

Java Comments

- Java comments are statements that are not executed by the compiler and interpreter
- The comments can be used to provide information about each line of code.
- It can also be used to hide program code for specific time.

Single and multi line comments

- The single line comment is used to comment only one line:

```
//This is single line comments
```

- The multi line comment is used to comment multiple lines of code:

```
/* This is
```

```
Multi line comments
```

```
*/
```

Java Comments Types

Documentation Comments

- The documentation comments is used to create documentation API

```
/**
```

```
    This is
```

```
    Documentation comment
```

```
*/
```

- You should add documentation comments to every class and every method you create.

Precedence of Arithmetic Operators

1. **()** Evaluated first. If the parentheses are nested, the expression in the innermost pair is evaluated first. If there are several pairs of parentheses on the same level (i.e., not nested), they are evaluated from left to right.
2. *** / %** Evaluated second. If there are several such operations, they are evaluated from left to right.
3. **+ -** Evaluated third. If there are several such operations, they are evaluated from left to right.
4. **=** Evaluated last.

Example

$X = 3 + 5 + 9 - 3;$

$X = 8 + 9 - 3;$

$X = 17 - 3;$

$X = 14;$

$X = 3 + 5 * 3 - 8 / 2;$

$X = 3 + 15 - 8 / 2;$

$X = 3 + 15 - 4;$

$X = 18 - 4;$

$X = 14;$

$X = 3 + 5 * (3 - 8) / 2;$

$X = ?$

$X = 2 + 8 / (1 + 3) * 2 * (2 + 4) - 12 \% 6;$

$X = ?$

$X = 5 - 5 * 3 / (1 + (8 - 6)) - 8 + 3 \% 2 * 6 / (2 - 4 * 2) * 2 - 1;$

$X = ?$

Exercise

Mathematical
Formula

Java
Expression

$$z = b^2 + 4ac$$

?

$$p = x(y + z)$$

$$y = \frac{1}{x^2 + x + 3}$$

$$x = \frac{a + b}{c - d}$$

Example

`a = 5;`

`x= 3 + ++a +4;`

`x = ?`

`a = ?`

`a = 7;`

`x= 10 - --a +3;`

`x = ?`

`a = ?`

`a = 5;`

`x= 3 - a++ +4;`

`x = ?`

`a = ?`

`a = 7;`

`x= 7 + a-- -3;`

`x = ?`

`a = ?`

A Possible Bug

Never use combination of $a++$, $++a$, $a--$, $--a$, and a in a single statement.

```
a = 5;
```

```
x = 5 + ++a + 2 + a + a++;
```

← Possible bug

The result may be different in different compilers.

Primitive Types of Data

The eight primitive data types are called **primitive types** because they are simple and uncomplicated

- boolean
- float
- byte
- int
- char
- long
- double
- short

Variable Declaration

Variable names should stand for what they are.

for example:

```
double x, y;
```

Instead use

```
double radius, interestRate;
```

By convention, variable names are in lowercase.

If a name consists of several words, concatenate all of them and capitalize the first letter of each word except the first one.

Working with the char Data Type

- char data type is used to hold a single character
- Uses single quotation marks

Example:

```
char x = 'a';
```

```
x = '%';
```

```
x = '9';
```

String Data Structures

- A string can contain a string of characters
- Uses double quotation marks

Example:

```
x = "a";
```

```
x = " This is a test ";
```

HINT: "a " != 'a'

Explicit Type Casting

The unifying type can be overridden by explicitly stating a type cast

Place the desired type result in parentheses followed by the variable or constant to be cast

Example:

```
float x = 123.12;  
int    y = (int)x / 4;
```

Lab Preparation

- Read Chapter 2
- You will work on Lab 1 and Assignment 1