CSCE638 PA3 Report

Name: Shaolong Chen UIN: 526005210

1. Compile and Run

(1) This CYK algorithm program is implemented in Java. So before compiling and running, please make sure that JVM or Java basic environments are installed correctly.

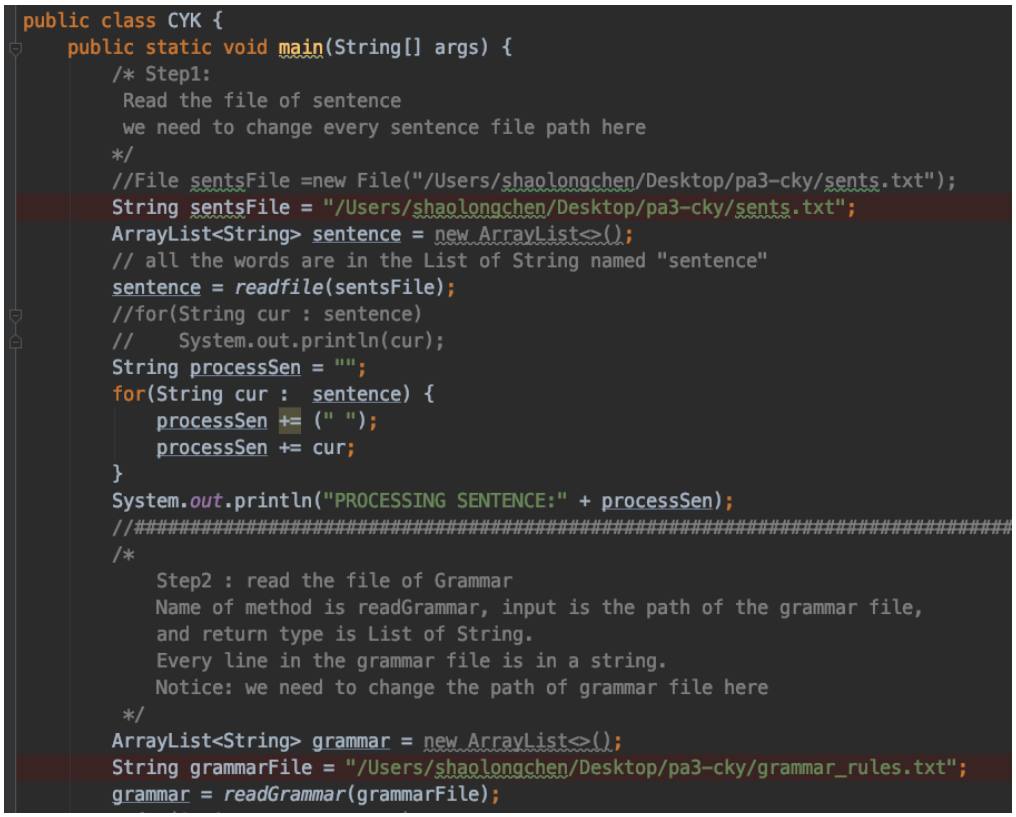
(2) Because we need to read the Grammar file and sentence file, we need to change the specific path of these two files of every test case.

① Change sentence file in the beginning of main function in CYK Class.

The name of Variable is "***sentsFile***", variable type is String.

② Change grammar file path in the beginning of main function in CYK Class.

The name of Variable is "***grammar File***", variable type is String.



```
public class CYK {
    public static void main(String[] args) {
        /* Step1:
         Read the file of sentence
         we need to change every sentence file path here
        */
        //File sentsFile =new File("/Users/shaolongchen/Desktop/pa3-cky/sents.txt");
        String sentsFile = "/Users/shaolongchen/Desktop/pa3-cky/sents.txt";
        ArrayList<String> sentence = new ArrayList<>();
        // all the words are in the List of String named "sentence"
        sentence = readfile(sentsFile);
        //for(String cur : sentence)
        //    System.out.println(cur);
        String processSen = "";
        for(String cur :  sentence) {
            processSen += (" ");
            processSen += cur;
        }
        System.out.println("PROCESSING SENTENCE:" + processSen);
        //##############################################################################
        /*
            Step2 : read the file of Grammar
            Name of method is readGrammar, input is the path of the grammar file,
            and return type is List of String.
            Every line in the grammar file is in a string.
            Notice: we need to change the path of grammar file here
         */
        ArrayList<String> grammar = new ArrayList<>();
        String grammarFile = "/Users/shaolongchen/Desktop/pa3-cky/grammar_rules.txt";
        grammar = readGrammar(grammarFile);
```

2. Run in the Terminal

① Use cd command in the terminal to locate the "CYK.java" file. This java program is named as ***"CYK.java".***

② Run

" $ javac CYK.java"

③ Run

" $ java CYK "

④ The result will be printed in the terminal.

```
chenshaolongdeMacBook-Pro:src shaolongchen$ ls
CYK.class       CYK.java        Main.java       quickSort.java
chenshaolongdeMacBook-Pro:src shaolongchen$ javac CYK.java
Note: CYK.java uses unchecked or unsafe operations.
Note: Recompile with -Xlint:unchecked for details.
chenshaolongdeMacBook-Pro:src shaolongchen$ java CYK
PROCESSING SENTENCE: fish people fish tanks
SPAN: fish
P(V fish)=0.6
P(N fish)=0.2
P(VP) = 0.06 (BackPointer = V)
P(NP) = 0.13999999999999999 (BackPointer = N)
```

3. Result and analysis

The output will be printed in the terminal and format is the same as standard format in instructions.

4. Known bugs and limitations

If the sentence grammar file or the parse tree become more complicated, some final data may exist error or difference.