

### Question 4 (20 marks)

- a. Create a new class called **Q4**; copy the code from **Q1** to **Q4**. Replace the main method using the following code.

```
public static void main(String[] args) {  
    scan("src/WeeJavaExample.txt");  
}
```

- b. In **Q4**, add a method called **scan**, which takes a parameter **fname** of type **String**. It reads the file content in file **fname** into a string and it parses the string into tokens and prints them out.

The pseudocode for **scan** method is in **Q4ScanMethodPseudoCode.txt**. You need to complete the missing part and implement it in Java. A partial solution **Q4Template.java** is also provided to you.

When running Q4, the output in the console window should look like the content in **Q4Output.txt**: the 1st column is **line number**, the 2nd column is **token type** and the 3rd column is the corresponding text (**token name**).

You need to use these help methods defined in Question 1 to complete this step

### Question 5 (10 marks)

In this part you are going to upgrade the code in **scan()** method to detect some simple compile time errors in weeJava programs.

- a. Create a new class called **Q5**; copy the code from **Q4** to **Q5**. Replace the main method using the following code.

```
public static void main(String[] args) {  
  
    System.out.println("## Q5Example1:");  
    scan("src/Q5Example1.txt");  
  
    System.out.println("\n## Q5Example2:");  
    scan("src/Q5Example2.txt");  
  
    System.out.println("\n## Q5Example3:");
```

```
scan("src/Q5Example3.txt");  
}
```

Q5Example1.txt, Q5Example2.txt and Q5Example3.txt are three weeJava files that have compilation errors.

- b. **Extend** the **scan()** method to so that when running Q5, the output in the console window resembles the figure below.

Note that this time you do not need to print out the tokens in the console window.

```
## Q5Example1:  
Syntax error on token "0", delete this token  
at Line 6  
  
## Q5Example2:  
String literal is not properly closed by a double-quote  
at Line 6  
  
## Q5Example3:  
Syntax error, insert "}" to complete classBody  
at Line 8
```