German University in Cairo
Media Engineering and Technology
Dr. Haythem O.Ismail

Advanced Computer Lab, Spring term 2017
Task 3

Lexical Analyzer

In this task, you are required to create a lexical analyzer for the Latex document mark-up language.The lexical analyzer will be generated using a tool called JLex. JLex can be found at:
`http://www.cs.princeton.edu/~appel/modern/java/JLex/`
JLex Manual can be found at:
`http://www.cs.princeton.edu/~appel/modern/java/JLex/current/manual.html`
How to install JLex?
`http://www.cs.princeton.edu/~appel/modern/java/JLex/current/README`

The output of your lexical analyzer should be a stream of objects of type Token. Each Token will have the type of the token and the lexeme. By running the given class, MLA.java, the file Sample.input should be scanned by your lexer and an output file, Sample.out, will be generated. Each line of the output file will be a token from the input. Each token will be represented by its type followed by the lexeme. The sample code scans the file Sample.in and generates Sample.out. (check requiredSample.out to see the desired correct output) The files provided for this part are as follows:

a) **Sample.in**: it contains a sample program to test your lexical analyzer.

b) **requiredSample.out**: the correct output you are required to generate for **Sample.in**.

c) **MLA.java**: initializes the lexical analyzer and uses it to scan the input file and generate the output file.

d) **Token.java**: a class used to create tokens keeping track of the type and the lexeme.

e) **Lexer**: lex file with basic structure.

The lex file (Lexer) is already provided. By running JLex with the file Lexer, the file Lexer.java will be generated. The lex file provided is already configured to generate files with the correct structure. Your task is to build on the exiting Lexer and complete the specifications required for the lexical analyzer to generate the required output. You only need to submit the lex file Lexer in this part.

Please Note that:

- Your deadline is one week after your lab session.
- **No late** submissions will be accepted.
- Cheating cases will be graded by 0.
- It is your responsibility to make sure that the files were uploaded successfully to the website.