

## HW – code -- chapter 13

This test is ran on Ubuntu on Amazon web services. Totally RAM is 512MB, SSD 2GB.

### 1-4

4.

Run 10 megabyte

free memory drop from 22 to 13

available drop from 262 to 253

```
ubuntu@ip-172-26-10-114:~/chapter13$ free --mega
              total        used        free      shared  buff/cache   available
Mem:           465          175           22           0          267          262
Swap:            0             0             0
ubuntu@ip-172-26-10-114:~/chapter13$ ./a.out 10

ubuntu@ip-172-26-10-114:~/chapter13$ free --mega
              total        used        free      shared  buff/cache   available
Mem:           465          184           13           0          267          253
Swap:            0             0             0
ubuntu@ip-172-26-10-114:~/chapter13$ free --mega
              total        used        free      shared  buff/cache   available
Mem:           465          184           13           0          267          253
Swap:            0             0             0
ubuntu@ip-172-26-10-114:~/chapter13$
```

The results don't exactly match my expectation, as sometimes more or less memory are deducted from "free" and "available", not always exactly the same number, in this case, 10 megabytes.

If user-program size is greater than or very close to available memory (too large), it is killed.

```
ubuntu@ip-172-26-10-114:~/chapter13$ free --mega
              total        used        free      shared  buff/cache   available
Mem:           465          174          108           0          181          262
Swap:            0             0             0
ubuntu@ip-172-26-10-114:~/chapter13$ ./a.out 300
Killed
```

After running a relatively large size, the "free" will increase to approximately that size after the process exit.

### 5-8

7.

Heap, Stack, libraries

Vvar, Vdso, Vsycall

8.

See output files below:

Small megabyte numbers:

[https://github.com/luyan72999/Computer-System/blob/main/chapter13/pmap\\_small.txt](https://github.com/luyan72999/Computer-System/blob/main/chapter13/pmap_small.txt)

Large megabyte numbers:

<https://github.com/luyan72999/Computer-System/blob/main/chapter13/pmap.txt>