The scope of a variable is the area of the program where it can be accessed.

In Java, a variable's scope begins at its declaration and ends at the closing brace of the variable defining block.
Ex. Scope 1: Java

```
for (int i = 0; i < 10; i++) {
    // do something.
    loop body of i.
    System.out.println(i);
}
```

- **break** and **continue** can control when a loop terminates.
using while() to illustrate:

```java
while (cond) {
    ...
    break;
    ...
    continue;
    ...
    // continue lands here
    // break lands here
}
```

Ex: CheckInput1.java

```java
2
3
```
Ex CollatzProblem.java

The switch statement

```java
switch (exp) {
    case value1:
        stmt;
        break;
    case value2:
        stmt;
        break;
    case value3:
        stmt;
        break;
    default:
        stmt;
}
```

// all breaks land here
Ex. Switch 1
2
3

Risks:

- Switch can be used with int, byte, short, char, String (and some other types.)
- default is optional.
- if a break statement is missing, execution 'falls through' to the next case.

Ex. Switch 2
Exercise.

- Re-write Switch examples with user input.

- Do some of exercises on 76-78 of text.
Chapter 4: Methods & Functional Abstraction

- Complexity is a problem!

- Top-down design also stepwise refinement: create a hierarchy of subproblems.

- Depict hierarchy by a structure chart.