# 4. Set

### Create a set

opt1 | `set1 = {10, 20, 30}` ; opt2 | `set1 = set(10, 20, 30)` ; empty | `set1 = set()`

### Create a set from a list / string

set_from_list | `set1 = set([2, 4, 5, 1])` set_from_list | `set1 = {[2, 4, 5, 1]}`
set_from_str | `set1 = set("hello")`

### Set Comprehension

opt1 | `set1 = {i for i in range(10)}` ; opt2 | `set1 = set(i for i in range(10))` - # Output will be {0, 1, 2, 3, 4, 5, 6, 7, 8, 9}

### Set Operations

- **Add item:** add_to_set | `the_set.add("this", 8)`
- **Remove / Pop item:** remove_from_set | `the_set.remove(8, "Yon")` ; pop_from_set | `the_set.pop(index_num)`
- **Get length of a set:** len_of_set | `set1_len = len(set1)`
- **Intersect 2 sets:** intersect_sets | `intersected = set1 & set2`
- **Union 2 sets:** unioned_sets | `unioned = set1 | set2`
- **XOR 2 sets:** xor_sets | `xor_set = set1 ^ set2`
- **Diff 2 sets:** diff_sets | `unioned = set1 - set2`
- **Check if subset (contained):** is_subset | `print(set1 <= set2) # True/False`

# 5. Dictionary

### Create a dict

option1 | `dict1 = dict(book_id = var_id, title='AOT', votes = 0)`
option2 | `dict1 = {"book_id":var_id, "title":"AOT", "votes":0}`
option3 | `dict1 = dict([("book_id", var_id), ("title","AOT"), ("votes",0)])`

### Get item in location

example1 | `if book['genre'] == the_genre:` example2 | `book['votes'] += 1`

### Dict's keys

get_keys | `keys1 = dict1.keys()`
loop_on_keys | `for key in dict1.keys():`

### Dict's values

get_values | `values1 = dict1.values()`
loop_on_values | `for value in dict1.values():`

### Dict's pairs / items

get_pairs | `items1 = dict1.items()`
**USEFUL:** loop_on_pairs | `for key, value in dict1.items():` example | `for album, songs_list in LinkinPark.items():`
convert_dict_to_list_of_pairs | `pairs_list = list(dict1.items)`

**Dictionary_Operations**

```python
# Define a dict
tel = {'Sagi': 4098, 'Amit': 4139}

# Create / add an item
tel['Ilay'] = 4127

# Get value of a key
tel['Sagi'] # Output: 4098

# Delete an item
del tel['Amit'] # opt1
tel.pop('Amit') # opt2

# View the dictionary's keys
list(tel) # Output: ['Sagi', 'Amit', 'Ilay']

# View the dictionary's keys, sorted
sorted(tel) # Output: ['Amit', 'Ilay', 'Sagi']

# Check if a key exists in the dict
'Sagi' in tel # Output: True
'Amit' not in tel # Output: False
```