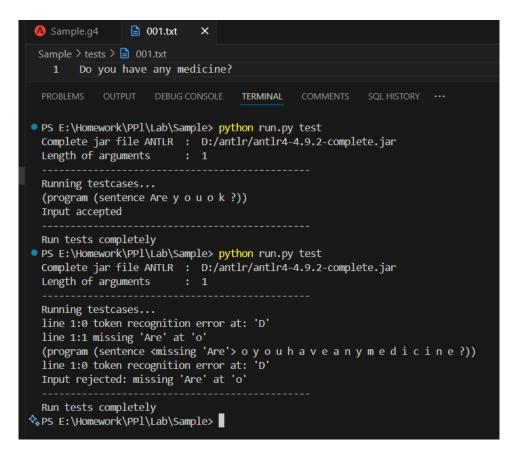
// Define a rule to skip whitespace

WS : [ \t\r\n]+ -> skip ; // Skip spaces, tabs, newlines
```

Input/Output



	1	Are you kidding me?							
	PROBLEM	ΛS	OUTPUT	DEBUG	CON	SOLE	TERMINAL	COMMENTS	SQL HISTOR
•	Length	of	arguments		: :	1			
	Antlr4 is running Generate successfully PS E:\Homework\PPl\Lab\Sample> python run.py test								
		_			: 1	D:/anti	lr/antlr4-4	1.9.2-comple	te.jar
	Length	of	arguments		: :	1			
	Running testcases (program (sentence Are y o u k i d d i n g m e ?)) Input accepted								



Exercise 2: Accept questions that start with "Can", "Could", "Should", or "Would", followed by a lowercase identifier, ending with a question mask

```
sentence: QUESTION ID E_Mask;

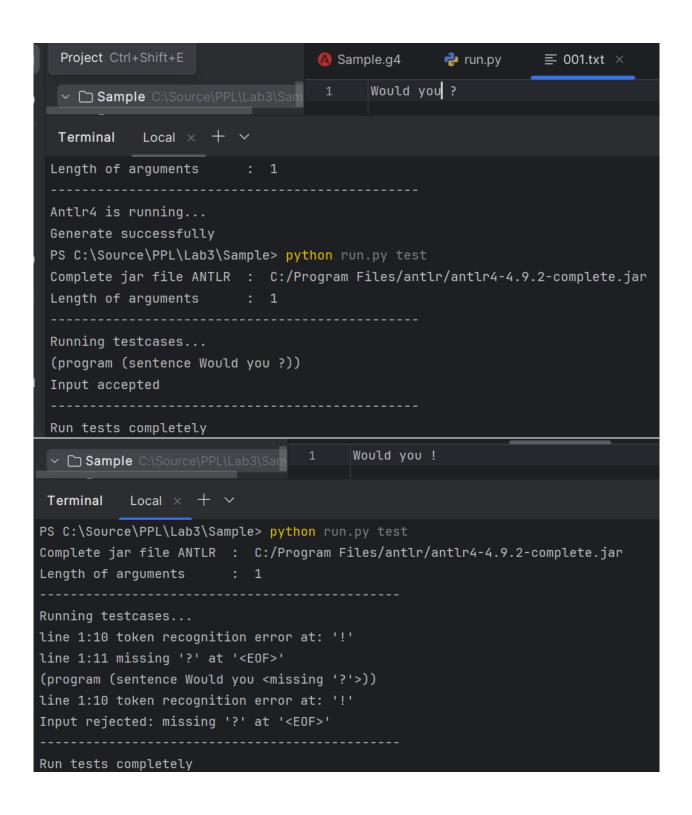
QUESTION: ('Can'| 'Could'| 'Should' | 'Would');

ID: [a-z ]+;

E_Mask: '?';

WS : [ \t\r\n]+ -> skip; // skip spaces, tabs, newlines
```

Input/ Output



```
Terminal Local × + >

PS C:\Source\PPL\Lab3\Sample> python run.py test

Complete jar file ANTLR : C:/Program Files/antlr/antlr4-4.9.2-complete.jar

Length of arguments : 1

Running testcases...

line 1:0 token recognition error at: 'H'

line 1:1 missing QUESTION at 'ello'

line 1:6 extraneous input 'you' expecting '?'

(program (sentence <missing <INVALID>> ello you ?))

line 1:0 token recognition error at: 'H'

Input rejected: missing QUESTION at 'ello'

Run tests completely
```

Exercise 3: Extend Exercise 2 by allowing an optional subject pronoun (he, she, they, we) before the verb.

```
Sample > A Sample.g4 X run.py

Sample > A Sample.g4

1 grammar Sample;

2 3 program: sentence;

4 5 sentence: VERB SUB ID+ E_Mask;

6 7 VERB: ('Could'|'Should'|'Can'|'Would');

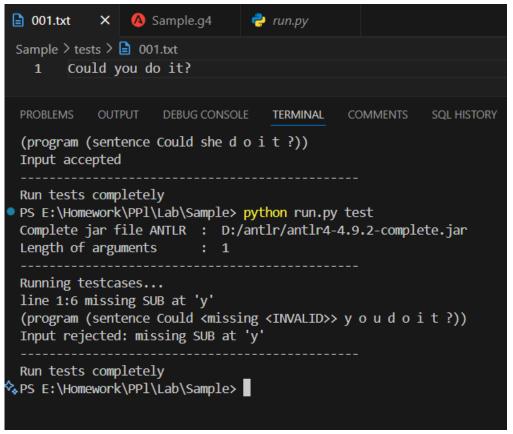
8 SUB: ('he'|'she'|'they'|'we');

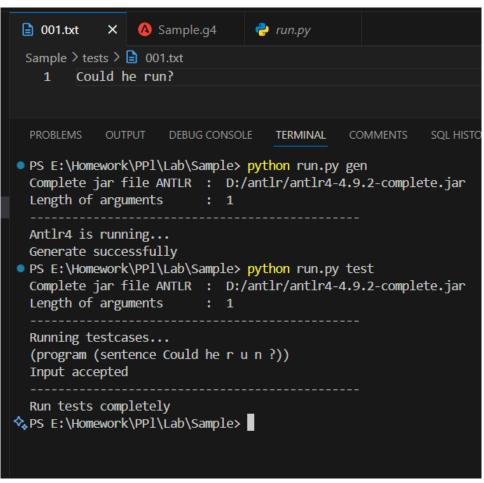
9 ID: [a-z];

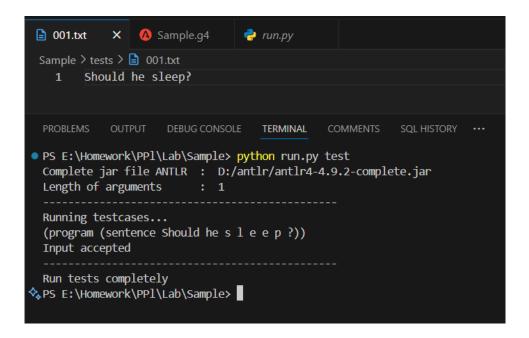
10 E_Mask: '?';

11

12 WS: [\t\r\n]+ -> skip; // skip spaces, tabs, newlines
```







Exercise 4: Extend the verb to support two-word verb phrases such as: "wake up", "log in", "check out"

Language design 1

```
grammar Sample;

program: sentence;

sentence: QUESTION (SUBJ)? (V)? V_F '?';

QUESTION: ('Can'| 'Could'| 'Should' | 'Would');
SUBJ: ('he' | 'she' | 'they' |'we');
V: [a-z];
V_F:('at' | 'in' | 'on' | 'up' | 'out'| ' ');
E_Mask: '?';

WS : [ \t\r\n]+ -> skip; // skip spaces, tabs, newlines
```

Input/ Output

```
Should they wake up ?
```

```
sentence: QUESTION SUBJ V E_Mask;

QUESTION: ('Can'| 'Could'| 'Should' | 'Would');
SUBJ: ('he' | 'she' | 'they' |'we');
V: [a-z]+('at' | 'in' | 'on' | 'up' | 'out'| ' ');
E_Mask: '?';

WS : [ \t\r\n]+ -> skip; // skip spaces, tabs, newlines
```

Test case

```
Should they wake up ?
```

Output

```
grammar Sample;

program: sentence;

sentence: (QUESTION)? (SUBJ)? V V? E_Mask;

QUESTION: ('Can'| 'Could'| 'Should' | 'Would');

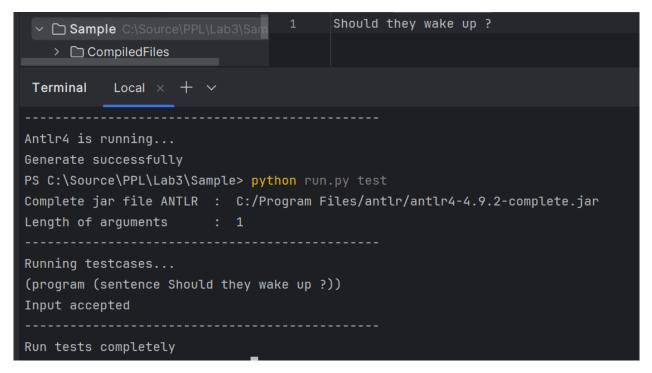
SBJ: ('he' | 'she' | 'they' | 'we');

V: [a-z]+;

E_Mask: '?';

WS : [ \t\r\n]+ -> skip; // skip spaces, tabs, newlines
```

Output



Exercise 5:

Exercise 6:

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