JFLEX/ CUP COMPILER

1. JFlex Lexer
This program has been modified from the example provided on Moodle.

User code section
- no changes

Options and declarations section
- included **%line** option in order to be able to output **yyline** for debugging purposes
- added a **StringBuffer** to collect input characters into a single **STRING** token
- added a **EOF** flag to indicate that the lexer has reached the end of the input file
- used macros to build up the regular expressions; the second block of macros pertain to the construction of the **NUMBER** token
- declared one state called **STRING**

Rules and actions section
- in addition to creating new symbols for valid tokens, the program also outputs the tokens and their **yyline** for debugging purposes
- the error fallback has been modified

2. CUP Parser
This program has also been modified from the example provided on Moodle.

Terminals
There are eleven terminals declared.

Non-terminals
There are seven non-terminals declared. The parser is instructed to start with the non-terminal **object**.

object	is defined as	**{ members }**
members	is defined as	**object** *or* **array** *or* **pairs**
array	is defined as	**[values]**
pairs	is defined as	**pair, pairs** *or* **pair**
pair	is defined as	**string : value**
values	is defined as	**value, values** *or* **value**
value	is defined as	**string** *or* **true** *or* **false** *or* **null** *or* **number** *or* **array** *or* **object**

3. Results of tests
Running **ant jar**
Build is successful.

Testing

Five examples were downloaded from http://json.org/example.html and saved in the parent directory i.e. **YinYeeKAN**:

- example_1 : Parse is successful: **EOF** flag is output to console. Tests ability to parse objects and an array.
- example_2: Parse is successful: **EOF** flag is output to console. Tests ability to parse a more complex array containing pairs.
- example_3: Parse is successful: **EOF** flag is output to console. Tests ability to parse the special character '**/**' as part of a **string**.
- example_4: Parse is successful: **EOF** flag is output to console. Tests ability to parse **number**, **true**, and **false**.
- example_5: Parse is successful.: **EOF** flag is output to console. Tests ability to parse **null**.