

# 운영체제 #3

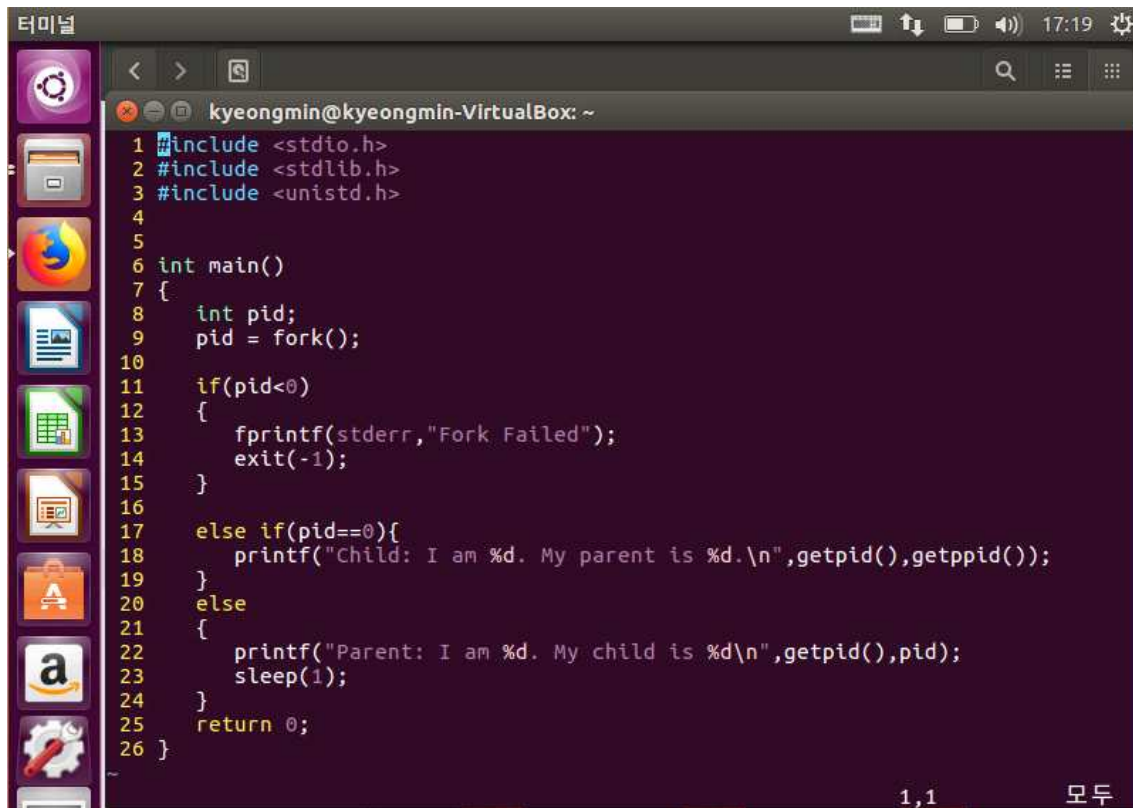
- 강의노트 3장 문제풀이



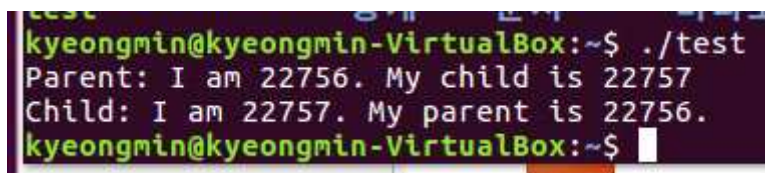
제출일	2018-03-28
담당 교수	이건명 교수님
학번	2015041003
이름	구 경 민

#프로세스 생성

\*Linux에서 새로운 프로세스를 fork하는 C프로그램



```
1 #include <stdio.h>
2 #include <stdlib.h>
3 #include <unistd.h>
4
5
6 int main()
7 {
8     int pid;
9     pid = fork();
10
11     if(pid<0)
12     {
13         fprintf(stderr,"Fork Failed");
14         exit(-1);
15     }
16
17     else if(pid==0){
18         printf("Child: I am %d. My parent is %d.\n",getpid(),getppid());
19     }
20     else
21     {
22         printf("Parent: I am %d. My child is %d\n",getpid(),pid);
23         sleep(1);
24     }
25     return 0;
26 }
```



```
kyeongmin@kyeongmin-VirtualBox:~$ ./test
Parent: I am 22756. My child is 22757
Child: I am 22757. My parent is 22756.
kyeongmin@kyeongmin-VirtualBox:~$
```

-Linux 프로세스 변환

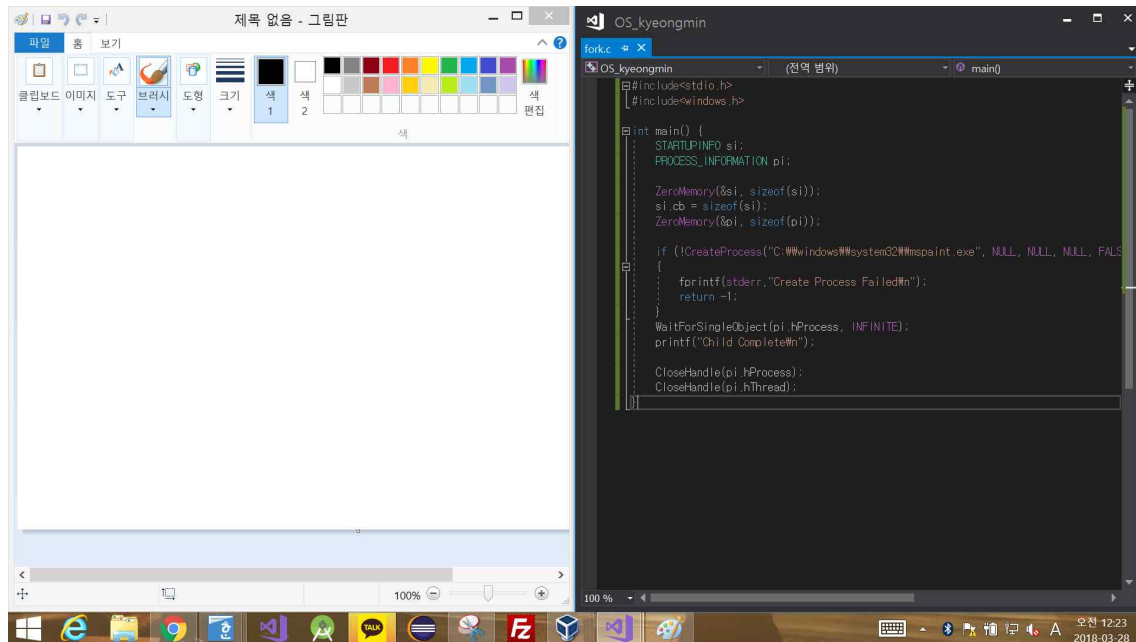
```
kyeongmin@kyeongmin-VirtualBox: ~  
1 #include <stdio.h>  
2 #include <stdlib.h>  
3 #include <unistd.h>  
4 #include <wait.h>  
5  
6  
7 int main(int argc, char *argv[]){  
8     while(1)  
9     {  
10         char *cmd;  
11         int pid;  
12         scanf("%s",cmd);  
13  
14         if((pid=fork())==0){  
15             execlp(cmd,cmd,(char*)0);  
16         }  
17         else  
18             wait(&pid);  
19     }  
20 }  
~  
~  
~  
  
kyeongmin@kyeongmin-VirtualBox:~$ ./a.out  
2015041003 kyeongmin  
  
ls  
a.out          exec.c  test2  다운로드  바탕화면  사진  템플릿  
examples.desktop  test   공개   문서      비디오   음악  
█
```

-프로세스를 fork한 다음, 새로운 프로그램을 실행하는 c프로그램

```
kyeongmin@kyeongmin-VirtualBox: ~  
1 #include<stdio.h>  
2 #include<stdlib.h>  
3 #include<unistd.h>  
4 #include<wait.h>  
5  
6 int main(){  
7     pid_t pid;  
8  
9     pid = fork();  
10  
11     if(pid<0){  
12         fprintf(stderr,"Fork Failed\n");  
13         exit(-1);  
14     }  
15     else if(pid==0)  
16     {  
17         execlp("/bin/ls","ls",NULL);  
18     }  
19     else  
20     {  
21         wait(NULL);  
22         printf("Child Complete\n");  
23         exit(0);  
24     }  
25 }
```

```
kyeongmin@kyeongmin-VirtualBox:~$ gcc fork2.c  
kyeongmin@kyeongmin-VirtualBox:~$ ls  
a.out      exec.c     공개       문서       비디오     음악플릿  
examples.desktop  fork2.c   다운로드  바탕화면   사진  
kyeongmin@kyeongmin-VirtualBox:~$ ./a.out  
a.out      exec.c     공개       문서       비디오     음악플릿  
examples.desktop  fork2.c   다운로드  바탕화면   사진  
Child Complete  
kyeongmin@kyeongmin-VirtualBox:~$
```

-Win32에서의 프로세스 생성: 모든 것을 새로 구성



#시그널

```
kveongmin@kveongmin-VirtualBox: ~
사용자의 컴퓨터에서 검색
2 #include<signal.h>
3
4 int main(){
5     sigset_t set;
6     sigemptyset(&set);
7     sigaddset(&set,SIGINT);
8
9     switch(sigismember(&set,SIGINT)){
10         case 1:
11             printf("SIGINT is include.\n");
12             break;
13         case 2:
14             printf("SIGINT is not found.\n");
15             break;
16         default:
17             printf("sigismember() is failed.\n");
18     }
19
20     switch(sigismember(&set,SIGSYS)){
21         case 1:
22             printf("SIGSYS is include.\n");
23             break;
24         case 2:
25             printf("SIGSYS is not found.\n");
26             break;
27         default:
28             printf("sigismember() is failed.\n");
29     }
30
31     return 0;
32 }
```

1,1

```
kyeongmin@kyeongmin-VirtualBox:~$ ./a.out
SIGINT is include.
sigismember() is failed.
kyeongmin@kyeongmin-VirtualBox:~$
```



#파이프

```
kyeongmin@kyeongmin-VirtualBox: ~
1 #include<stdio.h>
2 #include<string.h>
3 #include<unistd.h>
4
5 #define BUFFER_SIZE 25
6 #define READ_END 0
7 #define WRITE_END 1
8
9 int main(){
10
11     char write_msg[BUFFER_SIZE]="Greetings\n";
12     char read_msg[BUFFER_SIZE];
13     int fd[2];
14     pid_t pid;
15
16     if(pipe(fd)==-1)
17     {
18         fprintf(stderr,"Pipe Failed");
19         return 1;
20     }
21
22     pid=fork();
23     if(pid<0){
24         fprintf(stderr,"Fork Failed");
25         return 1;
26     }
27
28     else if(pid==0){
29         close(fd[READ_END]);
30         write(fd[WRITE_END],write_msg,strlen(write_msg)+1);
31         close(fd[WRITE_END]);
32     }
33     else
34     {
35         close(fd[WRITE_END]);
36         read(fd[READ_END],read_msg,BUFFER_SIZE);
37         printf("read %s",read_msg);
38         close(fd[READ_END]);
39     }

```

13,1

```
kyeongmin@kyeongmin-VirtualBox:~$ vi pipe.c
kyeongmin@kyeongmin-VirtualBox:~$ gcc pipe.c
kyeongmin@kyeongmin-VirtualBox:~$ ls
a.out      exec.c    pipe.c    공개 문서 비디오 음악
examples.desktop fork2.c  signal.c  다운로드 바탕화면 사진 템플릿
kyeongmin@kyeongmin-VirtualBox:~$ ./a.out
read Greetings
```

## #JAVA 소켓

### <클라이언트>

```
DateClient.java  DateServer.java
1=import java.net.*;
2=import java.io.*;
3
4 public class DateClient {
5
6=    public static void main(String[] args)
7    {
8        try {
9            Socket sock = new Socket("127.0.0.1", 6013);
10           InputStream in = sock.getInputStream();
11           BufferedReader bin = new BufferedReader(new InputStreamReader(in));
12
13           String line;
14
15           while((line=bin.readLine()) != null)
16               System.out.println(line);
17           sock.close();
18       }
19       catch(IOException ioe) {}
20       System.err.println(ioe);
21   }
22 }
23 }
```

### <서버>

```
DateClient.java  DateServer.java
1=import java.net.*;
2=import java.io.*;
3
4 public class DateServer {
5
6=    public static void main(String[] args) {
7
8        try
9        {
10           ServerSocket sock = new ServerSocket(6013);
11           while(true) {
12               Socket client = sock.accept();
13               PrintWriter pout = new PrintWriter(client.getOutputStream(), true);
14               pout.println(new java.util.Date().toString());
15               client.close();
16           }
17       }
18       catch(IOException ioe) {
19           System.err.println(ioe);
20       }
21   }
22 }
23 }
```

### <실행 화면>



```
Problems Javadoc Declaration Console
<terminated> DateClient [Java Application] C:\Program Files\Java\jre6\bin\java.exe
Wed Mar 28 02:11:18 KST 2018
```



#RMI Server

<RmiServer>

```
1 public class RmiServer extends UnicastRemoteObject implements RmiServerIntf {
2
3     public static final String MESSAGE = "Hello Wrold";
4     public RmiServer() throws RemoteException {
5     {
6         super(0);
7     }
8
9     public String getMessage() {
10         return MESSAGE;
11     }
12
13     public static void main(String args[]) throws Exception {
14     {
15         System.out.println("RMI server started");
16         try {
17             LocateRegistry.createRegistry(1099);
18             System.out.println("java RMI registry created.");
19         }
20         catch (RemoteException e) {
21             System.out.println("java RMI registry already exists.");
22         }
23         RmiServer obj = new RmiServer();
24
25         Naming.rebind("//localhost/RmiServer", obj);
26         System.out.println("PeerServer bound in registry");
27     }
28 }
```

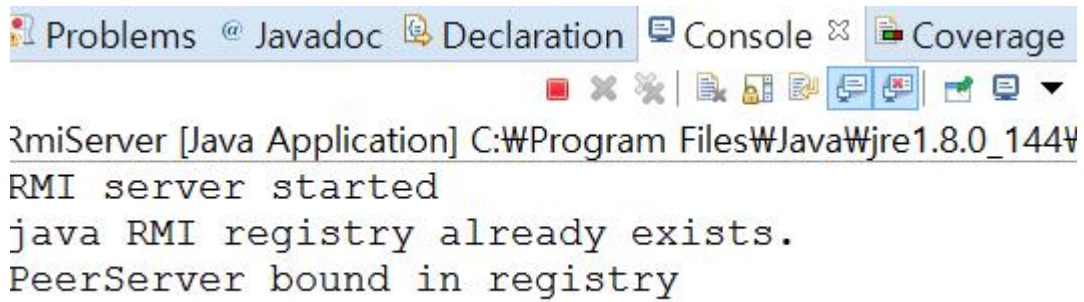
<RmiClient>

```
1 import java.rmi.Naming;
2
3 public class RmiClient {
4
5     public static void main(String[] args) throws Exception {
6         //2015041003 구경민
7         RmiServerIntf obj = (RmiServerIntf) Naming.lookup("//localhost/RmiServer");
8         System.out.println(obj.getMessage());
9     }
10 }
```

<RmiServerIntf>

```
1 import java.rmi.Remote;
2 import java.rmi.RemoteException;
3
4 public interface RmiServerIntf extends Remote {
5     public String getMessage() throws RemoteException;
6 }
7
```

<서버 실행화면>



The screenshot shows an IDE's console window with tabs for Problems, Javadoc, Declaration, Console, and Coverage. The Console tab is active, displaying the following output:

```
RmiServer [Java Application] C:\Program Files\Java\jre1.8.0_144\bin\java.exe  
RMI server started  
java RMI registry already exists.  
PeerServer bound in registry
```