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*/

#include<stdio.h>
#include<semaphore.h>
#include<pthread.h>
#include<stdlib.h>
#include<sys/shm.h>
#include<errno.h>
#include<fcntl.h>

int main(int argc, char* argv[])
{
    int i,j=0,k=0;
    int shmid;
    sem_t *sem;
    pid_t pid;
    int *p;
    unsigned int n;
    unsigned int value;
    shmid=shmget(NULL, sizeof(int), 0644|IPC_CREAT);
    if(shmid<0)
    {
        perror("shmget\n");
        exit(1);
    }
    p=(int *)shmat(shmid, NULL, 0);
    *p=1000;
    sem=sem_open("psem", 0_CREAT|0_EXCL, 0644, 1);
    //Child
    for(i=0; i<2; i++)
    {
        pid=fork();
        if(pid<0)
        {
            printf("fork failed\n");
            sem_unlink("psem");
            sem_close(sem);
        }
        else
        {
            if(pid==0)
            {
                break;
            }
        }
    }
    if(pid!=0)
    {
        while(pid=waitpid(-1, NULL, 0))
        {
            if(errno==ECHILD)
            {
                break;
            }
        }
        shmdt(p);
        shmctl(shmid, IPC_RMID, 0);
        sem_unlink("psem");
        sem_close(sem);
        exit(0);
    }
    else
    {
        sem_wait(sem);
    }
}
```

```

    if(i == 0)
    {
        for(; j< 5; j++)
        {
            printf("\n Child(%d) is in critical section. ", i);
            *p += 200;
            printf("p=%d", *p);
            sleep(1);
        }
    }
    sem_post(sem);

    sem_wait(sem);
    if(i == 1)
    {
        for(; k< 5; k++)
        {
            printf("\n Child(%d) is in critical section. ", i);
            *p += 100;
            printf("p=%d", *p);
            sleep(1);
        }
    }
    sem_post(sem);
}
return 0;
}

```

/\*OUTPUT -1\*/

/\*atharva@atharva:~\$ ./sem3

```

Child(0) is in critical section. p=1200
Child(0) is in critical section. p=1400
Child(0) is in critical section. p=1600
Child(0) is in critical section. p=1800
Child(0) is in critical section. p=2000
Child(1) is in critical section. p=2100
Child(1) is in critical section. p=2200
Child(1) is in critical section. p=2300
Child(1) is in critical section. p=2400
Child(1) is in critical section. p=2500
atharva@atharva:~$ */

```

/\*OUTPUT-2\*/

/\*atharva@atharva:~\$ ./sem3

//IF WE COMMENT THE WAIT AND POST OF ELSE PART

```

Child(0) is in critical section. p=1200
Child(1) is in critical section. p=1300
Child(0) is in critical section. p=1500
Child(1) is in critical section. p=1600
Child(0) is in critical section. p=1800
Child(1) is in critical section. p=1900
Child(1) is in critical section. p=2200
Child(0) is in critical section. p=2100
Child(1) is in critical section. p=2300
Child(0) is in critical section. p=2500
atharva@atharva:~$ */

```