Chapter 2

Constants, Variables & Data types
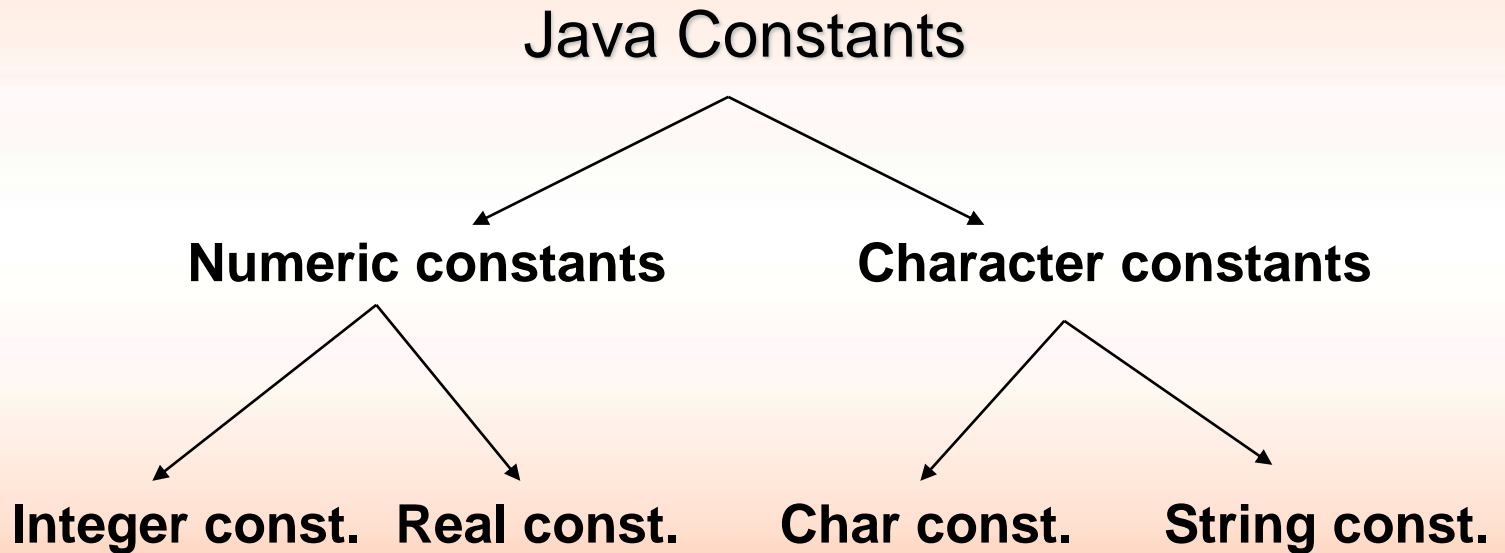
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Constants

Constants in Java refers to fixed values that do not change during execution of a prog.

Java Constants

Numeric constants   Character constants

Integer const. Real const.   Char const.   String const.

Variables

A variable is an identifier that denotes a storage location used to store a data value
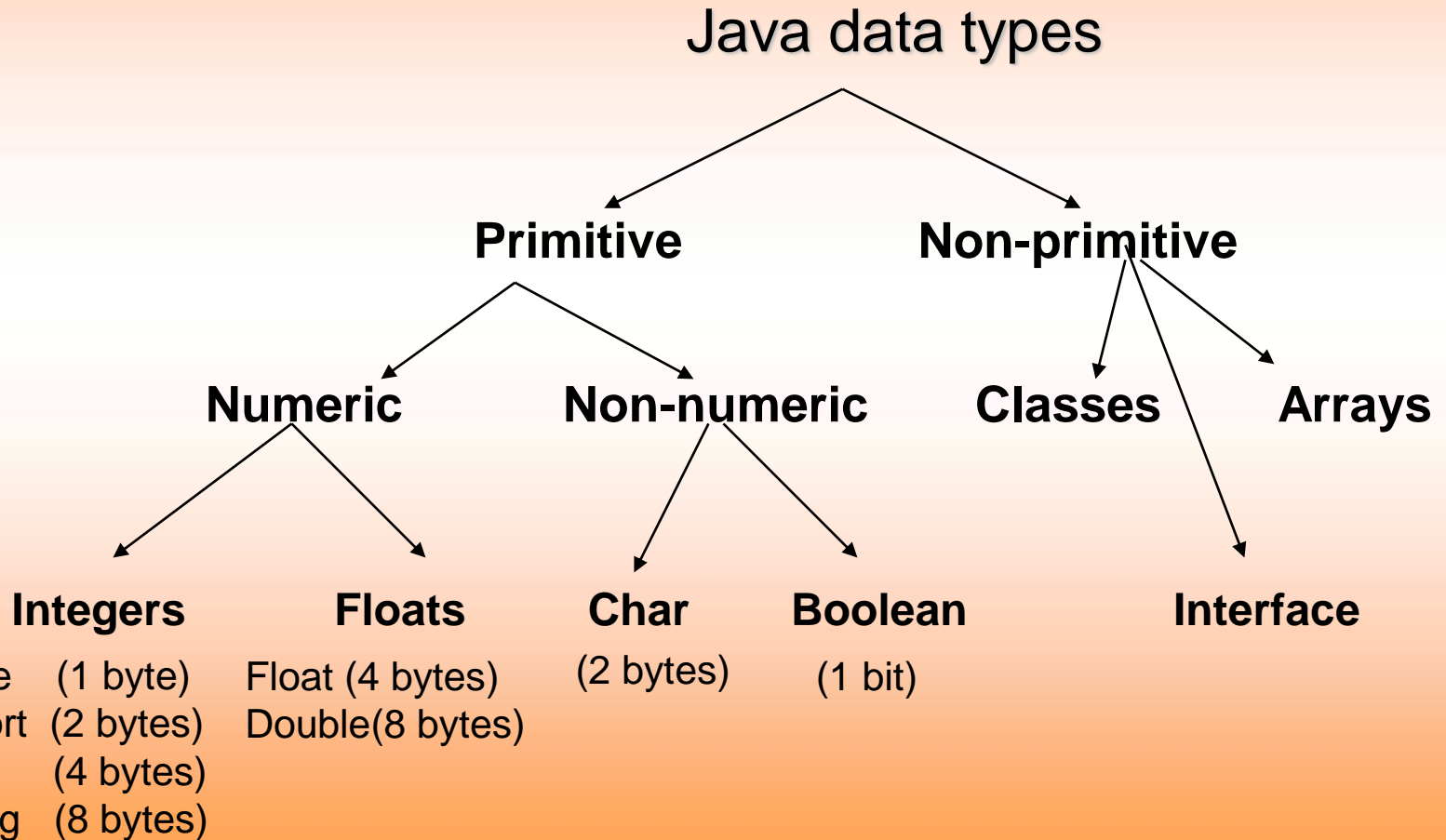**Ex. Average, height, classStrength … etc**

A variable names may consists of alphabets, digits, the (_) and $ char. Subject to the following conditions.

1. They must not begin with digit.
2. Uppercase and lowercase are distinct.
3. It should not be a keyword.
4. White space is not allowed.
5. Variable name can be of any length.

Data types

Data types specify the size and type of values that can be stored.

Java data types

Primitive

Non-primitive

Numeric

Non-numeric

Classes

Arrays

Integers

Byte   (1 byte)
Short   (2 bytes)
int   (4 bytes)
Long   (8 bytes)

Floats

Float (4 bytes)
Double(8 bytes)

Char
(2 bytes)

Boolean
(1 bit)

Interface

Declaration of variables

Declaration does three things

1. It tells the compiler what the variable name is.
2. It specifies what type of data the variable will hold.
3. The place of declaration (in the program) decides the scope of the variable.

The variable must be declared before it is used in the program.
The general form of declaration of variable is:

type variable1, variable2……… variableN.

```
int count;
float x, y;
byte b;
char c1, c2;
```

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Declaration of variables

A variable must be given a value after it has been declared but before It is used in an expression. This can be achieve in two ways:

1. By using an assignment operator.

2. By using a read statement.

int finalvalue = 100;

Read statement program using <u>DataInputStream</u>

Scope of variables

The area of the program where the variable is accessible (usable) called its scope
Java variables area actually classified into three kinds:

1. **Instance variables**: These are created when the objects are instantiated and therefore they are associated with objects.

2. **Class variables:** Class variables are global to class and belongs to the entire set of objects that class creates.

3. **Local variables:** The variables declared inside the methods are called local variables.