Fatima Jinnah Women University
Department of Software Engineering

LAB 9

Name: Raifa Khalid

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Section: A

Semester: Third

Course: Operating System (LAB)

EXAMPLE # 1

```
fjwu@ubuntu:~$ gedit threads.c
fjwu@ubuntu:~$ gcc threads.c -lpthread
fjwu@ubuntu:~$ ./a.out
Inside Thread
0
1
2
3
4
Inside Main Program
20
21
22
23
24
fjwu@ubuntu:~$
```

Open ▾ threads.c ~/

```
#include <unistd.h>
#include <stdlib.h>
#include <stdio.h>
#include <pthread.h>
void *thread_function(void *arg);
int i,j;
int main()
{
        pthread_t a_thread;
        pthread_create(&a_thread,NULL,thread_function,NULL);
        pthread_join(a_thread,NULL);
        printf("Inside Main Program \n");
        for(j=20;j<25;j++)
        {
                printf("%d\n",j);
                sleep(1);
        }
}
void *thread_function(void *arg)
{
        printf("Inside Thread\n");
        for(i=0;i<5;i++)
        {
                printf("%d\n",i);
                sleep(1);
        }
}
```

EXAMPLE # 2

Open ▾ threads.c ~/ Save

```c
#include <unistd.h>
#include <stdlib.h>
#include <stdio.h>
#include <pthread.h>
#include <string.h>
void *thread_function(void *arg);
int i,j,n;
int main()
{
        char *m="5";
        pthread_t a_thread;
        void *result;
pthread_create(&a_thread,NULL,thread_function,m);

pthread_join(a_thread,&result);
        printf("Thread joined \n");
        for(j=20;j<25;j++)
        {
                printf("%d\n",j);
                sleep(1);
        }
        printf("thread returned %s\n",(char *)result);
}
void *thread_function(void *arg)
{
        int sum=0;
        n=atoi(arg);
        for(i=0;i<n;i++)
        {
                printf("%d\n",i);
                sleep(1);
        }
pthread_exit("Done");
}
```

```
fjwu@ubuntu:~$ gedit threads.c
fjwu@ubuntu:~$ gcc threads.c -lpthread
fjwu@ubuntu:~$ ./a.out
0
1
2
3
4
Thread joined
20
21
22
23
24
thread returned Done
fjwu@ubuntu:~$
```

EXAMPLE # 3

Open ex3.c ~/ Save

```c
#include <stdio.h>
#include <pthread.h>
struct arg_struct
{
int arg1;
int arg2;
};
void *arguments(void *arguments)
{
        struct arg_struct*args=arguments;
        printf("%d\n",args->arg1);
        printf("%d\n",args->arg2);
        pthread_exit(NULL);
}
int main()
{
        pthread_t t;
        struct arg_struct args;
        args.arg1=5;
        args.arg2=7;
        pthread_create(&t,NULL,arguments,&args);
        pthread_join(t,NULL);
}
```

```
fjwu@ubuntu:~$ gedit ex3.c
fjwu@ubuntu:~$ gcc ex3.c -lpthread
fjwu@ubuntu:~$ ./a.out
5
7
fjwu@ubuntu:~$
```

EXAMPLE # 4

Open ▾ ex4.c ~/ Save

Firefox Web Browser

```c
#include<stdio.h>
#include<stdlib.h>
#include<unistd.h>
#include<pthread.h>
void *thread_function(void *arg);
int num[2]={3,5};
int sum;
void *result;
int main()
{
        pthread_t a_thread;
        pthread_create(&a_thread,NULL,thread_function,(void*)num);
        pthread_join(a_thread,&result);
        printf("Inside Main process \n");
        printf("Sum is %d\n",*((int*)result));
}
void *thread_function(void *arg)
{
        printf("Inside Thread \n");
        int *x=arg;
        int *sum=(int*)malloc(sizeof(int));
        *sum=x[0]+x[1];
        pthread_exit((void*)sum);
}
```

```
fjwu@ubuntu:~$ gedit ex4.c
fjwu@ubuntu:~$ gcc ex4.c -lpthread
fjwu@ubuntu:~$ ./a.out
Inside Thread
Inside Main process
Sum is 8
fjwu@ubuntu:~$
```