

Test 1

```
#include <stdio.h>

#include <stdlib.h>

#include <pthread.h>

int var=10;

pthread_t td1 , td2;

void *fun1(void*args)

{

    int join1 = pthread_join(td1,NULL);

    int x = var;

    x++;

    var = x;

    printf("%d\n", var);

}

void *fun2(void* args)

{

    int y = var;

    y++;

    var = y;

    printf("%d\n", var);
```

```

}

int main()

{

    pthread_create (& td1 , NULL, fun1 , NULL);

    pthread_create (& td2 , NULL, fun2 , NULL);

    int join3 = pthread_join(td1,NULL);

return 0;

}

```

```

baigu pop-os ~/Desktop/OS Lab/Lab 11 ./a.out

```

```

11
12

```

```

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```

Test 2

```

#include <stdio.h>

#include <stdlib.h>

#include <pthread.h>

#include <unistd.h>

int var=10;

pthread_t td1 , td2;

void *fun1(void*args)

{

```

```
int join1 = pthread_join(td1,NULL);

int x = var;

x++;

sleep(1);

var = x;

printf("%d\n", var);

}

void *fun2(void* args)

{

int y = var;

y++;

sleep(1);

var = y;

printf("%d\n", var);

}

int main()

{

    pthread_create (& td1 , NULL, fun1 , NULL);

    pthread_create (& td2 , NULL, fun2 , NULL);

    int join3 = pthread_join(td1,NULL);
```

```
return 0;
```

```
}
```

```
baigu pop-os ~/Desktop/OS Lab/Lab 11 ./a.out
```

```
11
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11
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```
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```

Test 3

```
#include <stdio.h>
```

```
#include <stdlib.h>
```

```
#include <pthread.h>
```

```
#include <unistd.h>
```

```
int var=10;
```

```
pthread_mutex_t mutex;
```

```
void *fun1(void*args)
```

```
{
```

```
pthread_mutex_lock(&mutex);
```

```
int x = var;
```

```
x++;
```

```
sleep(1);
```

```
var = x;
```

```
pthread_mutex_unlock(&mutex);

pthread_mutex_destroy(&mutex);

printf("%d\n", var);

}

void *fun2(void* args)

{

pthread_mutex_lock(&mutex);

int y = var;

y++;

sleep(1);

var = y;

pthread_mutex_unlock(&mutex);

pthread_mutex_destroy(&mutex);

printf("%d\n", var);

}

int main()

{

    pthread_t td1 , td2;

    pthread_mutex_init(&mutex, NULL);

    pthread_create (& td1 , NULL, fun1 , NULL);
```

```

        pthread_create (& td2 , NULL, fun2 , NULL);

pthread_exit(NULL);

//int join3 = pthread_join(td1,NULL);

return 0;

}

```

```

baigu pop-os ~/Desktop/OS Lab/Lab 11 gcc test3.c -lpthread
baigu pop-os ~/Desktop/OS Lab/Lab 11 ./a.out
11
12
baigu pop-os ~/Desktop/OS Lab/Lab 11

```

Lab Task

```

#include <stdio.h>
#include <stdlib.h>
#include <pthread.h>
int tamount=0;
pthread_mutex_t mutex1 ;
pthread_t tid1 , tid2 , tid3 , tid4;

void *deposit1 ( void *arg ) {
int x=tamount;
pthread_mutex_lock ( &mutex1 ) ;
x+=11;
sleep(1);
tamount+=x;
printf("deposit %d\n",tamount);
pthread_mutex_unlock ( &mutex1 ) ;
pthread_exit(NULL);
}

void *deposit2( void *arg) {
int y=tamount;
pthread_mutex_lock ( &mutex1 ) ;
y+=11;

```

```

sleep(1);
tamount+=y;
printf("deposit %d\n",tamount);
pthread_mutex_unlock ( &mutex1 ) ;
pthread_exit(NULL);
}

void *withdraw1( void *arg) {
int y=tamount;
pthread_mutex_lock ( &mutex1 ) ;
y-=10;
sleep(1);
if(tamount>10)
tamount=-y;
printf("withdraw %d\n",tamount);
pthread_mutex_unlock ( &mutex1 ) ;
pthread_exit(NULL);
}

void *withdraw2( void *arg) {
int y=tamount;
pthread_mutex_lock ( &mutex1 ) ;
y-=10;
sleep(1);
if(tamount>10)
tamount=-y;
printf("withdraw %d\n",tamount);
pthread_mutex_unlock ( &mutex1 ) ;
pthread_exit(NULL);
}

int main(){
pthread_mutex_init (&mutex1 ,NULL) ;
pthread_create (& tid1 ,NULL, deposit1 , NULL );
pthread_create (& tid2 ,NULL, deposit2 , NULL );
pthread_create (& tid3 ,NULL, withdraw1 , NULL );
pthread_create (& tid4 ,NULL, withdraw2 , NULL );
/*printf( " Thread 1 ID : %ld \n" , tid1 ) ;
printf( " Thread 2 ID : %ld \n" , tid2 ) ;*/
pthread_join ( tid1 , NULL) ;

```

```
pthread_join ( tid2 , NULL) ;  
pthread_join ( tid3 , NULL) ;  
pthread_join ( tid4 , NULL) ;  
pthread_mutex_destroy(&mutex1 ) ;  
pthread_exit (NULL) ;  
exit(0) ;  
  
}
```

```
12 | sleep(1);  
    | ^~~~~  
baigu pop-os ~/Desktop/OS Lab/Lab 11 ./a.out  
deposit 11  
deposit 22  
withdraw 10  
withdraw 10  
baigu pop-os ~/Desktop/OS Lab/Lab 11
```