Java - Data Types

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Agenda

- Writing comments in Java
- Data Types and Variables – Declaration, Initialization, Assignment and Type Casting
- Arithmetic Operators
- Relational Operators
- Logical Operators

Comments

- Comments are included in a program to make the program readable; they are ignored by the compiler

- Comments are included in a Java program as shown below

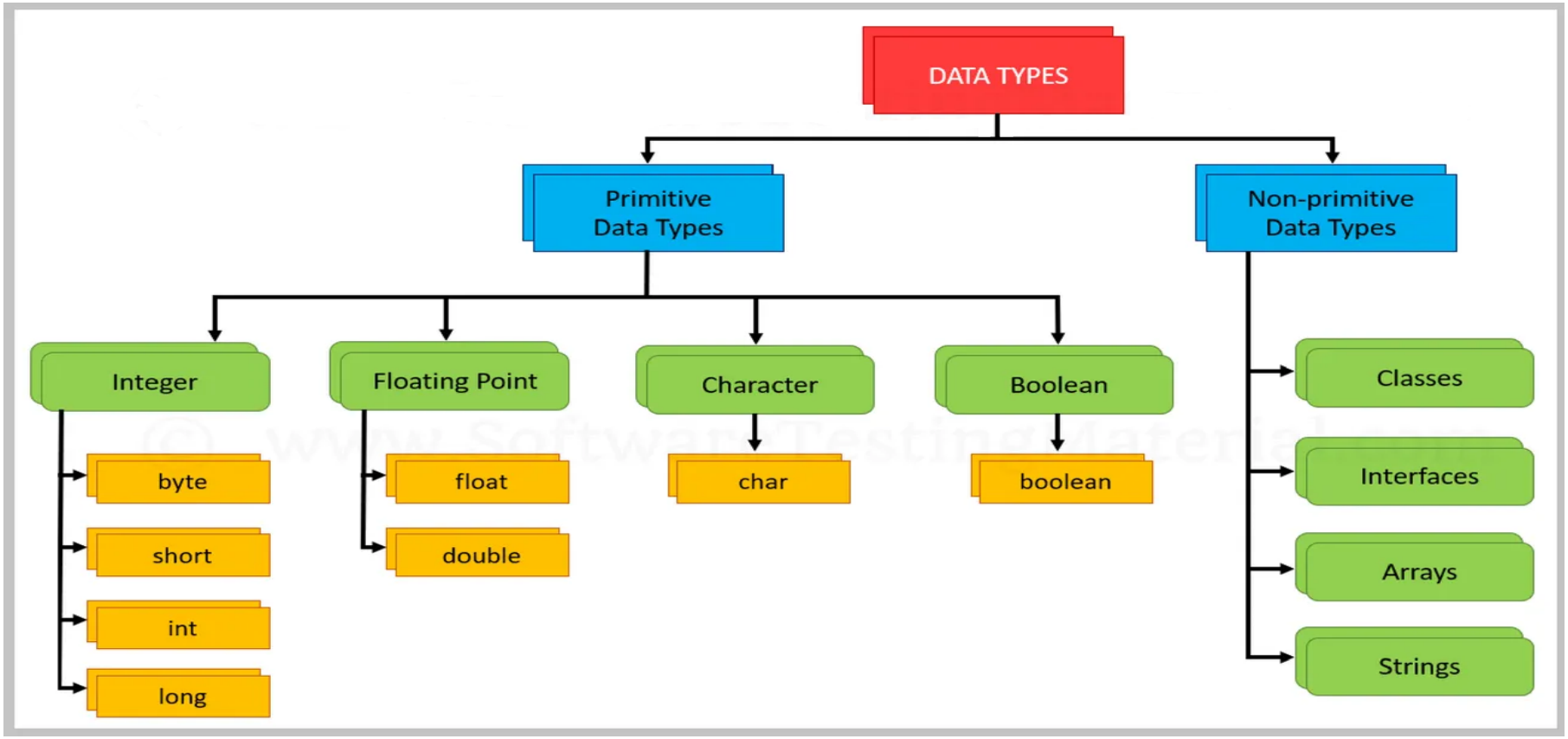
Single Line Comment :

```
//A single line comment - anything written in this line is ignored by the compiler
```

Multiline Comment :

```
/* This is a
   comments that can
   span across lines
*/
```

Data types in Java



Range of primitive data types

Data Type	Size	Range of values that can be stored	Default value
byte	1 byte	-128 to 127	0
short	2 bytes	-32768 to 32767	0
int	4 bytes	-2,147,483,648 to 2,147,483,647	0
long	8 bytes	-9,223,372,036,854,775,808 to 9223372036854750000	0
float	4 bytes	3.4e-038 to 3.4e+038	0.0f
double	8 bytes	1.7e-308 to 1.7e+038	0.0d
boolean	1 bit	true or false	false
char	2 bytes		\u0000

Type casting

The assignment operator is used to assign a value to a variable

```
int count = 0;

byte count2 = count;
```

- Java compiler shows an error in this statement as there is possible loss of data; a data type with larger size is getting assigned to a data.

```
float average = 9632.52;
```

- The above statement also will result in error as all real constants are considered double in Java

- To make these statement wok, the programmer has to use the typecast operator as shown below

```
Byte count2 = (byte) count;
float average = (float)9632.52;
```

Type casting . . .

Type Casting - Changing from one data type into another data type

Conversion from highest range data type → lowest range data type

int → byte / short
double → float / any integer types.

Ex :
```
byte bnum;
bnum = (byte)125; // 125 is int type
int num;
double dnum = 525.25; // 525.25 is double type
num = (int) dnum;
```

Type casting . . .

The char type represents “unicode” characters – world languages’ characters

Ex:
```
char currency;
currency = ‘$';
```

Ex2:
```
int iVal = 65,num;
char ch = (char) iVal ; // converts 65 → ‘A’
System.out.println(ch);
ch++;
num = (int) ch;
System.out.println(num); // shows 66
```

Arithmetic, relational & logical operators

Arithmetic operators : +, -, *, /, %

Relational operators : <, ==, >, <=, >=, !=

Logical operators : &&, || , !

Ternary operator : ? :

Unary operators : ++, --

***Show examples