Object Oriented Methodology Lab

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Identifiers

Identifiers are the names that identify the elements such as classes, methods, and variables in a program.

Rules of Identifiers:

1. An identifier is a sequence of characters that consists of letters, digits, underscores(_), and dollar signs ($).
2. An identifier must start with a letter, an underscore (_), or a dollar sign ($). It cannot start with a digit.
3. An identifier cannot be a reserved word. (See Appendix A for a list of reserved words.)
4. An identifier cannot be true, false, or null.
5. An identifier can be of any length.

Practice Season

Which of the following identifiers are valid? Which are Java keywords?

1. **miles, Test, a++, --a, 4#R, $4, #44, apps,class.**
2. **public, int, x, y, radius,double.**
3. **Double,float,string,String.**

Variable & Naming Convention

Variables:

Variables are used to represent values that may be changed in the program.

Example: int number=12;

Naming Convention:

- Use lowercase for variables and methods. If a name consists of several words, concatenate them into one, making the first word lowercase and capitalizing the first letter of each subsequent word—for example, the variables **radius** and **area** and the method **showMessageDialog**.
- Capitalize the first letter of each word in a class name—for example, the class names **ComputeArea**, **System**, and **JOptionPane**.
- Capitalize every letter in a constant, and use underscores between words—for example,the constants **PI** and **MAX_VALUE**.

Source Code

Variable Naming convention

Variable Classification

- Instance Variables (Non-Static Fields):
- Class Variables (Static Fields) :
- **Local Variables**
- **Parameters:**

Source Code

Variable Classification

Data Type in Java

- The Java programming language is statically-typed, which means that all variables must first be declared before they can be used.

  int gear = 1;

- Java Support two type of data which are Object type & Primitive Data Type.

  Scanner sc=new Scanner(System.in); //Object Type

  int power=21;

Primitive Data Types

- byte: The byte data type is an 8-bit signed two's complement integer. It has a minimum value of -128 and a maximum value of 127 (inclusive). The byte data type can be useful for saving memory in large arrays, where the memory savings actually matters.
- short: The short data type is a 16-bit signed two's complement integer. It has a minimum value of -32,768 and a maximum value of 32,767 (inclusive).
- int: By default, the int data type is a 32-bit signed two's complement integer, which has a minimum value of -231 and a maximum value of 231-1.
- long: The long data type is a 64-bit two's complement integer. The signed long has a minimum value of -263 and a maximum value of 263-1.

Primitive Data Types

- float: The float data type is a single-precision 32-bit IEEE 754 floating point. Its range of values is beyond the scope of this discussion, but is specified in the Floating-Point Types, Formats, and Values section of the Java Language Specification.
- double: The double data type is a double-precision 64-bit IEEE 754 floating point. Its range of values is beyond the scope of this discussion, but is specified in the Floating-Point Types, Formats, and Values section of the Java Language Specification.
- boolean: The boolean data type has only two possible values: true and false.
- char: The char data type is a single 16-bit Unicode character. It has a minimum value of '\u0000' (or 0) and a maximum value of '\uffff' (or 65,535 inclusive).

Source Code

Primitive Data Type

Comments

- Comments are ignored by the compiler but are useful to other programmers. The Java programming language supports three kinds of comments:
  1. */* *text* */*
  2. */** *documentation* */*
  3. *// single line comments*

Source Code

Assignment, Arithmetic, and Unary Operators

Read & Print Operation in Java

- Java uses **System.out** to refer to the standard output device and **System.in** to the standard input device. By default, the output device is the display monitor and the input device is the keyboard.
- To perform console output, you simply use the **println** method to display a primitive value or a string to the console.
- Console input is not directly supported in Java, but you can use the **Scanner** class to create an object to read input from **System.in**, as follows:

```
Scanner input = new Scanner(System.in);
```

Methods for **Scanner** Objects

Method	*Description*
nextByte()	reads an integer of the **byte** type.
nextShort()	reads an integer of the **short** type.
nextInt()	reads an integer of the **int** type.
nextLong()	reads an integer of the **long** type.
nextFloat()	reads a number of the **float** type.
nextDouble()	reads a number of the **double** type.
next()	reads a string that ends before a whitespace character.
nextLine()	reads a line of text (i.e., a string ending with the *Enter* key pressed).

Source Code

Read & Print Operation