

# What did we do in CS1PX?

In this document we'll remind ourselves what we've covered in CS1PX, and what I really want you to have learned. In another document and video (to be released later), we'll have a look at some sample types of exam questions to help you in your revision.

So let's have a look at what we covered in each cycle:

- Cycle 1: Refresher
  - General basic programming in Python
  - Focussed on dictionaries, lists, tuples and operating on these
- Cycle 2: Fancy functions
  - Recursive functions
  - Higher-order functions
- Cycle 3: Errors and exceptions
  - Defensive programming
  - Catching exceptions in Python using `try/except/finally`
- Cycle 4: Data structures and plotting
  - Loading and storing data in structures we design
  - Reading data from files
  - plotting using `matplotlib`
- Cycle 5: Complexity
  - Big-O runtime complexity
  - How to recognise the big-O complexity of a piece of code
  - How to recognise a plot of a big-O complexity
  - How to combine complexities when combining pieces of code
- Cycle 6: Searching
  - Simple search
  - Binary search
    - Iterative
    - Recursive
  - Complexities of both, and when we can use each
- Cycle 7: Sorting
  - Selection sort (recursive and iterative)
  - Bubble sort
  - Odd-even sort
- Cycle 8: Sorting with a custom data structure
  - Looked at reading/storing data again
  - Defining a custom less-than or greater-than function
  - Using those custom structures in a sorting function