

# 5001 *Homework* 1

Operating System: Ubuntu 20.04 LTS

Python Version: Python 3.7

Package needed to install in Ubuntu: hwinfo

My Github: <https://github.com/Piao-WU/MSDM-5001.git>

## 1. Linux operating system and memory hierarchy

### 1.1

top

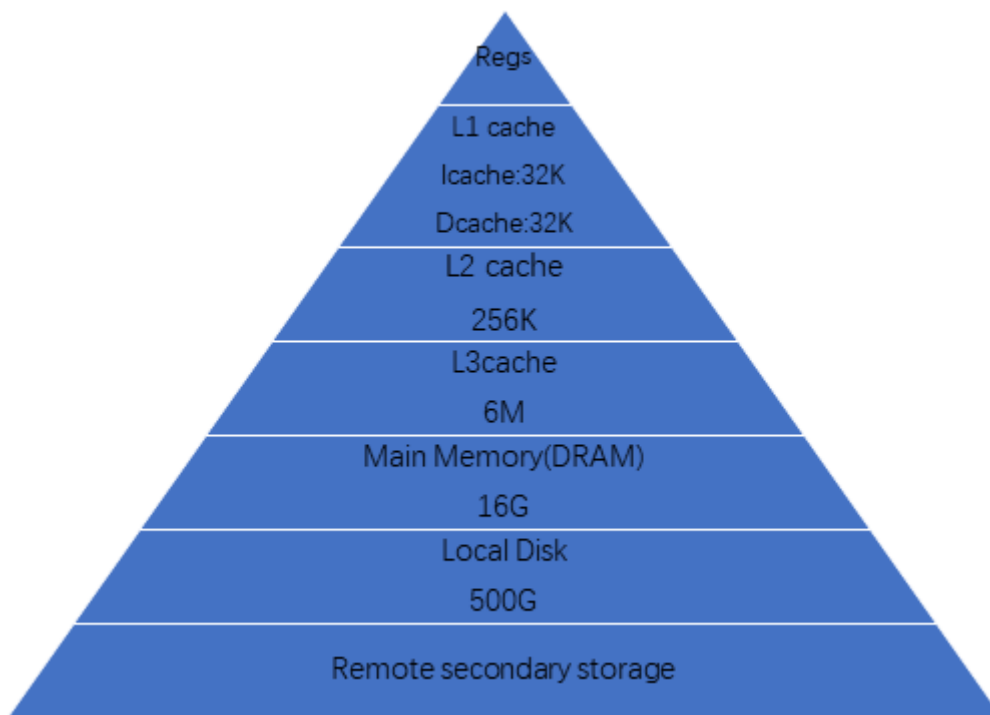
```
piao@DESKTOP-DACUV20: ~  
top - 00:32:39 up 5 min, 0 users, load average: 0.52, 0.58, 0.59  
Tasks: 4 total, 1 running, 3 sleeping, 0 stopped, 0 zombie  
%Cpu(s): 14.2 us, 7.5 sy, 0.0 ni, 77.4 id, 0.0 wa, 0.8 hi, 0.0 si, 0.0 st  
MiB Mem : 16338.7 total, 10794.0 free, 5320.8 used, 224.0 buff/cache  
MiB Swap: 12344.8 total, 12304.0 free, 40.7 used, 10887.4 avail Mem  


| PID | USER | PR | NI | VIRT  | RES  | SHR  | S | %CPU | %MEM | TIME+   | COMMAND |
|-----|------|----|----|-------|------|------|---|------|------|---------|---------|
| 1   | root | 20 | 0  | 8936  | 312  | 268  | S | 0.0  | 0.0  | 0:00.07 | init    |
| 8   | root | 20 | 0  | 8936  | 224  | 180  | S | 0.0  | 0.0  | 0:00.01 | init    |
| 9   | piao | 20 | 0  | 18080 | 3596 | 3496 | S | 0.0  | 0.0  | 0:00.07 | bash    |
| 79  | piao | 20 | 0  | 18904 | 2128 | 1512 | R | 0.0  | 0.0  | 0:00.10 | top     |


```

### 1.2

```
getconf -a | grep CACHE ## get the config of CACHE  
sudo hwinfo --memory ## show the information of main memory  
cd ## show the disk space
```



```
cd /; tree|head -n 15 ## show the first 15th rows of bin catalog
```

```
piao@DESKTOP-DACUV20: ~$ cd /; tree|head -n 15
```

```
.
├── bin -> usr/bin
├── boot
├── dev
│   ├── block
│   ├── fd -> /proc/self/fd
│   ├── kmsg
│   ├── lxss
│   ├── null
│   ├── ptmx
│   ├── pts
│   │   └── ptmx
│   ├── random
│   ├── shm -> /run/shm
│   └── stderr -> /proc/self/fd/2
```

## 2. Bash Script

```
#!/bin/bash
for ((i=1;i<101;i++)); do
    mkdir DDM$i
    cd DDM$i
    echo "nanoseconds since 1970-01-01 00:00:00 UTC: " > time_till_now.txt
    date "+%s" >> time_till_now.txt
    cd ..
done
```

Check the directions:

```
piao@DESKTOP-DACUV20:~$ ls
DDM10  DDM16  DDM22  DDM29  DDM35  DDM41  DDM48  DDM54  DDM60  DDM67  DDM73  DDM8  DDM86  DDM92  DDM99
DDM100 DDM17  DDM23  DDM3  DDM36  DDM42  DDM49  DDM55  DDM61  DDM68  DDM74  DDM80  DDM87  DDM93  test16.51
DDM11  DDM18  DDM24  DDM30  DDM37  DDM43  DDM5  DDM56  DDM62  DDM69  DDM75  DDM81  DDM88  DDM94
DDM12  DDM19  DDM25  DDM31  DDM38  DDM44  DDM50  DDM57  DDM63  DDM7  DDM76  DDM82  DDM89  DDM95
DDM13  DDM2  DDM26  DDM32  DDM39  DDM45  DDM51  DDM58  DDM64  DDM70  DDM77  DDM83  DDM9  DDM96
DDM14  DDM20  DDM27  DDM33  DDM4  DDM46  DDM52  DDM59  DDM65  DDM71  DDM78  DDM84  DDM90  DDM97
DDM15  DDM21  DDM28  DDM34  DDM40  DDM47  DDM53  DDM6  DDM66  DDM72  DDM79  DDM85  DDM91  DDM98
piao@DESKTOP-DACUV20:~$ cd DDM100
cd DDM100: command not found
piao@DESKTOP-DACUV20:~$ cd DDM100
piao@DESKTOP-DACUV20:~/DDM100$ ls
time_till_now.txt
piao@DESKTOP-DACUV20:~/DDM100$ cat time_till_now.txt
nanoseconds since 1970-01-01 00:00:00 UTC:
1603098231
piao@DESKTOP-DACUV20:~/DDM100$
```

## 3. Regular Expression

### 1.

```
import re
import xml.dom.minidom as xm

doc=xm.parse('blocklist.xml')
a=doc.documentElement.getElementsByTagName('emItem')
b=doc.documentElement.getElementsByTagName('gfxBlacklistEntry')
lst=(a+b)
blockID=[]
for i in lst:
    blockID.append(i.getAttribute('blockID'))
for j in blockID:
    k=re.match('^i.*\d$|^g.*\d$',j)
    if k:
        n=blockID.index(j)
        print(lst[n].toxml().split('\n')[0])
```

Output

```
<emItem blockID="i334" id="{0F827075-B026-42F3-885D-98981EE7B1AE}">
<emItem blockID="i1211" id="flvto@hotmail.com">
<emItem blockID="i576" id="newmoz@facebook.com">
<emItem blockID="i326" id="/^((support2_en@adobe14\.com)|(XN4Xgjwt7n4@yUWgc\.com)|(C7yFVpIP@Weo1
<emItem blockID="i258" id="helperbar@helperbar.com">
.....
.....
<gfxBlacklistEntry blockID="g208">
<gfxBlacklistEntry blockID="g202">
<gfxBlacklistEntry blockID="g1124">
<gfxBlacklistEntry blockID="g1217">
<gfxBlacklistEntry blockID="g200">
```

```

ID=[]
for i in a:
    ID.append(i.getAttribute('id'))
for j in ID:
    l=re.match(r'^[0-9a-zA-Z_]{0,19}@[0-9a-zA-Z_-]{1,19}\.[com,cn,net,org]{1,3}$',j)
    if l:
        m=ID.index(j)
        print(lst[m].toxml().split('\n')[0])

```

```

<emItem blockID="i1211" id="flvto@hotmail.com">
<emItem blockID="i576" id="newmoz@facebook.com">
<emItem blockID="i258" id="helperbar@helperbar.com">
<emItem blockID="i218" id="ffxtlbr@claro.com">
<emItem blockID="i816" id="noOpus@outlook.com">
.....
.....
<emItem blockID="i1492" id="googlotim@gmail.com">
<emItem blockID="i1524" id="ext@alibonus.com">
<emItem blockID="89a61123-79a2-45d1-aec2-97afca0863eb" id="InternetProtection@360safe.com">
<emItem blockID="e16408c3-4e08-47fd-85a9-3cbbce534e95" id="WebProtection@360safe.com">
<emItem blockID="baf7f735-d6b6-410a-8cc8-25c60f7c57e2" id="adbeaver@adbeaver.org">

```