Magic or Dunder Methods

Magic methods in Python are the special methods that start and end with the double underscores. They are also called dunder methods. Magic methods are not meant to be invoked directly by you, but the invocation happens internally from the class on a certain action.

For example: '__abs__', '__add__', '__and__', '__bool__', '__ceil__'

Use the `dir()` function to see the number of magic methods inherited by a class.

```
>>> dir(int)

['__abs__', '__add__', '__and__', '__bool__', '__ceil__', '__class__',
'__delattr__', '__dir__', '__divmod__', '__doc__', '__eq__', '__float__',
'__floor__', '__floordiv__', '__format__', '__ge__', '__getattribute__',
'__getnewargs__', '__gt__', '__hash__', '__index__', '__init__',
'__init_subclass__', '__int__', '__invert__', '__le__', '__lshift__', '__lt__',
'__mod__', '__mul__', '__ne__', '__neg__', '__new__', '__or__', '__pos__',
'__pow__', '__radd__', '__rand__', '__rdivmod__', '__reduce__', '__reduce_ex__',
'__repr__', '__rfloordiv__', '__rlshift__', '__rmod__', '__rmul__', '__ror__',
'__round__', '__rpow__', '__rrshift__', '__rshift__', '__rsub__', '__rtruediv__',
'__rxor__', '__setattr__', '__sizeof__', '__str__', '__sub__', '__subclasshook__',
'__truediv__', '__trunc__', '__xor__', 'bit_length', 'conjugate', 'denominator',
'from_bytes', 'imag', 'numerator', 'real', 'to_bytes']
```

add two numbers using the + operator. Consider the following example:

```
>>> num=10
>>> num + 5
15
>>> num.__add__(5)
15
```

__new__() method:

Languages such as Java and C# use the new operator to create a new instance of a class. In Python the `__new__()` magic method is implicitly called before the `__init__()` method. The `__new__()` method returns a new object, which is then initialized by `__init__()`.

```
class Employee:
    def __new__(cls):
        print ("__new__ magic method is called")
        inst = object.__new__(cls)
                return inst
    def __init__(self):
        print ("__init__ magic method is called")
        self.name='Satya'
```

```
>>> emp = Employee()


__new__ magic method is called
__init__ magic method is called
```