CSE2005- Operating Systems

Lab Ex. 8 Dining philosopher's problem

Code:

```
#include <stdio.h>

#include <stdlib.h>

#include <pthread.h>

#define ll long long

#define rep(i,k,n) for(ll i=k;i<n;i++)

pthread_mutex_t m[5];

void *f(ll i)

{

    printf("%lldth philospher is thinking:\n",i+1);

    pthread_mutex_lock( &m[i] );

    pthread_mutex_lock(&m[(i+1)%5]);

    printf("%lldth philospher  is eating:\n",i+1);

    pthread_mutex_unlock(&m[i]);

    pthread_mutex_unlock ( &m[(i+1)%5]);

    printf("%lldth philospher done with eating\n",i+1);

}

int main()

{

    ll a[5];

    pthread_t t[5];
```

```
    rep(i,0,5)

    if( (a[i]=pthread_create( &td[i], NULL, &f, (void*) i) ))

    printf(" %lld Thread creation failed\n", a[i]);

    rep(i,0,5)

    pthread_join(t[i], NULL);

    exit(0);

    return 0;

}
```

Output:

1)

```
shubhangi@Shubhi:/mnt/e/VIT/4thsem/OS/lab/linuxpractice/20bce1161/lab 8$ ./dining_phil
1th philospher is thinking:
1th philospher  is eating:
1th philospher done with eating
5th philospher is thinking:
5th philospher  is eating:
5th philospher done with eating
2th philospher is thinking:
2th philospher  is eating:
2th philospher done with eating
3th philospher is thinking:
3th philospher  is eating:
3th philospher done with eating
4th philospher is thinking:
4th philospher  is eating:
4th philospher done with eating
```

2)

```
shubhangi@Shubhi:/mnt/e/VIT/4thsem/OS/lab/linuxpractice/20bce1161/lab 8$ ./dining_phil
2th philospher is thinking:
5th philospher is thinking:
5th philospher  is eating:
5th philospher done with eating
4th philospher is thinking:
4th philospher  is eating:
4th philospher done with eating
2th philospher  is eating:
2th philospher done with eating
3th philospher is thinking:
3th philospher  is eating:
3th philospher done with eating
1th philospher is thinking:
1th philospher  is eating:
1th philospher done with eating
```