

# Mastering Data Structures and Algorithms

## In Class Assignment 1

Yiying Peng (Christine)

February 6, 2019

### Problem

Write a program named `reporter` that reads `stdin`, takes the following command line arguments and reports every time a given column in the input goes above a threshold `n` consecutive times:

```
reporter column threshold n
```

Your program could be used as follow to parse periodic output by tools like `vmstat`:

```
vmstat | reporter column threshold n
```

Your tool must ignore heading lines.

*Sol.* My Python implementation is as follows.

---

```
from sys import argv
from sys import stdin

def analyze(colname, threshold, n):
    stdin.readline() # useless line
    idx = stdin.readline().split().index(colname)

    cnt = 0
    for line in stdin:
        val = int(line.split()[idx])
        if val >= threshold:
            cnt += 1
            if cnt >= n:
                print(
                    '{VAL} exceeds {THRESHOLD} consecutively for {CNT}>={N} times'.format(
                        VAL=val,
                        THRESHOLD=threshold,
                        CNT=cnt,
                        N=n,
                    )
                )
        else:
            cnt = 0

if __name__ == '__main__':
    if len(argv) != 4:
        raise Exception('Incorrect number of arguments.')
```

```
else:
    analyze(argv[1], int(argv[2]), int(argv[3]))
```

---

Since I am using Python, a non-compiled language, on mac, one needs to run the following command instead:

```
vm_stat 1 | python reporter.py column threshold n
```

□