

JavaScript → Python Quick Translation Handout

Basics

```
// JavaScript
let x = 5;           // number
const name = "Ana"; // string
let flag = true;    // boolean
```

```
# Python
x = 5           # int
name = "Ana"    # str
flag = True     # bool
```

```
// Print
console.log("Hi", x);
```

```
# Python
print("Hi", x)
```

```
// Comments
// single line
/* multi
   line */
```

```
# Python
# single line
"""
multi
line
"""
```

Strings

```
// JavaScript
const who = "world";
`Hello, ${who}!`.toUpperCase();
"hi".length; "a,b,c".split(",");
["a","b"].join("-")
```

```
# Python
who = "world"
f"Hello, {who}!".upper()
len("hi"); "a,b,c".split(",")
"-".join(["a","b"])
```

Arrays / Lists

```
// JavaScript
const nums = [1,2,3];
nums.push(4); nums.pop();
nums.includes(2); nums.indexOf(2);
nums.map(n => n*n);
nums.filter(n => n%2===0);
```

```
# Python
nums = [1,2,3]
nums.append(4); nums.pop()
2 in nums; nums.index(2)
```

```
[n*n for n in nums]
[n for n in nums if n%2==0]
```

Objects / Dictionaries

```
// JavaScript
const user = {name:"Ana", age:20};
user.name; user["age"];
Object.keys(user); Object.values(user);

# Python
user = {"name":"Ana", "age":20}
user["name"]; user["age"]
list(user.keys()); list(user.values())
```

Conditionals

```
// JavaScript
if (x > 10) {
  console.log("big");
} else if (x === 10) {
  console.log("ten");
} else {
  console.log("small");
}

# Python
if x > 10:
  print("big")
elif x == 10:
  print("ten")
else:
  print("small")
```

Loops

```
// JavaScript
for (let i = 0; i < 5; i++) {
  console.log(i);
}

for (const n of [1,2,3]) {
  console.log(n);
}

let i = 0;
while (i < 3) { i++; }

# Python
for i in range(5):
  print(i)

for n in [1,2,3]:
  print(n)

i = 0
while i < 3:
  i += 1
```

Functions

```
// JavaScript
function add(a, b) { return a + b; }
// or
const add = (a, b) => a + b;

# Python
def add(a, b):
    return a + b
```

Errors / Exceptions

```
// JavaScript
try {
    risky();
} catch (e) {
    console.error(e);
}

# Python
try:
    risky()
except Exception as e:
    print(e)
```

Imports

```
// JavaScript
import { sum } from "./math.js";
import _ from "lodash";

# Python
from math import sqrt
import random as rnd
```

Truthy/Falsy

```
// JavaScript
if ("" ) {} // falsy
0, "", null, undefined, NaN → falsy
== vs === (loose vs strict)

# Python
if "": pass # falsy
0, "", None → falsy
== (value equality), `is` (identity)
```

Math / Random / Dates

```
// JavaScript
Math.sqrt(9); Math.random(); // [0,1)
new Date().toISOString();

# Python
import math, random, datetime
math.sqrt(9); random.random() # [0,1)
datetime.datetime.now().isoformat()
```

Common Gotchas

Punctuation: JS uses `{}`; Python uses indentation.
Equality: JS has `==` vs `===`; Python uses `==` and ``is``.
DOM vs Python: `document.querySelector(...)` is browser-only.
null/undefined vs None: Python uses None.
Arrow functions: JS `() => {}` ↔ Python `def ...:` (no arrows).