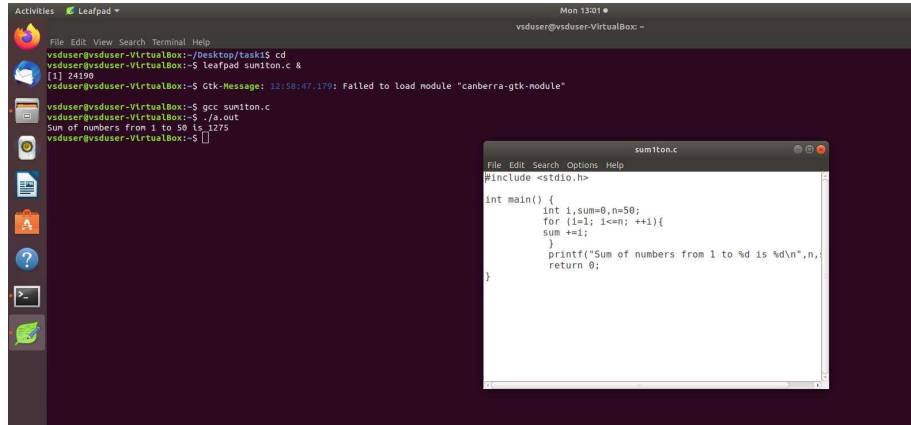


TASK-1

LAB:-1



The screenshot shows a Linux desktop environment with a terminal window and a code editor. The terminal window displays the following commands and output:

```
vdsuser@vdsuser-VirtualBox:~/Desktop/task1$ cd
vdsuser@vdsuser-VirtualBox:~/Desktop/task1$ leafpad sum1ton.c &
[1] 24196
vdsuser@vdsuser-VirtualBox:~/Desktop/task1$ gcc sum1ton.c
vdsuser@vdsuser-VirtualBox:~/Desktop/task1$ ./a.out
Sum of numbers from 1 to 50 is 1275
vdsuser@vdsuser-VirtualBox:~/Desktop/task1$
```

The code editor shows the source code for the program:

```
#include <stdio.h>

int main() {
    int i, sum=0, n=50;
    for (i=1; i<=n; ++i){
        sum +=i;
    }
    printf("Sum of numbers from 1 to %d is %d\n", n, sum);
    return 0;
}
```

CALCULATION OF SUM OF “n” TERMS:-

This program calculates the sum of all natural numbers from 1 to n. The user is prompted to input the value of n, and the program computes the result using one of the following methods:

1. **Iterative Approach:** Using a for loop to add numbers sequentially from 1 to n.
2. **Formula-Based Approach:** Directly applying the mathematical formula for the sum of the first nnn natural numbers:

$$\text{Sum}=(n \times (n+1)) / 2$$

The program is designed to handle positive integers and includes basic input validation to ensure n is valid.

This program serves as a basic demonstration of iterative loops and formula-based calculations in C programming. It's a great starting point for beginners learning programming concepts like loops, arithmetic operations, and input/output.

LAB-2

```

Activities  Terminal  Mon 13:47
vduser@vduser-VirtualBox: ~

File Edit View Search Terminal Tabs Help
vduser@vduser-VirtualBox: ~
vduser@vduser-VirtualBox: ~/Desktop/task15 cd
vduser@vduser-VirtualBox: ~$ leafpad sumiton.c &
[1] 25286
vduser@vduser-VirtualBox:~$ Gtk-Message: 13:27:46.170: Failed to load module "canberra-gtk-module"

vduser@vduser-VirtualBox:~$ gcc sumiton.c
vduser@vduser-VirtualBox:~$ ./a.out
Sum of numbers from 1 to 50 is 1275
vduser@vduser-VirtualBox:~$ cat sumiton.c
#include <stdio.h>

int main() {
    int i,sum=0,n=50;
    for (i=1; i<=n; ++i){
        sum +=i;
    }
    printf("Sum of numbers from 1 to %d is %d\n",n,sum);
}
vduser@vduser-VirtualBox:~$ riscv64-unknown-elf-gcc -o1 -mabi=lp64 -march=rv64t -o sumiton.o sumiton.c
vduser@vduser-VirtualBox:~$ ls -ltr sumiton.o
-rwxr-xr-x 1 vduser vduser 167512 Jan  6 13:28 sumiton.o
vduser@vduser-VirtualBox:~$ riscv64-unknown-elf-gcc -ofast -mabi=lp64 -march=rv64t -o sumiton.o sumiton.c
vduser@vduser-VirtualBox:~$

```

Same program Compiled using RISC file

```
vsduser@vsduser-VirtualBox: ~
File Edit View Search Terminal Tabs Help

vsduser@vsduser-VirtualBox: ~
1011c: e0e870793      addi    a5,a5,-280 # 0 <register_fini-0x100b0>
10120: 02078863      beqz    a5,10150 <_do_global_dtors_aux+0x40>
10124: f0010113      addi    sp,sp,-16
10128: 00012517      auipc   a0,0x12
1012c: 00050513      addi    a0,a0,-296 # 22000 <_FRAME_END_>
10130: 00119423      sd      ra,0(sp)
10134: 00000097      auipc   ra,0x0
10138: 00000067      jalr    zero # 0 <register_fini-0x100b0>
1013c: 00013083      ld      ra,0(sp)
10140: 00100793      ll      a5,1
10144: 70f18c23      sb      a5,1944(gp) # 231a0 <completed.5468>
10148: 01010113      addi    sp,sp,16
1014c: 00000067      ret
10150: 00100793      ll      a5,1
10154: 70f18c23      sb      a5,1944(gp) # 231a0 <completed.5468>
10158: 00000067      ret
1015c: 00000067      ret

00000000000010160 <frame_dummy>:
10160: fffff70797    auipc   a5,0xfffff0
10164: e0e870793    addi    a5,a5,-352 # 0 <register_fini-0x100b0>
10168: 00078c63      beqz    a5,10180 <frame_dummy+0x20>
1016c: 70f18c23      addi    a1,sp,1952 # 231a8 <object.5473>
10170: 00012517      auipc   a0,0x12
10174: 00050513      addi    a0,a0,-368 # 22000 <_FRAME_END_>
10178: 00000317      auipc   t1,0x0
1017c: 00000067      jr      zero # 0 <register_fini-0x100b0>
10180: 00000067      ret

00000000000010184 <_fini>:
10184: f0010113      addi    sp,sp,-32
10188: 00113c23      sd      ra,24(sp)
1018c: 00013823      sd      s0,16(sp)
10190: 02010413      addi    s0,sp,32
10194: f0e42423      sw      zero,-24(s0)
10198: 03200793      ll      a5,s0
1019c: f0e42223      sw      a5,-28(s0)
101a0: 00100793      ll      a5,1
101a4: f0e42023      sw      a5,-20(s0)
101a8: 0200006f      j      101c8 <fini+0x44>
101ac: f0e42783      lw      a4,-24(s0)
101b0: fec42783      lw      a5,-20(s0)
101b4: 00f707b0      addw    a5,a4,a5
101b8: f0e42423      sw      a5,-24(s0)
101bc: fec42783      lw      a5,-20(s0)
```

output