Python Programming

Special Methods: bool, contains, format

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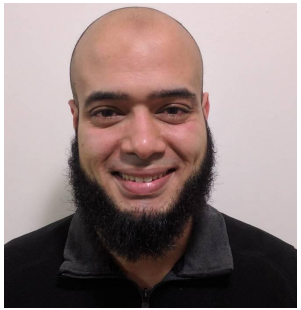

bool dunder

- It can be used to convert your object to boolean result
- Remember things like 0 or [] () {} ‘’ are all false
  - So be consistent!

```
class MyPair:
    def __init__(self, first, second):...

    def __repr__(self):...

    def __add__(self, other):...

    def __bool__(self):
        if self.first == 0 and self.second == 0:
            return False
        return True
        # It should return bool, e.g. NOT
        # return self.first and self.second
if __name__ == '__main__':
    print(bool(MyPair(2, 3)))      # True
    print(bool(MyPair(2, 0)))      # True
    print(bool(MyPair(0, 0)))      # False
```

Membership

- To check if something in your object, overrides contain dundner

```python
class MyPair:
    def __init__(self, first, second):...

    def __repr__(self):...

    def __add__(self, other):...

    def __contains__(self, item):
        return self.first == item or self.second == item

if __name__ == '__main__':
    p = MyPair(2, 3)
    print(2 in p)   # True
    print(3 in p)   # True
    print(4 in p)   # False
```

Formatting

- Rarely, we may need to format our object
- We agree on a string format, pass and parse
  - It depends on class

```
class MyPair:
    def __init__(self, first, second):...

    def __repr__(self):...

    def __add__(self, other):...

    def __format__(self, format_spec):
        import time
        tm = time.localtime()
        return repr(self) + ' ' + time.strftime(format_spec, tm)
        # In practice: format_spec is whatever agreed then you parse it

if __name__ == '__main__':
    p = MyPair(2, 3)
    print(format(p))    # (2, 3) , default empty
    print(format(p, '%m-%d-%Y, %H:%M:%S'))
    # (2, 3) 02/28/2021, 17:21:07
```

Other dunder

- What If I want to add my defined class in dict? We need to provide **__hash__**
  - The function computes an integer representing the object
  - In data structure class you should understand why and how to hash properly
  - We typically use the hash of the available immutable objects, e.g. hash(‘mostafa’)
- Managing the object creation
  - Whenever a class is instantiated __new__ and __init__ methods are called.
  - **__new__** method will be called when an object is created and __init__ method will be called to initialize the object
- **__inter__ and __exit__** are used with context manager (recall opening a file)
- __next__ and __iter__ to make an iterable object
- And others

"Acquire knowledge and impart it to the people."

"Seek knowledge from the Cradle to the Grave."