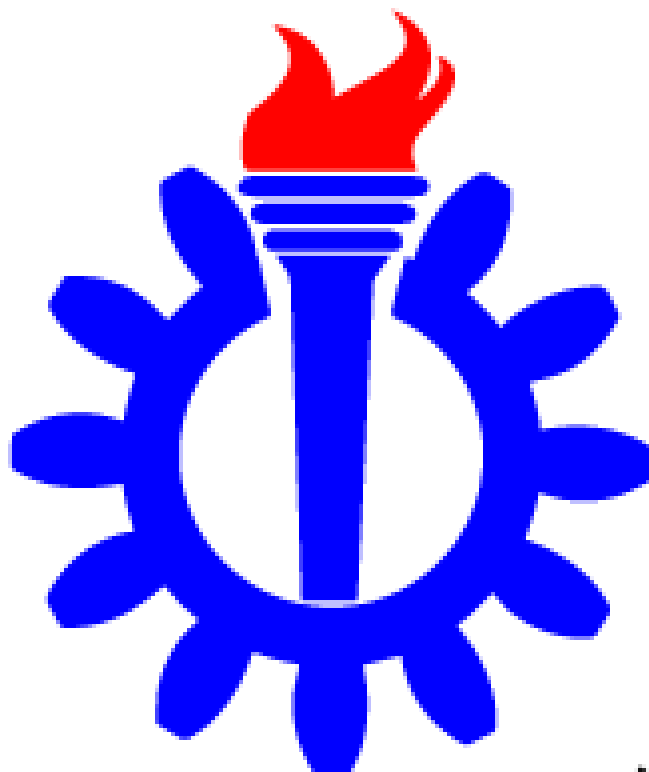


بسم الله الرحمن الرحيم



دانشگاه علم و صنعت ایران

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(1)

```
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
int main()
{
    int p1=fork();
    int p2=fork();
    int p3=fork();
    printf("process %d with parent %d\n ",getpid(),getppid());
    return 0;
}
```

```
erfanzare-98411432@ubuntu:~$ nano q1-10.cpp
erfanzare-98411432@ubuntu:~$ g++ -o q1 q1-10.cpp
erfanzare-98411432@ubuntu:~$ ./q1
process 2360 with parent 2099
  LibreOfficeWriter h parent 2360
process 2362 with parent 2360
process 2365 with parent 1470
  erfanzare-98411432@ubuntu:~$ process 2363 with parent 1470
process 2366 with parent 1470
  process 2367 with parent 2364
process 2364 with parent 1470
```

(2)

```
erfanzare-98411432@ubuntu:~$ top -n 1 |tail -n 8 |head -3
 10 root      rt    0      0      0      0 S    0.0  0.0   0:00.00 migration+
 11 root      rt    0      0      0      0 S    0.0  0.0   0:00.01 watchdog/0
 12 root      20    0      0      0      0 S    0.0  0.0   0:00.00 cpuhp/0
erfanzare-98411432@ubuntu:~$ top -n 1 |tail 8 |head -3 |awk '{print $3}'
tail: cannot open '8' for reading: No such file or directory
erfanzare-98411432@ubuntu:~$ top -n 1 |tail -n 8 |head -3 |awk '{print $3}'
root
root
root
```