S.ID	64091
S.Name	Hassaan Raheem
Code	A
FINAL LAB	

TASK 1

CODE :

```bash
#!/bin/bash

echo -n "Enter a: "
read a
echo -n "Enter b: "
read b

sm=$[$a+$b]

if [ $sm -gt 21 ]
then
    if [ $a -eq 11 ] || [ $b -eq 11 ]
    then
        if [ $a -eq 11 ]
        then
            a=1
        fi
        if [ $b -eq 11 ]
        then
            b=1
        fi
        sm=$[$a+$b]
        echo "Sum = $sm"
    else
        echo "0"
    fi

else
    echo "not greater than"
fi
```

OUTPUT :

```
guest@Hassaan:~/Downloads/hassaan$ ./task2
Enter array size : 3
        -----Enter numbers------
arr[0]: 5
arr[1]: 13
arr[2]: 89
Thread 0: 1  2  3  5
Thread 1: 1  2  3  5  8  13
Thread 2: 1  2  3  5  8  13  21  34  55  89
guest@Hassaan:~/Downloads/hassaan$ |
```

TASK 2

CODE :

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

//global variables
pthread_mutex_t mutex = PTHREAD_MUTEX_INITIALIZER;
int *arr;

//fibonacii function
void *fibonacii(){
    pthread_mutex_lock(&mutex);
    static int t_count=0;
    printf("Thread %d:",t_count);
    int n = *(arr+t_count);
    int a = 0;
    int b = 1;
    if (n==0){
        printf(" %d ",a);
    }
    else if(n==1){
        printf(" %d %d ",a,b);
    }
    else{
        while (n > b){
            int sum = a+b;
```

```c
                a = b;
                b = sum;
                printf(" %d ",sum);
        }
    }
    printf("\n");
    pthread_mutex_unlock(&mutex);
    t_count++;
}


int main(){
    int n;
    printf("Enter array size : ");
    scanf("%d",&n);
    pthread_t t[n];
    arr = malloc(n*sizeof(int));
    printf("\t-----Enter numbers------\n");
    for(int i=0; i<n;i++){
        printf("arr[%d]: ",i);
        scanf("%d",&arr[i]);
    }

    for(int i=0; i<n;i++){
        int mssg = *(arr+i);
        pthread_create(&t[i],NULL,fibonacii,NULL);

    }

    for(int i=0; i<n;i++){
            pthread_join(t[i],NULL);
        }


}
```

OUTPUT :

```
guest@Hassaan:~/Downloads/hassaan$ ./task2
Enter array size : 3
        -----Enter numbers------
arr[0]: 5
arr[1]: 13
arr[2]: 89
Thread 0: 1  2  3  5
Thread 1: 1  2  3  5  8  13
Thread 2: 1  2  3  5  8  13  21  34  55  89
guest@Hassaan:~/Downloads/hassaan$ |
```