

Operating Systems

Assignment # 04

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BSSE-4A

P20-0117

Task1:

With 2 threads

```
(base) hamza@hamza-Lenovo-ideapad-320-15ABR:~/Documents/Semester no.4/Operating Systems/Assignments/4$ gcc task1.c -o task1 -lpthread
(base) hamza@hamza-Lenovo-ideapad-320-15ABR:~/Documents/Semester no.4/Operating Systems/Assignments/4$ ./task1
Hello
Hello
Hello
Hello
Hello
Hello
Hello
Hello
Hello
Hello
Hello
World
World
World
World
World
World
World
World
World
World
World
```

We have created two threads in the program. Each has a function which will print something. So at first, one thread did execution and print on screen and then the other one.

```

#include<stdio.h>
#include<pthread.h>
#include<stdlib.h>

void* thread1(){
    for(int i=0; i<10; i++){
        printf("Hello\n");
    }
}

void* thread2(){
    for(int i=0; i<10; i++){
        printf("World\n");
    }
}

int main(){
    int status;
    pthread_t tid1, tid2, tid3, tid4;

    pthread_create( &tid1, NULL, thread1, NULL);
    pthread_create( &tid2, NULL, thread2, NULL);

    pthread_create( &tid3, NULL, thread1, NULL);
    pthread_create( &tid4, NULL, thread2, NULL);

    pthread_join( tid1, NULL);
    pthread_join( tid2, NULL);

    pthread_join( tid3, NULL);
    pthread_join( tid4, NULL);

    return 0;
}

```

Here, I have created four threads. The first two are the same as in part(a) which have their functions and for the 3rd and 4th thread, I have used the same function of 1st and 2nd. It randomly switches their turns of execution.

The output is below:

```
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(base) hamza@hamza-Lenovo-ideapad-320-15ABR:~/Documents/Semester no.4/Operating Systems/Assignments/4$ ./task1
Hello
Hello
Hello
Hello
Hello
Hello
Hello
Hello
Hello
Hello
Hello
World
World
World
World
World
World
World
World
World
World
World
Hello
Hello
Hello
Hello
Hello
Hello
Hello
Hello
Hello
World
World
World
World
World
World
World
World
World
```

Task2:

- I. The value of counter variable should be: **10000000**
- II. The value I got is: **10081698**
- III. The error is: **9918302**
It varies: **83110, 171232**
- IV. Time taken by my machine is: **0.0025** (roughly estimated)