

Loops, Input, Arrays – Notes in Python, JavaScript, and Java

■ Python Notes

- 1 Use `int(input())` to take integer input from user; `float(input())` for decimal.
- 2 `for i in range(n)`: iterates from 0 to n-1; step can be specified as `range(start, stop, step)`.
- 3 while loops run as long as condition is `True`.
- 4 Logical operators: use 'and', 'or', 'not' instead of `&&`, `||`.
- 5 String concatenation: use `str(i)` to convert integers to string or use f-strings like `f'{i}'`.
- 6 Arrays (lists) can be created with `arr = []` and values appended using `arr.append(value)`.
- 7 Iteration over list: `for val in arr: ...` (no index needed).

■ JavaScript Notes

- 1 Use `prompt()` to take input from user; `parseInt()` or `parseFloat()` to convert string to number.
- 2 for loops syntax: `for(initialization; condition; increment)`. All parts are optional (e.g., `for(;;)` infinite loop).
- 3 `for...of` iterates over values; `for...in` iterates over keys/indexes.
- 4 Logical operators: `&&` for AND, `||` for OR, `!` for NOT.
- 5 String concatenation: `'text' + i` works automatically; template literals: ``text ${i}`` preferred.
- 6 Arrays: declare with `let arr = []`; add values with `arr.push(value)`.
- 7 Iteration example: `for(let val of arr) { console.log(val); }`.

■ Java Notes

- 1 Use `Scanner sc = new Scanner(System.in)` to take input from user.
- 2 `int n = sc.nextInt();` reads integer input.
- 3 Declare array: `int[] arr = new int[n];` assign values with `arr[i] = value`; do not redeclare 'int' inside loop.
- 4 Print array: `System.out.println(arr)` prints object reference, not elements; use loop or `Arrays.toString(arr)` to print values.
- 5 Enhanced for loop: `for(int val : arr) { ... }` iterates over array elements without index.
- 6 Logical operators: `&&` for AND, `||` for OR, `!` for NOT.
- 7 String concatenation: `'text' + i` works automatically.

■ Cross-language Key Points

- 1 Python requires explicit conversion for string concatenation; Java and JS do not.
- 2 Python logical operators differ from Java/JS (`and/or/not` vs `&&/||/!`).
- 3 Python for-loop iterates over sequence directly; Java and JS need index or `for-each` / `for-of`.
- 4 Input methods differ: Python `input()`, JS `prompt()`, Java `Scanner`.
- 5 Printing arrays: Python `print(list)` works; JS `console.log(array)` prints values; Java `System.out.println(array)` prints reference (use loop or `Arrays.toString()`).
- 6 All three languages support `for`, `while` loops, and conditional statements inside loops.