

Java Data Types

byte / short / int / long	-123, 10
float / double	235.13
char	'U'
boolean	true, false
String	"Greetings from earth"

Java Statements

If Statement

```
if ( expression ) {
    statements
} else if ( expression ) {
    statements
} else {
    statements
}
```

While Loop

```
while ( expression ) {
    statements
}
```

Do-While Loop

```
do {
    statements
} while ( expression );
```

For Loop

```
for ( int i = 0; i < max; ++i ) {
    statements
}
```

For Each Loop

```
for ( var : collection ) {
    statements
}
```

Switch Statement

```
switch ( expression ) {
    case value:
        statements
        break;
    case value2:
        statements
        break;
    default:
        statements
}
```

Exception Handling

```
try {
    statements;
} catch (ExceptionType e1) {
    statements;
} catch (Exception e2) {
    catch-all statements;
} finally {
    statements;
}
```

Java Data Conversions

String to Number

```
int i = Integer.parseInt(str);
double d = Double.parseDouble(str);
```

Any Type to String

```
String s = String.valueOf(value);
```

Numeric Conversions

```
int i = (int) numeric expression;
```

Java String Methods

s.length()	length of s
s.charAt(i)	extract i th character
s.substring(start, end)	substring from start to end-1
s.toUpperCase()	returns copy of s in ALL CAPS
s.toLowerCase()	returns copy of s in lowercase
s.indexOf(x)	index of first occurrence of x
s.replace(old, new)	search and replace
s.split(regex)	splits string into tokens
s.trim()	trims surrounding whitespace
s.equals(s2)	true if s equals s2
s.compareTo(s2)	0 if equal/+ if s > s2/- if s < s2

See <http://docs.oracle.com/javase/6/docs/api/java/lang/String.html> for more.

java.util.ArrayList Methods

l.add(itm)	Add itm to list
l.get(i)	Return i th item
l.size()	Return number of items
l.remove(i)	Remove i th item
l.set(i, val)	Put val at position i

```
ArrayList<String> names =
    new ArrayList<String>();
```

See <http://docs.oracle.com/javase/6/docs/api/java/util/ArrayList.html> for more.

java.util.HashMap Methods

m.put(key, value)	Inserts value with key
m.get(key)	Retrieves value with key
m.containsKey(key)	true if contains key

```
HashMap<String,String> names =
    new HashMap<String, String>();
```

See <http://docs.oracle.com/javase/6/docs/api/java/util/HashMap.html> for more.

Java Hello World

```
import java.util.Date;

public class Hello {
    public static void main(String[] args) {
        System.out.println("Hello, world!");
        Date now = new Date();
        System.out.println("Time: " + now);
    }
}
```

* Save in Hello.java

* Compile: **javac Hello.java**

* Run: **java Hello**

Java Arithmetic Operators

x + y	add	x - y	subtract
x * y	multiply	x / y	divide
x % y	modulus	++x / x++	increment
		--x / x--	decrement

Assignment shortcuts: x op= y

Example: x += 1 increments x

Java Comparison Operators

x < y	Less	x <= y	Less or eq
x > y	Greater	x >= y	Greater or eq
x == y	Equal	x != y	Not equal

Java Boolean Operators

!x (not)	x && y (and)	x y (or)
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Java Text Formatting

printf style formatting

```
System.out.printf("Count is %d\n", count);
s = String.format("Count is %d", count);
```

MessageFormat style formatting

```
s = MessageFormat.format(
    "At {1,time}, {0} eggs hatched.",
    25, new Date());
```

Individual Numbers and Dates

```
s = NumberFormat.getCurrencyInstance()
    .format(x);
s = new SimpleDateFormat("hh:mm a")
    .format(new Date());
s = new DecimalFormat("#,##0.00")
    .format(125.32);
```

See <http://docs.oracle.com/javase/6/docs/api/java/text/package-frame.html> for MessageFormat and related classes



