



BEGINNERS' PYTHON - CLASSES

LEWIS GAUL

ST EDMUND HALL

4TH YEAR MATHEMATICS

LEWIS.GAUL@SEH.OX.AC.UK

WHAT IS A CLASS?

- Characteristic feature of object oriented programming languages
- The class of an object is equivalent to its type, e.g. `[1, 2]` is a `list`
- Everything is an object – everything belongs to a class (has a type)
- You can define your own object types by writing classes
- This allows you to define methods e.g. `my_list.append(2)`
- If an object `x` has class `A`, we say `x` is an instance of the `A` class, e.g. `[1, 2]` is an instance of the `list` class

CREATING CLASSES

Create an instance of a class in the same way you call a function – the `__init__` method will be called.

```
lewis = Student(2)
lewis.work()
print(lewis.deadlines)
lewis.join_society("CodeSoc")
```

```
class [name]:
    def __init__(self, [args]):
        [do this]
    [other functions] (optional)
```

```
class Student:
    def __init__(self, dlines):
        self.deadlines = dlines
        self.societies = []
    def work(self):
        self.deadlines -= 1
    def join_society(self, soc):
        self.societies.append(soc)
```

CHALLENGE 5

- Go to github.com/LewisGaul/python-tutorial, download `challenge5.py`
- Work out how the code works (try adding in some print statements)
- Write comments with ‘#’ to explain how it works
- When you understand it all have a go at the challenge
- Try to use sensible variable names
- Avoid using too many indented layers or repeating code