

1.1 Java/Python Comparison

Topic	Python	Java
<i>types and declarations</i>	dynamically typed: you don't have to explicitly declare the type	everything must have a declared type: either a primitive (int, long, double, float, char, byte, boolean) or an Object (e.g., String)
<i>comments</i>	# a single line comment	// a single line comment /* this is a multi-line comment */ /** this is a Javadoc comment */
<i>control structure: if</i>	if <test1>: <statementsA> elif <test2>: <statementsB> else: <statementsC>	if (<test1>) { <statementsA> } else if (<test2>) { <statementsB> } else { <statementsC> }
<i>control structure: while</i>	while <test>: <statementsA> else: <statementsB>	while (<test>) { <statementsA> } // no else clause is available
<i>control structure: do/while</i>	while <test>: <statementsA> else: <statementsB>	do { <statementsA> } while (<test>); // no else clause is available
<i>control structure: for</i>	for i in range(1,10): <statements involving i>	for (int i = 1; i <= 10; i++) { <statements involving i> }
<i>exceptions</i>	try: <statementsA> except <name>: <statementsB> else: <statementsC>	try { <statementsA> } catch (<name> e) { <statementsB involving e> } // no else clause is available
<i>functions</i>	def times(x, y): return x*y	public static int times(int x, int y) { return x*y; }
<i>function calling</i>	z = times(3, 5)	int z = times(3, 5);
<i>sample program: hello world</i>	print "Hello, world!"	public class HelloWorld { public static void main(String[] args) { System.out.println("Hello World!"); } }
<i>sample program: summing integers 1-10</i>	sum = 0 for x in range(1, 10): sum = sum + x	int sum = 0; for (int x = 1; x <= 10; x++) { sum = sum + x; }

Java/Python Comparison (cont.)

Topic	Python	Java
Array length	<code>len(arr)</code>	<code>arr.length</code>
String length	<code>len(str)</code>	<code>str.length()</code>
User input	<code>inp = input("Give me some input!")</code>	<code>System.out.println("Give me some input!");</code> <code>Scanner input = new Scanner(System.in);</code> <code> // note: create only one Scanner per program run</code> <code>String inp = input.nextLine();</code> <code> // see Scanner javadoc to read int, float, etc.</code>
Conversion of string to int (with exception handling if the string does not contain a well-formatted integer)	<code>try:</code> <code> myInt = int(myStr)</code> <code>except ValueError:</code> <code> myInt = 0</code>	<code>int myInt;</code> <code>try {</code> <code> myInt = Integer.parseInt(myStr);</code> <code>} catch (Exception e) {</code> <code> myInt = 0;</code> <code>}</code>
Random integer	<code>myRnd = random.randrange(0, rndRange)</code>	<code>int myRnd = (int)Math.floor(rndRange*Math.random());</code>
i th element of an array	<code>myArr[i]</code>	<code>myArr[i]</code>
string concatenation	<code>str1+str2</code>	<code>str1+str2</code>
for-each loop	<code>for item in myCollection:</code> <code> <loop body></code>	<code>String[] myStrArr;</code> <code>for (String str : myStrArr) {</code> <code> <loop body></code> <code>}</code>