

# VE482

## Homework 2 - Fall 2021

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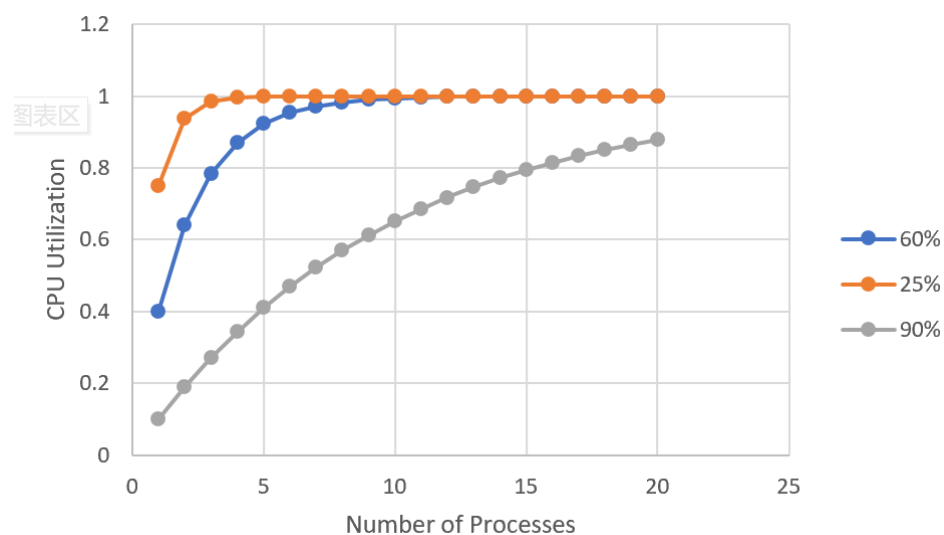
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## Multiprogramming

1. Probability:  $p^n$ ;

CPU utilization:  $1 - p^n$ ;

2.



3.

a) Three.

b) 0.271.

c) If add 256MB, the CPU utilization is 0.570 and increase 0.117%

if add 512MB, the CPU utilization is 0.771 and increase 0.098%

if add 1024MB, the CPU utilization is 0.920 and increase 0.063%

Therefore, we can say that adding 256MB is the best.

## Minix 3 Keymap

In `/usr/src/servers/is/dmp.c`, we add:

```
{SF7, processCnt, "Count Running processes"},
```

into the struct `hook_entry`, instant hooks.

In `/usr/src/servers/is/dmp_kernel.c`, we add:

```
#include "../pm/mproc.h"

void processCnt(){
    struct mproc *mp;
    int i,cnt=0;

    getsysinfo(PM_PROC_NR, SI_PROC_TAB, mproc);

    for (i = 0; i<NR_PROCS; i++) {
        mp = &mprocs[i];
        if (mp->mp_pid == 0 && i != PM_PROCS_NR) continue;
        cnt++;
    }
}
```

```
printf("Current number of running processes: %d\n",cnt);  
}
```

In `/usr/src/servers/is/proto.h`, we add:

```
void processCnt(void);
```

Then we run the following command to take effect.

```
cd /usr/src  
make build  
sudo reboot
```