Java Foundations 5th edition Lewis Solutions Manual

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Chapter 1 Exercise Solutions

EX 1.1. Give examples of the two types of Java comments and explain the differences between them.

One kind of comment begins with a double slash (//) and continues to the end of the line:

```
// This is a single line comment.
```

A second kind of comment begins following an initiating slash-asterisk (/) and terminates immediately preceding a terminating asterisk-slash (*/). The second type of comment can span multiple lines:*

```
/* This is a comment that
   spans multiple lines. */
```

EX 1.2. Which of the following are not valid Java identifiers? Why?

a. Factorial

Valid

b. anExtremelyLongIdentifierIfYouAskMe

Valid

c. 2ndLevel

Invalid because it begins with a digit

d. level2

Valid

e. MAX_SIZE

Valid

f. highest$

Valid

g. hook&ladder

Invalid because it contains an ampersand (&)

EX 1.3. Why are the following valid Java identifiers not considered good identifiers?

a. q

The identifier `q` is a meaningless name.

b. totVal

The identifier `totalValue` would be more meaningful than the abbreviation.

c. theNextValueInTheList

Unnecessarily lengthy; `nextValue` would serve as well.

EX 1.4. Java is case sensitive. What does that mean?

Uppercase characters are considered to be distinct from lowercase letters. Therefore the identifier `HELLO` is distinct from `Hello` which is distinct from `hello`.

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EX 1.5. What do we mean when we say that the English language is ambiguous? Give two examples of English ambiguity (other than the example used in this chapter) and explain the ambiguity. Why is ambiguity a problem for programming languages?

Something is ambiguous if it has two or more possible meanings. For example, the statement, "Mary is the nicest teaching assistant who has helped me all day long" might mean 1) of all the teaching assistants who have helped me today, Mary is the nicest, or 2) of those teaching assistants who have helped me for an entire day, Mary is the nicest. As another example, the statement, "Bananas help those who help themselves" might mean 1) bananas are good for those who attend to their own welfare or 2) bananas are good for those who eat as many bananas as they please. If a programming language statement could be interpreted in two or more ways, it would be impossible to predict with certainty how it would be interpreted and what result would be produced.

EX 1.6. Categorize each of the following situations as a compile-time error, run-time error, or logical error.

a. multiplying two numbers when you meant to add them

A logical error

b. dividing by zero

A run-time error

c. forgetting a semicolon at the end of a programming statement

A compile-time error

d. spelling a word wrong in the output

A logical error

e. producing inaccurate results

A logical error

f. typing a `{` when you should have typed `(`

A compile-time error

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