

Variables & Data Types

valid characters: `_ [a-z] [A-Z] [0-9]`

must start with: `_ [a-z] [A-Z]`

integer: `-2, 0, 200`

float: `3.1415, -2.68`

string: `'a message'`

boolean: `True, False`

list: `[value0, value1, value2, ...]`

dictionary: `{key1: value1, key2: value2, ...}`

variable assignment: `var_name = data`

List Functions

length of list: `len(list_name)`

total sum of list: `sum(list_name)`

minimum value in list: `min(list_name)`

maximum value in list: `max(list_name)`

add value to end of list: `list_name.append(value)`

index access: `list_name[index_number]`

Dictionary Functions

key lookup: `dict[key]`

storing/updating key, value: `dict[key] = value`

list of keys: `list(dict.keys())`

list of values: `list(dict.values())`

Comparison / Conditional Expression

equal: `==`

not equal: `!=`

less than: `<`

less or equal: `<=`

greater than: `>`

greater or equal: `>=`

equal to multiple values: `var_name in [value0, value1, value2, ...]`

Miscellaneous Functions

printing: `print(value0, value1, ...)`

get input: `input('hint message')`

convert to integer: `int(value)`

convert to float: `float(value)`

round a number: `round(value, decimal_points)`

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Plotting a Bar Chart

```
import matplotlib.pyplot as plt
%matplotlib inline
x = [1, 2, 3, 4, 5]
values = [20, 34, 12, 48]
plt.bar(x, values,
align='center')
plt.xticks(x, [label1, label2,
label3, label4, label5])
```

Defining and Calling a Function

```
def function_name(input1, input2):
    function's internal logic
    return result
-----
-----
var1 = data1
var2 = data2
returned_value =
function_name(var1, var2)
```

If Statement / Making a Choice

```
if:
    block of code when cond is
True
-----
-----
if cond:
    block of code when cond is
True
else:
    block of code when cond is
False
-----
-----
if condition1:
    block of code when condition1
is True
elif condition2:
    block of code when condition1
is
False and condition2 is True
elif condition3:
    block of code when condition1
and
condition2 are False and
condition3 is True
else:
    block of code when condition1
and
condition2 and condition3
are False
```

Loops / Iterating

```
Repeat n Times:
for var_name in range(n):
    block of code
Iterate Over List Values:
for var_name in list_name:
    block of code
Iterate Until Condition Becomes
False:
while condition:
    repeat until condition
becomes False
```

Filtering Data

```
list_of_data = [value0, value1,
value2, ...]
filtered_data = []
for value in list_of_data:
    if filtering_condition:
        filtered_data.append(va
lue)
```

