ENUMERATIONS

zyBook 5.13

Oracle - Java Tutorial: Enum Types

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ENUMERATIONS

- An enum type is a special data type that enables for a variable to be a set of predefined constants. The variable must be equal to one of the values that have been predefined for it.

```
public enum identifier {enumerator1 , enumerator2 , ...}
```

- Create an enumeration type
- Create an enumeration type variable
- Assign a value to an enumeration type variable
- Use an enumeration type value in an if statement

```
import java.util.*;

/**
 * Program simulates riding an elevator
 * @author Suzanne Balik
 */
public class Elevator {
  /** Direction of elevator */
  public enum Direction { UP, DOWN }

  /** Number of floors */
  public static final int NUMBER_OF_FLOORS = 5;

  /**
   * Starts the program.
   *
   * @param args command line arguments
   */
  public static void main(String[] args) {
    Scanner scnr = new Scanner(System.in);
    System.out.print("Floor number(1 - "
      + NUMBER_OF_FLOORS + "): ");
    while (!scnr.hasNextInt()) {
      System.out.println("Invalid floor");
      scnr.next();
      System.out.print("Floor number(1 - "
        + NUMBER_OF_FLOORS + ": ");
    }

    int floorNumber = scnr.nextInt();
    if (floorNumber < 1
      || floorNumber > NUMBER_OF_FLOORS) {
      System.out.println("Invalid floor");
      System.exit(1);
    }
    System.out.print("Number of times to ride: ");
    while (!scnr.hasNextInt()) {
      System.out.println("Invalid number");
      scnr.next();
      System.out.print("Number of times to ride: ");
    }
    int numberOfTimes = scnr.nextInt();
    if (numberOfTimes < 1) {
      System.out.println("Invalid number of times");
      System.exit(1);
    }
    Direction dir = Direction.UP;
    if (floorNumber == NUMBER_OF_FLOORS) {
      dir = Direction.DOWN;
    }

    for (int i = 1; i <= numberOfTimes; i++) {
      if (dir == Direction.UP) {
        floorNumber++;
      } else {
        floorNumber--;
      }
      System.out.println("You are on floor: "
        + floorNumber);
      if (floorNumber == NUMBER_OF_FLOORS) {
        dir = Direction.DOWN;
      } else if (floorNumber == 1) {
        dir = Direction.UP;
      }
    }
  }
}
```

```
$ javac -d bin -cp bin src/Elevator.java

$ java -cp bin Elevator
Floor number(1 - 5): 4
Number of times to ride: 6
You are on floor: 5
You are on floor: 4
You are on floor: 3
You are on floor: 2
You are on floor: 1
You are on floor: 2

$ java -cp bin Elevator
Floor number(1 - 5): 6
Invalid floor

$ java -cp bin Elevator
Floor number(1 - 5): one
Invalid floor
Floor number(1 - 5: 1
Number of times to ride: one
Invalid number
Number of times to ride: 2
You are on floor: 2
You are on floor: 3
```