

OPERATING SYSTEMS

Lab Assignment – 4

Name:- Panduga Venkata Jaya Srikanth Reddy

Reg No:- 21MIS1095

Exercise

- **Write a multithreaded program to compute and display the sum of first N natural numbers, the sum of first N odd natural numbers and the sum of first N even natural numbers**

CODE:-

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

int n;
int sum_n = 0, sum_odd = 0, sum_even = 0;
void *sum_natural(void *arg) {
    int i;
    for (i = 1; i <= n; i++) {
        sum_n += i;
    }
    pthread_exit(NULL);
}

void *sum_odd_natural(void *arg) {
    int i;
    for (i = 1; i <= n; i += 2) {
        sum_odd += i;
    }
    pthread_exit(NULL);
}

void *sum_even_natural(void *arg) {
    int i;
    for (i = 2; i <= n; i += 2) {
        sum_even += i;
    }
    pthread_exit(NULL);
}

int main() {
    printf("Enter the value of N: ");
    scanf("%d", &n);
```

```

pthread_t tid1, tid2, tid3;
pthread_attr_t attr1, attr2, attr3;

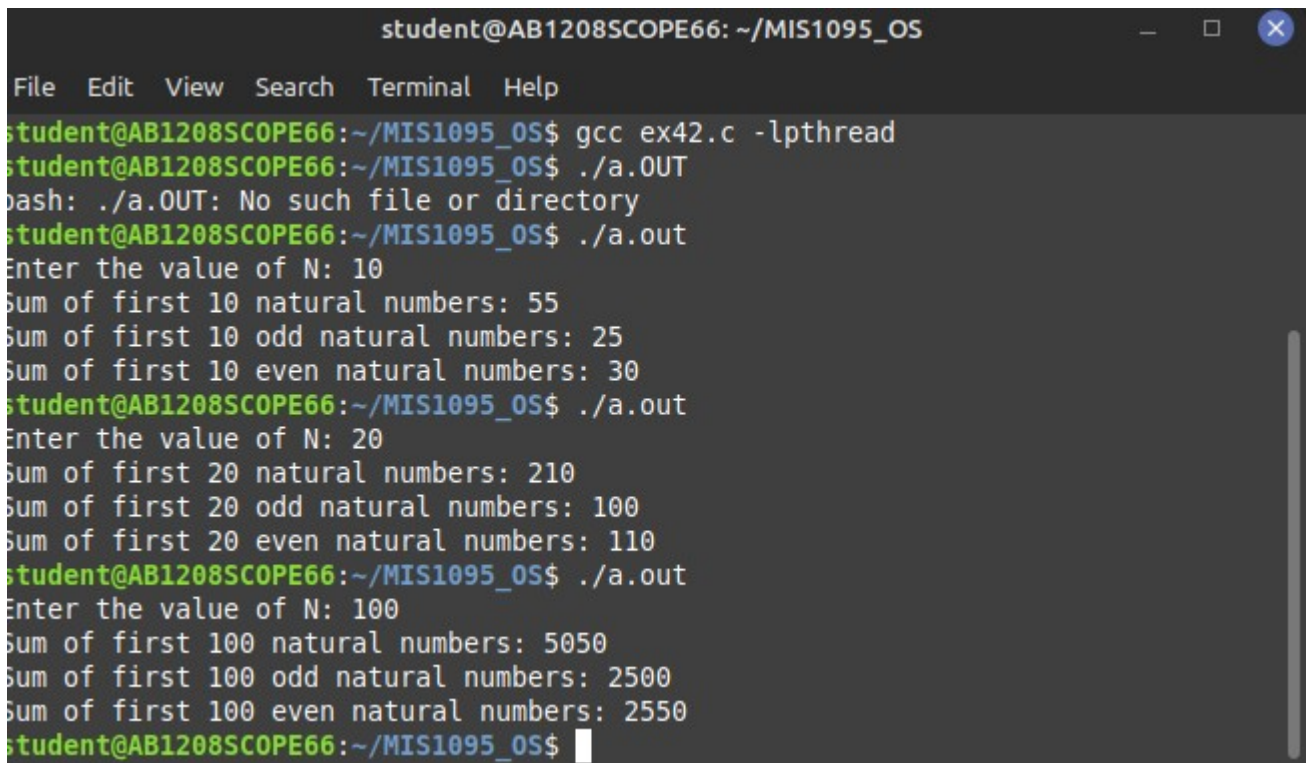
pthread_attr_init(&attr1);
pthread_attr_init(&attr2);
pthread_attr_init(&attr3);

pthread_create(&tid1, &attr1, sum_natural, NULL);
pthread_create(&tid2, &attr2, sum_odd_natural, NULL);
pthread_create(&tid3, &attr3, sum_even_natural, NULL);

pthread_join(tid1, NULL);
pthread_join(tid2, NULL);
pthread_join(tid3, NULL);

printf("Sum of first %d natural numbers: %d\n", n, sum_n);
printf("Sum of first %d odd natural numbers: %d\n", n, sum_odd);
printf("Sum of first %d even natural numbers: %d\n", n, sum_even);
return 0;
}

```



```

student@AB1208SCOPE66: ~/MIS1095_OS
File Edit View Search Terminal Help
student@AB1208SCOPE66:~/MIS1095_OS$ gcc ex42.c -lpthread
student@AB1208SCOPE66:~/MIS1095_OS$ ./a.OUT
bash: ./a.OUT: No such file or directory
student@AB1208SCOPE66:~/MIS1095_OS$ ./a.out
Enter the value of N: 10
Sum of first 10 natural numbers: 55
Sum of first 10 odd natural numbers: 25
Sum of first 10 even natural numbers: 30
student@AB1208SCOPE66:~/MIS1095_OS$ ./a.out
Enter the value of N: 20
Sum of first 20 natural numbers: 210
Sum of first 20 odd natural numbers: 100
Sum of first 20 even natural numbers: 110
student@AB1208SCOPE66:~/MIS1095_OS$ ./a.out
Enter the value of N: 100
Sum of first 100 natural numbers: 5050
Sum of first 100 odd natural numbers: 2500
Sum of first 100 even natural numbers: 2550
student@AB1208SCOPE66:~/MIS1095_OS$

```