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Computer Science

Java File I/O and String Handling

Given and Introduction:

The task involves understanding Java File I/O operations and basic string handling. The provided program reads contents from a file named "file.txt" and prints each line.

Contents of the "file.txt" are given as:

```
Hello CS 1
I hope you are enjoying, yourself!
```

Step-by-Step Solution:

Step 1: Reading the File Content

```
Scanner fileHandler = new Scanner(new File("file.txt"));
```

Explanation: A `Scanner` object named `fileHandler` is created to read from the file "file.txt".

Supporting Statement: The `Scanner` class is used for parsing primitive types and strings using regular expressions, and it can be used to read files.

Step 2: Iterating Over Each Line

```
while (fileHandler.hasNext()) {
  doSomething(fileHandler.nextLine());
}
```

Explanation: The `while` loop checks if there is another line in the file with `fileHandler.hasNext()`. If there is, it reads the line using `fileHandler.nextLine()` and passes it to the `doSomething` method.

Supporting Statement: `hasNext()` method checks if the scanner has another token in its input, and `nextLine()` method advances the Scanner past the current line and returns the input that was skipped.

Step 3: Printing Each Line

```
public static void doSomething(String str) {
  System.out.println(str);
}
```

Explanation: The `doSomething` method takes a string as an argument and prints it using `System.out.println()`.

Supporting Statement: `System.out.println(str)` outputs strings to the console, appending a newline after each string.

Step-by-Step Execution with File Content:

Process the input file:

1. Read the first line `"Hello CS 1"` and print it.
2. Read the second line `"I hope you are enjoying, yourself!"` and print it.

Code Execution:

```
Hello CS 1
I hope you are enjoying, yourself!
```

Final Solution:

Given the content of the file and the program structure, the output will be:

```
Hello CS 1
I hope you are enjoying, yourself!
```

Thus, the correct option that matches this output is the third one:

- **Hello CS 1**
  I hope you are enjoying, yourself!

This completes the solution step-by-step with detailed explanations and supporting statements.

```