

Lab 10

Debugger

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Goal

The goal of this lab is to practice using the Python3 debugger. You can run the debugger from the command line using: `python3 -m pdb filename`. Remember to substitute the correct call to the interpreter appropriate for your system (`python3`, `python`, `py`, etc).

Debugger commands

- `c`: runs the program, or `(c)`ontinues after a break point.
- `q`: quits the program or debugger. Whichever is active.
- `u`: moves up in the function call stack
- `d`: moves down in the function call stack
- `l`: lists the lines around the current error
- `b linenummer`: creates a break point at the line specified.
- `b`: will list all the break points.
- `p expression`: will print the contents of the variable.
- `enable/disable/clear break point number`: enables, disables or removes a break point.

Task 1

Implement Selection Sort.

```
A is a list of N elements.
for i from 0 to N-1
    m = index of min element in A from index i to N-1
    swap A[i] and A[m]
    increment i
```

Task 2

Implement the modern Fisher-Yates list shuffle algorithm. Fisher-Yates goes like this:

```
A is a list of N elements.
for i from 0 to N-2 (where N is the size of the list)
    pick a random j, such that i <= j < N
    swap A[i] and A[j]
```