SCOPE

zyBook 4.7, zyBook 5.12

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SCOPE

- The scope of a variable or a constant is the portion of the code that it is visible.
- A variable or constant is visible from the time it is declared until the closing curly brace (}).
  - A variable or constant declared in a method is only visible for that execution of the method.
  - A for variable is only visible for that loop.
  - A variable or constant declared within a loop is only visible for one iteration of the loop.

SCOPE: THINGS TO REMEMBER

- Variables without overlapping scope can have same name.

```
for (int i = 1; i <= 100; i++) {
    System.out.print("/");
}
for (int i = 1; i <= 100; i++) {    // OK
    System.out.print("\\");
}
int i = 5;                          // OK: outside of loop's scope
```

- A variable cannot be declared twice or used out of its scope.

```
for (int i = 1; i <= 100 * line; i++) {
    int i = 2;                  // ERROR: overlapping scope
    System.out.print("/");
}
i = 4;                          // ERROR: outside scope
```

```
import java.util.Scanner;

public class StringLoop {
    public static void main(String[] args) {
        Scanner scan = new Scanner(System.in);
        System.out.print("Enter String (or QUIT to quit): ");
        String input = scan.nextLine();
        // scan and input exist

        while (!input.equals("QUIT")) {

            // Loop through string, output one index and
            // character on each line
            for (int i = 0; i < input.length(); i++) {

                // i exists
                System.out.println(i + ": " + input.charAt(i));
            }
            // i no longer exists

            System.out.print("Enter String (or QUIT to quit): ");
            input = scan.nextLine();
        }

        // scan and input exist until program ends
    }
}
```