

Group member: QipanXu(qx67), ZihanChen(zc366)

Quantum:15

Tcb values:

```
typedef struct threadControlBlock
{
```

```
// YOUR CODE HERE
```

```
    // thread Id
    // thread status
    // thread context
    // thread stack
    // thread priority
    // And more ...
```

```
    mypthread_t t_id;
    enum thread_state status;//0 = ready 1 = running 2 = blocked
    ucontext_t context;
    int priority;
```

```
} tcb;
```

Mutex medatata:

```
typedef struct mypthread_mutex_t
{
```

```
// YOUR CODE HERE
```

```
    int lock_state;
    mypthread_t t_id;
    queue* blockedQueueHead;
```

```
} mypthread_mutex_t;
```

Queue:

```
typedef struct queue {
```

```
    tcb* threadControlBlock;
    struct queue* next;
```

```
} queue;
```

```
typedef struct finished_queue {
```

```
    mypthread_t t_id;
    void* value;
    struct finished_queue* next;
```

```
} finished_queue;
```

Priority: 6 levels

If one thread depletes its CPU running time quota, then it decreases priority.

Performance: SJF
./external_cal

```
running time: 498 micro-seconds  
sum is: 1139297756  
verified sum is: 1139297756
```

./vector_multiply

```
running time: 34 micro-seconds  
res is: 631560480  
verified res is: 631560480
```

./parallel_cal:

```
running time: 2364 micro-seconds  
sum is: 83842816  
verified sum is: 83842816
```

RR
./external_cal