Java Comments,Literals,Keywords,Variables and Data types

K.L.Madhavi

Java Comments

The Java comments are the statements in a program that are not executed by the compiler and interpreter.

Why do we use comments in a code?

- Comments are used to make the program more readable by adding the details of the code.
- It makes easy to maintain the code and to find the errors easily.
- The comments can be used to provide information or explanation about the variable, method, class, or any statement.

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Types of Java Comments

There are three types of comments in Java.

1.Single Line Comment:The single-line comment is used to comment only one line of the code. It is the widely used and easiest way of commenting the statements.Single line comments start with two forward slashes(//).

Syntax://This is single line comment

2.Multi Line Comment:The multi-line comment is used to comment multiple lines of code at a time.(as it will be difficult to use single-line comments here).

Syntax:/* This is

multiline comment*/

Continue…

3.Documentation Comment:Documentation comments are usually used to write large programs for a project or software application as it helps to create documentation API. The documentation comments are placed between /** and */.

Syntax: /**

*

*We can use various tags to depict the parameter

*or heading or author name

*We can also use HTML tags

*

*/

Java Literals

In Java, literal is a notation that represents a fixed value in the source code.These are the constant values that appear directly in the program. It can be assigned directly to a variable. Java has various types of literals. The following figure represents a literal.

Types of Literals in Java:

There are the majorly four types of literals in Java:

1.Integer Literal:Integer literals are sequence of digits.There are 4 types of integer literals they are :Decimal integers,Octal integers,Hexadecimal integers, and binary integers.

Ex:2022, +42, -68 Ex:007, 0295 Ex:0xf, 0xe,0xb,0xd Ex:0b11011

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2.Floating-Point Literals:Floating-point literals are expressed as exponential notations or as decimal fractions. They can represent either a positive or negative value, but if it's not specified, the value defaults to positive. Ex:4f, 3.14d etc..

3.Char Literals:Character (Char) literals are expressed as an escape sequence or a character, enclosed in single quote marks, and always a type of character in Java. Char literals are sixteen-bit Unicode characters ranging from 0 to 65535. Ex: char ch = 077.

4.String Literals:String literals are sequences of characters enclosed between double quote ("") marks. These characters can be alphanumeric, special characters, blank spaces, etc. Ex: "John", "2468", "\n", etc..

5.Boolean Literals:Boolean literals have only two values and so are divided into two literals: True represents a real boolean value,False represents a false boolean value

Java Keywords

Java keywords are also known as reserved words. These are predefined words by Java so they cannot be used as a variable or object name or class name.They are case-sensitive(int is keyword,but Int is not).Currently,Java has 52 keywords.Each keyword has specific meaning.

Some important examples:

- Access Modifiers:public,private,protected,default
- Data Types:int,double,boolean,char,String
- Control Flow:if,else,switch,case,for,while,do,break,continue
- Object-Oriented:class,interface,extends,implements,abstract,final,this,super,new,static
- Exception Handling:try,catch,throw,throws,final,finally

Java Variables

Variables are containers for storing data values.It is a name of memory location.

Ex:int data=50;//Here data is variable

There are three types of variables in java: local, instance and static.

1.Local variable:A variable declared inside the method is called local variable.We can directly access variables inside the method.A local variable cannot be defined with "static" keyword.

2.Instance variable:A variable declared inside class is called instance variable.Accessing of these variables can be done through objects.

3.Static variable:A variable which is declared using “static keyword” is called static variable.If there is single class we can directly access these variables.If there are multiple classes then those variables can be accessed using class name.

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Example program:

```
class Variable
{
        static int c =30;/*Static variable*/
        int a =10;/*instance variable*/
        public Static void main(String args[])
        {
           int b=20;/*Local variable*/
           System.out.println(c);----------------prints 30
           System.out.println(b);----------------prints 20
           Variable obj =new Variable(); /*obj creation*/
           System.out.println(obj.a);--------------prints 10
         }
}
```

Java Data Types

Data types specify the type of the data that is stored in a variable.There are divided into 2 type, they are:

1.Primitive data types: Includes boolean,char,byte,short,int,long,float,double

2.Non-Primitive data types: Includes classes,interfaces,arrays etc..

1.Primitive Data types: Java defines 8 primitive types of data they are byte,short,int,char,long, Boolean,float and double.The Primitive data types are commonly known as simple types.

These can be kept in 4 groups:

i.Integers:This group includes byte,short,int and long.

ii.Floating-point numbers:This group includes float and double which represents numbers with fractional precision.

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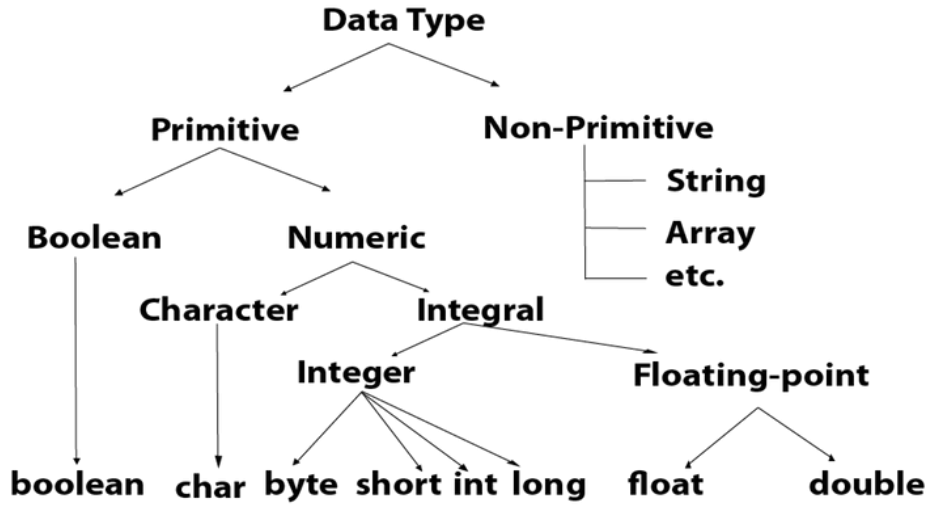
iii.Characters:This group includes char,which represents symbols in character set like letters and numbers.

iv.Boolean:This group includes Boolean,which is used to represent True/False.

Datatype	**Default Size**
Boolean	1 bit
Byte	1 byte
Char	2 bytes
Short	2 bytes
Int	4 bytes
Long	8 bytes
Float	4 bytes
Double	8 bytes



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- **Boolean:** The Boolean data type is used to store 2 possible values:true/false. **Ex:** Boolean a=false
- **Char:** The char data type is used to store characters. **Ex:** char ch='A'
- **Byte:** It is an integer with very small range lies between -128 to 127(inclusive).

  Ex: byte a=10,byte b=-20
- **Short:** It is also an integer with range of -32,768 to 32,767(inclusive).

  Ex: short s=1000,short r=-5000
- **Int:** The int data type is with high range i.e used to store integers. **Ex:** int a=100000,int b=-200000
- **Long:** It is a long data type i.e used to store integers of very high range.This is used when you need a range of values more than int. **Ex:** long a=1000001,long b=-2000001

Continue…

- **Float:** The float data type contains decimal part and fractional part.It is a single precision.

  Ex: float f1=234.5f

- **Double:** The double data type contains decimal part and fractional part.It is double precision.

  Ex: double d1=12.34