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**SE(4A) | 19F-0916**

Operating System Lab

Lab of PIPES

**TASK 1**

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**CODE:**

**#include <iostream>**

**#include <sys/wait.h>**

**#include <unistd.h>**

**#include <sys/types.h>**

**using namespace std;**

**int main()**

**{**

**int Addition=0,Subtraction=0,Multiplication=0,Division=0;**

**int p1[2],p2[2],p3[2],p4[2];**

**int v1,v2,v3,v4;**

**pipe(p1);**

**pipe(p2);**

**pipe(p3);**

**pipe(p4);**

**cout<<" For addition or subtraction (using 1st child)!!! " << endl;**

**cout<<endl<<" Enter 1st Value : ";**

**cin>>v1;**

**cout<<" Enter 2nd Value : ";**

**cin>>v2;**

**cout<<endl<<" For multiplication or division (using 2nd child)!!! " << endl;**

**cout<<endl<<" Enter 1st Value : ";**

**cin>>v3;**

**cout<<" Enter 2nd Value : ";**

**cin>>v4;**

**write(p1[1], &v1, sizeof(int));**

**write(p2[1], &v2, sizeof(int));**

**write(p3[1], &v3, sizeof(int));**

**write(p4[1], &v4, sizeof(int));**

**int pid1,pid2,pid3;**

**pid1=fork();**

**if(pid1 == 0)**

**{**

**cout<<endl<<" 1st Child Processing Started !!! "<<endl;**

**read(p1[0], &v1, sizeof(int));**

**read(p2[0], &v2, sizeof(int));**

**Addition = v1 + v2;**

**Subtraction = v3 - v4;**

**write(p1[1], &Addition, sizeof(int));**

**write(p2[1], &Subtraction, sizeof(int));**

**pid2 = fork();**

**if(pid2 == 0)**

**{**

**cout<<endl<<" 2nd Child Processing Started !!! "<<endl;**

**read(p3[0], &v3, sizeof(int));**

**read(p4[0], &v4, sizeof(int));**

**Multiplication = v3 \* v4;**

**Division = v3 / v4;**

**write(p3[1], &Multiplication, sizeof(int));**

**write(p4[1], &Division, sizeof(int));**

**}**

**else**

**{**

**pid3 = fork();**

**if(pid3 == 0)**

**{**

**cout<<endl<<" 3rd Child Processing Started !!! "<<endl;**

**read(p1[0], &Addition, sizeof(int));**

**read(p2[0], &Subtraction, sizeof(int));**

**read(p3[0], &Multiplication, sizeof(int));**

**read(p4[0], &Division, sizeof(int));**

**cout<<endl<<" After Addition, Result Becomes = " << Addition << endl;**

**cout<<" After Subtraction, Result Becomes = " << Subtraction << endl;**

**cout<<" After Multiplication, Result Becomes = " << Multiplication << endl;**

**cout<<" After Division, Result Becomes = " << Division << endl;**

**}**

**}**

**}**

**}**

**TASK 2**

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**Code:**

**#include <iostream>**

**#include <sys/wait.h>**

**#include <unistd.h>**

**#include <sys/types.h>**

**using namespace std;**

**#include <string>**

**int main()**

**{**

**int p1[2];**

**pipe(p1);**

**char cmsg[200];**

**//char pmsg[200];**

**int pid=fork();**

**if(pid == 0)**

**{**

**close(p1[1]);**

**cout<<" Child Processing Started !!! " <<endl;**

**cout<<" Receiving Message Delivered By Parent --- !" << endl;**

**read(p1[0], &cmsg, sizeof(cmsg));**

**cout<<" Parent has Send a Message : "<< cmsg<< endl;**

**}**

**else**

**{**

**close(p1[0]);**

**cout<<" Parent Processing Started !!! " <<endl;**

**cout<<" Sending Message To Child --- !" << endl;**

**char pmsg[200]={"Looneywala or Pakistan's No.1 University (SARCASM) XD !! "};**

**write(p1[1], &pmsg, sizeof(pmsg));**

**}**

**}**

**TASK 3**

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**Communicator 1 code:**

**#include <iostream>**

**#include <unistd.h>**

**#include <sys/types.h>**

**#include <sys/stat.h>**

**#include <string>**

**#include <fcntl.h>**

**using namespace std;**

**int main()**

**{**

**int p1;**

**char\* myFifo = "myfifo";**

**mkfifo(myFifo, 0666);**

**char Array1[100];**

**char Array2[100];**

**while(1)**

**{**

**p1=open(myFifo, O\_WRONLY);**

**fgets(Array1, 100, stdin);**

**write(p1, Array1, sizeof(Array1));**

**close(p1);**

**p1=open(myFifo, O\_RDONLY);**

**read(p1, Array2, sizeof(Array2));**

**cout<<"2nd Communicater :" << Array2<< endl;**

**close(p1);**

**}**

**}**

**Communicator 2 code:**

**#include <iostream>**

**#include <unistd.h>**

**#include <sys/types.h>**

**#include <sys/stat.h>**

**#include <string>**

**#include <fcntl.h>**

**using namespace std;**

**int main()**

**{**

**int p2;**

**char\* myFifo = "myfifo";**

**mkfifo(myFifo, 0666);**

**char Array1[100];**

**char Array2[100];**

**while(1)**

**{**

**p2=open(myFifo, O\_RDONLY);**

**read(p2, Array1, sizeof(Array1));**

**cout<<"1st Communicater :" << Array1<< endl;**

**close(p2);**

**p2=open(myFifo, O\_WRONLY);**

**fgets(Array2, 100, stdin);**

**write(p2, Array2, sizeof(Array2));**

**close(p2);**

**}**

**}**