

```

#include<stdio.h>
#include<pthread.h>
int array[50],n,i,key;
void *thread1()
{
    int f=0;
    printf("Please enter your required range: \n");
    scanf("%d",&n);
    for(i=0;i<n;i++){
        printf("Please Enter the number: \n");
        scanf("%d",&array[i]);
    }
    printf("Thread Number 1 \n");
    printf("Enter your key to be found: \n");
    scanf("%d",&key);
    for(i=0;i<n;i++){
        if(array[i] == key)
            f=1;
    }
    if(f == 1){
        printf("Key element found \n");
    }
    else{
        printf("Key not present\n");
    }
}

void *thread2()
{
    int f=0;
    printf("Thread Number 2 \n");
    printf("Enter your key to be found: \n");
    scanf("%d",&key);
    for(i=0;i<n; i++){
        if(array[i] == key){
            f=1;
        }
    }
    if(f == 1) {
        printf("Key element found \n");
    }
    else {
        printf("Key not present\n");
    }
}

void *thread3()
{
    int f=0;
    printf("Thread Number 3 \n");
    printf("Enter your key to be found: \n");
    scanf("%d",&key);
    for(i=0;i<n;i++) {
        if(array[i] == key)
            f=1;
    }
    if(f==1) {
        printf("Key element found \n");
    }
    else {
        printf("Key not present\n");
    }
}

void *thread4()
{

```

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sumaiya@sumaiya-VirtualBox: ~/Desktop$ gcc -pthread -o lab lab.c
sumaiya@sumaiya-VirtualBox: ~/Desktop$ ./lab
Please enter your required range:
7
Please Enter the number:
22
Please Enter the number:
555
Please Enter the number:
100
Please Enter the number:
99
Please Enter the number:
5
Please Enter the number:
710
Please Enter the number:
25
Thread Number 1
Enter your key to be found:
555
Key element found
Thread Number 2
Enter your key to be found:
100
Key element found
Thread Number 3
Enter your key to be found:
66
Key not present
Thread Number 4
Enter your key to be found:
88
Key not present
sumaiya@sumaiya-VirtualBox: ~/Desktop$

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int f=0;
printf("Thread Number 4 \n");
printf("Enter your key to be found: \n");
scanf("%d",&key);
for(i=0;i<n;i++) {
    if(array[i] == key)
        f=1;
}
if(f==1) {
    printf("Key element found \n");
}
else {
    printf("Key not present \n");
}
}
}

void *thread5()
{
    int f=0;
    printf("Thread Number 5 \n");
    printf("Enter your key to be found: \n");
    scanf("%d",&key);
    for(i=0;i<n;i++) {
        if(array[i] == key)
            f=1;
    }
    if(f==1) {
        printf("Key element found \n");
    }
    Else {
        printf("Key not present\n");
    }
}

int main() {
    int n,i;
    pthread_t threadno1;
    pthread_t threadno2;
    pthread_t threadno3;
    pthread_t threadno4;
    pthread_t threadno5;

    n=pthread_create(&threadno1,NULL,&thread1,NULL);
    pthread_join(threadno1,NULL);

    n=pthread_create(&threadno2,NULL,&thread2,NULL);
    pthread_join(threadno2,NULL);

    n=pthread_create(&threadno3,NULL,&thread3,NULL);
    pthread_join(threadno3,NULL);

    n=pthread_create(&threadno4,NULL,&thread4,NULL);
    pthread_join(threadno4,NULL);

    n=pthread_create(&threadno5,NULL,&thread5,NULL);
    pthread_join(threadno5,NULL);
}

```

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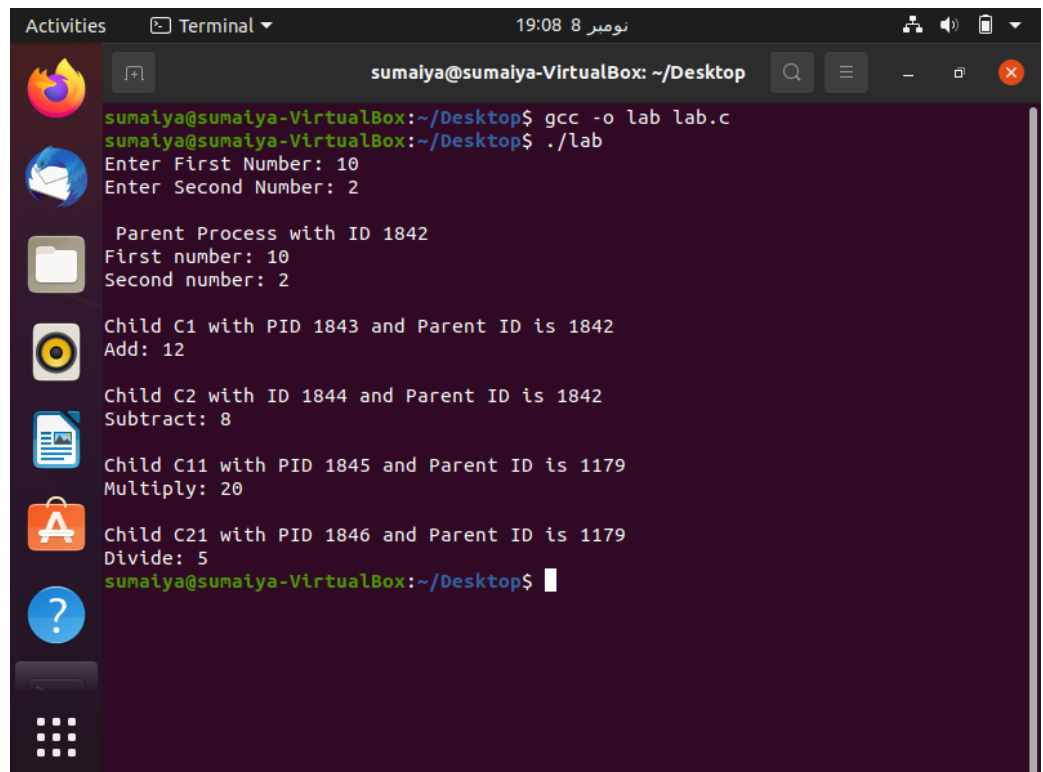
sumaiya@sumaiya-VirtualBox: ~/Desktop$ gcc -pthread -o lab lab.c
sumaiya@sumaiya-VirtualBox: ~/Desktop$ ./lab
Please enter your required range:
7
Please Enter the number:
22
Please Enter the number:
555
Please Enter the number:
100
Please Enter the number:
99
Please Enter the number:
5
Please Enter the number:
710
Please Enter the number:
25
Thread Number 1
Enter your key to be found:
555
Key element found
Thread Number 2
Enter your key to be found:
1
Key not present
Thread Number 3
Enter your key to be found:
100
Key element found
Thread Number 4
Enter your key to be found:
66
Key not present
Thread Number 5
Enter your key to be found:
88
Key not present
sumaiya@sumaiya-VirtualBox: ~/Desktop$

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```

#include <stdlib.h>
#include <stdio.h>
#include <unistd.h>
#include <sys/types.h>
int main()
{
    int val1;
    int val2;
    printf("Enter First Number: ");
    scanf("%d", &val1);
    printf("Enter Second Number: ");
    scanf("%d",&val2);
    pid_t C_a,C_b,C_a1,C_b1;
    printf("\n Parent Process with ID %d \n",getpid());
    printf("First number: %d\n",val1);
    printf("Second number: %d\n",val2);
    C_a=fork();
    if (C_a == 0 ){
        printf("\nChild C1 with PID %d and Parent ID is %d\n",getpid(),getppid());
        int c = val1+val2;
        printf("Add: %d\n",c);
        C_a1=fork();
        if (C_a1 == 0 ){
            printf("\nChild C11 with PID %d and Parent ID is %d\n",getpid(),getppid());
            int e = val1*val2;
            printf("Multiply: %d\n",e);
        }
    }
    else {
        C_b = fork();
        if (C_b == 0){
            printf("\nChild C2 with ID %d and Parent ID is %d\n",getpid(),getppid());
            int d = val1-val2;
            printf("Subtract: %d\n",d);
            C_b1=fork();
            if (C_b1 == 0 ){
                printf("\nChild C21 with PID %d and Parent ID is %d\n",getpid(),getppid());
                int f = val1/val2;
                printf("Divide: %d\n",f);
            }
        }
        else{
            sleep(1);
        }
    }
}

```



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sumaiya@sumaiya-VirtualBox: ~/Desktop
sumaiya@sumaiya-VirtualBox:~/Desktop$ gcc -o lab lab.c
sumaiya@sumaiya-VirtualBox:~/Desktop$ ./lab
Enter First Number: 10
Enter Second Number: 2

Parent Process with ID 1842
First number: 10
Second number: 2

Child C1 with PID 1843 and Parent ID is 1842
Add: 12

Child C2 with ID 1844 and Parent ID is 1842
Subtract: 8

Child C11 with PID 1845 and Parent ID is 1179
Multiply: 20

Child C21 with PID 1846 and Parent ID is 1179
Divide: 5
sumaiya@sumaiya-VirtualBox:~/Desktop$

```