OS LAB: THREAD CREATION

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So, as you have seen that fork() system call creates or duplicates a process. So the benefit of having multiple processes is to increase concurrency or speed up in computation but in an isolated manner, which means that two different processes can do two different tasks separately at the same time. So this exactly means that the memory they work in that is separate, so is called isolated.

And thread works in concurrency without isolation. Threads can run on each other's memory so it becomes easier to communicate between them unlike processes. Different APIs are there to create and manipulate thread. Windows also has a **create thread** function. You can use pthread for windows by downloading third party library. We are going to focus on the POSIX THREAD APIs.

If you go through the argument of the thread calling function you will understand that a void pointer is taken. The motive is so that we can pass any type of data through this.

#PROGRAM1

OBJECTIVE: SIMPLE PROGRAM TO CREATE THREAD

```
#include <pthreads.h>

#include <stdio.h>

#include<unistd.h>


Void* myturn( void *arg)

{

        While(1)

        {

                Sleep(2);

                printf("My turn!);

        }

        return NULL;

}

Void yourTurn()

{
```

```
        While(1)
        {
                Sleep(3);
                printf("your turn!);
        }
}

int main()
{
        pthread_t newthread;
        pthread_create(&newthread, NULL,  myturn, NULL);
        yourTurn();
        return 0;
}
```

[Output Justification: As you can see that two threads are there in the above example. One is main thread and another one we created.]

#PROGRAM2

OBJECTIVE: MULTITHEADING USING C PROGRAM

```
#include <stdio.h>
#include <pthread.h>
#include<unistd.h>
pthread_t thread[2];
static void *func1(void *_)
{
        int i;
```

```
        for (i=0;i<10;i++)
        {
                printf("\n THREAD1 IS FOR THE VALUE OF I IS : %d",i);
                sleep(1);
        }
}
static void *func2(void *_)
{
        int i;
        for (i=0;i<5;i++)
        {
                printf("\n THREAD2 IS FOR THE VALUE OF I IS : %d",i);
                sleep(5);
        }
}

int main()
{
        pthread_create (&thread[0], NULL, fuc1, NULL);
        pthread_create (&thread[1], NULL, fuc2, NULL);
        pthread_exit(NULL);
}
```

[N.B: while submitting the solved assignments please attach the output screenshots. Please make a zip file including .C and send it using the Gmail.]