

Primitives - raw data types

int (32-bits)	short (16)
float (32)	double (64)
char (16)	long (64)
byte (8)	boolean (1)

Wrapper Class - object version of primitive, can convert by un/autoboxing
 Literal - represents a primitive value (d, f, '', "", L)

Strings - immutable, final sequence of chars

String Pool	area in Heap that stores String literals to save memory
String s1 = "hi";	draws from same memory address
String s2 = "hi";	stored in heap not pool
String s3 = new String("hi");	
StringBuilder	mutable
StringBuffer	+threadsafe
Integer Pool - range -128 to 127	

Array - object holding elements of one type

int[] numbers = {1, 2, 3};
int[] numbers = new int[size];
int[][] 2dArray = new int[rows][columns];

Object Class - everything inherits from

.toString();	prints memory address
.equals();	checks for same memory address
.hashCode();	id not guaranteed to be unique

Object - an instance of a class
 Class - blueprint for object

Exceptions/Errors

Exceptions/Errors (cont)

throw	commands e be thrown useful for testing throw new <i>ExceptionType</i> ();
Create Exception	by extending <i>Exception</i> class public Money Exception{ super("Error Message");

```
try{must have try & catch/finally not just try}
catch(ExceptionType e){catches+ but only 1 runs}
finally{always executes};
Catches go from specific exception to general
```

Advanced Operators

+ Concatenation	only operator overloading in Java
% Modulus	returns remainder (7 % 5 = 2)
! Not	returns opposite boolean
++/-- Increment	pre (println(++5)=6) post (println(5++)=5)
&& And/Or	short-circuit evaluates one side
& / And/Or	evaluates both sides
^ Exclusive Or	both cannot be true
? Ternary	(if condition)? return:else return

Access Modifiers

Public	all
Private	only class
Protected	also children
(Default)	only package

Scopes - where does reference extend

Class	static
Object	instance
Method	local
Block	local
Static	{ <i>block runs at beginning</i> }

File I/O - data access outside JRE

FileInput/OutputSteam	read/write bytes
FileReader/Writer	by characters
BufferedReader/Writer	line by line
<pre>BufferedWriter bw = new BufferedWriter (new FileWriter("../java/src/main/resources.io.txt"));</pre>	

final Keyword

Class	cannot be extended
Method	cannot be overridden
Variable	cannot change value

Terms

Java	classed-based object-oriented programming (OOP), write once run anywhere (WORA), automatic memory management, pass by value or copy reference, strong types
IDE	Integrated Development Environment
Lintner	auto compiles and catches errors in IDE
Reflection API	allows java to write code at runtime where classes, fields, methods are treated as objects
Recursion	calling a method within itself
Code Coverage	how much reachable tested code

Memory

MetaSpace	unchanging info
HeapSpace	variable content
StackSpace	method calls/variable references

Error	cannot recover from stackoverflow, syntax...
Checked/C- ompile	cannot compile, compiler sees FileIO, SQLException...
Unchecked/Ru- ntime	not required to be handled NullPointerException, Arithmetic...
throws	throws e to method caller

```
when class first accessed,  
initialization};
```



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