

Name: Vaibhav Bhapkar  
PRN: 220960920013

### COP & OS LAB Exam

1. Write a program to check whether a number given as input is divisible by the sum of its digits.

```
package num;

import java.util.Scanner;

class NumberDivisibility
{
    static String isDivisible(long n)
    {
        long temp = n;

        int sum = 0;
        while (n != 0)
        {
            int k = (int) n % 10;
            sum += k;
            n /= 10;
        }

        if (temp % sum == 0)    return "YES";

        return "NO";
    }

    public static void main(String []args)
    {
        System.out.println("Enter a number: ");
        Scanner sc = new Scanner(System.in);
        int n = sc.nextInt();
        System.out.println(isDivisible(n));
        sc.close();
    }
}
```

OUTPUT:

```
<terminated> NumberDivisibility [Java Application] C:\Program Files\Eclipse Adoptium\
Enter a number:
45
YES|
```

2. Write a C program to create three threads which access the thread function which displays the string data. Allow only one thread to access the thread function at a time.

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

pthread_mutex_t mutex;

void *thread_function(void *arg)
{
    // Acquire a lock before printing data
    pthread_mutex_lock(&mutex);

    printf("Thread Function: %s\n", (char *)arg);

    // Release the lock
    pthread_mutex_unlock(&mutex);

    return NULL;
}

int main()
{
    pthread_t thread1, thread2, thread3;
    char *msg1 = "Thread 1";
    char *msg2 = "Thread 2";
    char *msg3 = "Thread 3";

    // Initialize the mutex
    pthread_mutex_init(&mutex, NULL);

    // Create the threads
    pthread_create(&thread1, NULL, thread_function, (void *)msg1);
    pthread_create(&thread2, NULL, thread_function, (void *)msg2);
    pthread_create(&thread3, NULL, thread_function, (void *)msg3);

    // Join the threads
    pthread_join(thread1, NULL);
    pthread_join(thread2, NULL);
    pthread_join(thread3, NULL);

    // Destroy the mutex
    pthread_mutex_destroy(&mutex);

    return 0;
}
```

## OUTPUT:

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL
[Running] cd "c:\Users\vaibh\OneDrive\Desktop\" && gcc Thread.c -o Thread && "c:\Users\vaibh\OneDrive\Desktop\"Thread
Thread Function: Thread 1
Thread Function: Thread 2
Thread Function: Thread 3

[Done] exited with code=0 in 2.67 seconds
```