

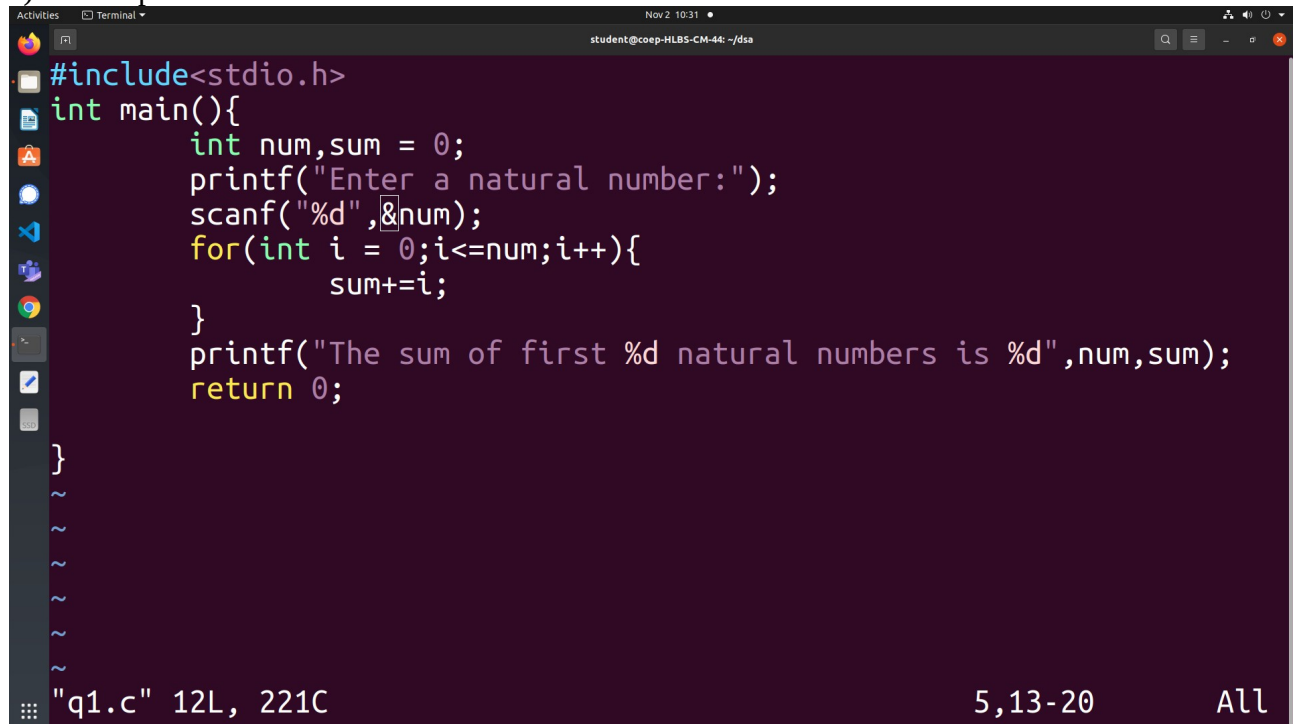
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## Assignment 2

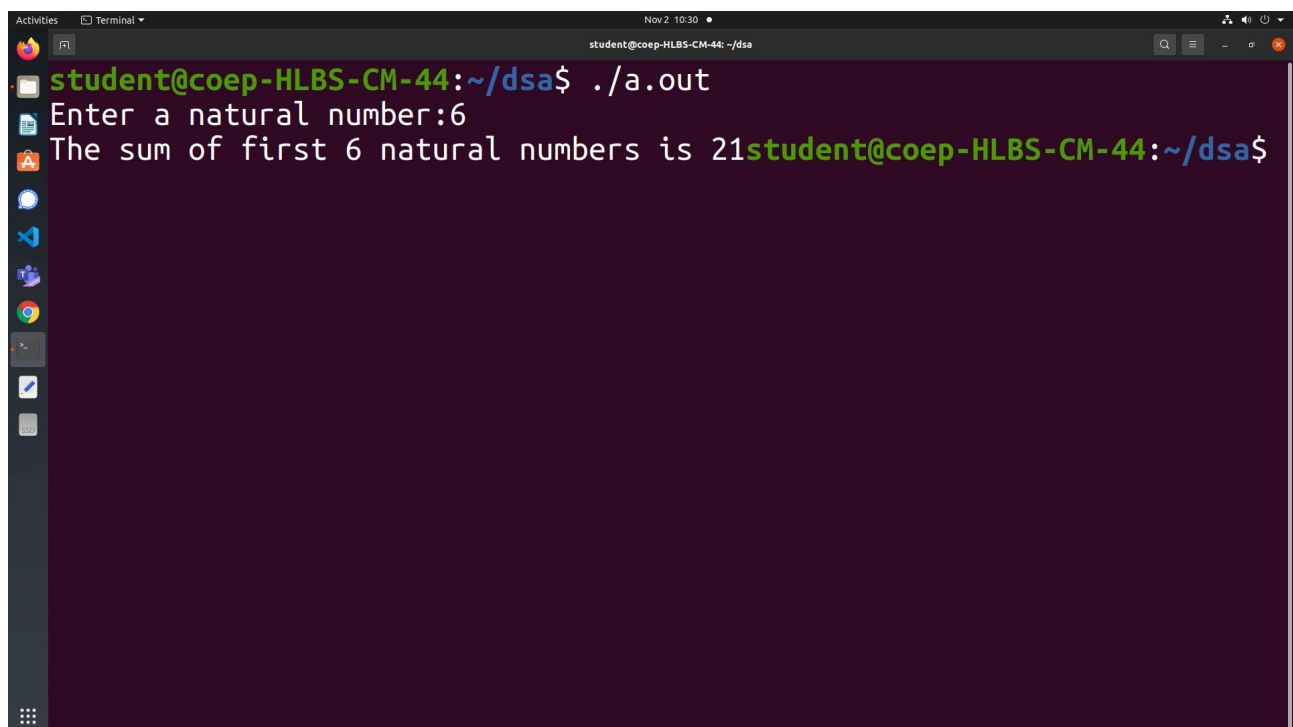
1. Write a program to find sum of natural numbers using

a) For Loop



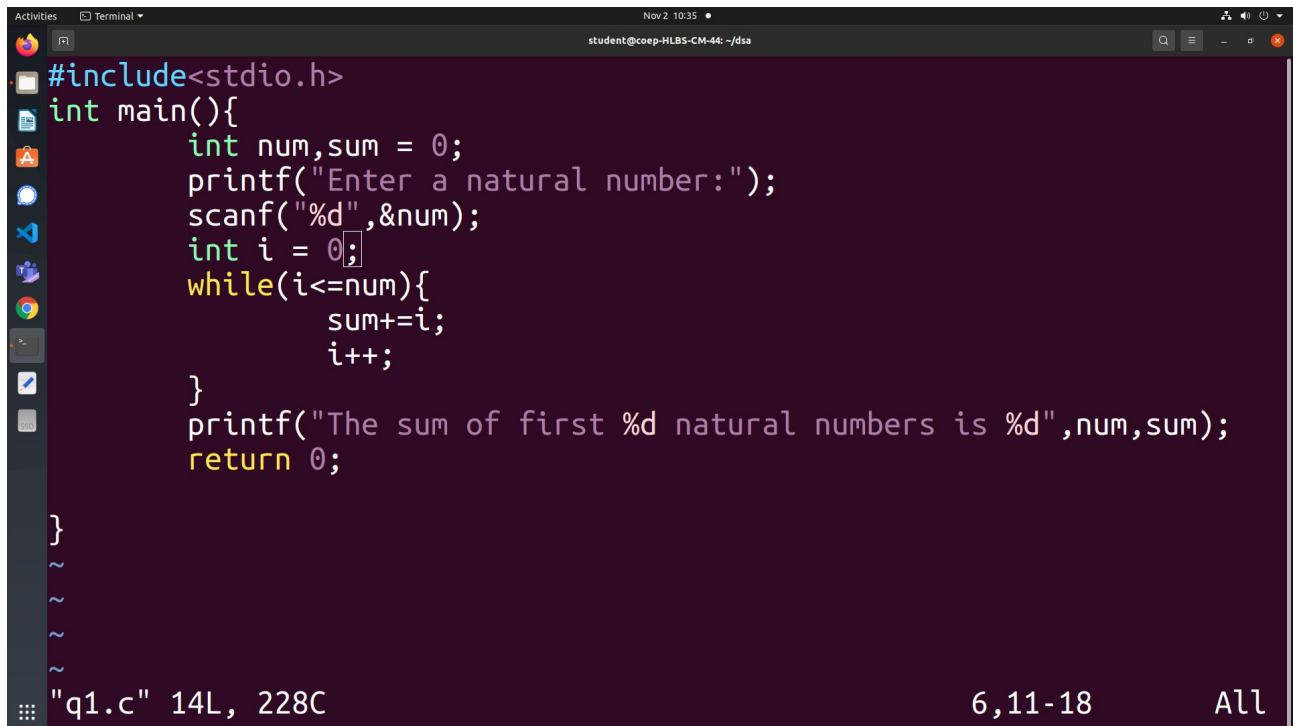
```
student@coep-HLBS-CM-44: ~/dsa
#include<stdio.h>
int main(){
    int num,sum = 0;
    printf("Enter a natural number:");
    scanf("%d",&num);
    for(int i = 0;i<=num;i++){
        sum+=i;
    }
    printf("The sum of first %d natural numbers is %d",num,sum);
    return 0;
}

"q1.c" 12L, 221C                                     5,13-20      All
```



```
student@coep-HLBS-CM-44:~/dsa$ ./a.out
Enter a natural number:6
The sum of first 6 natural numbers is 21student@coep-HLBS-CM-44:~/dsa$
```

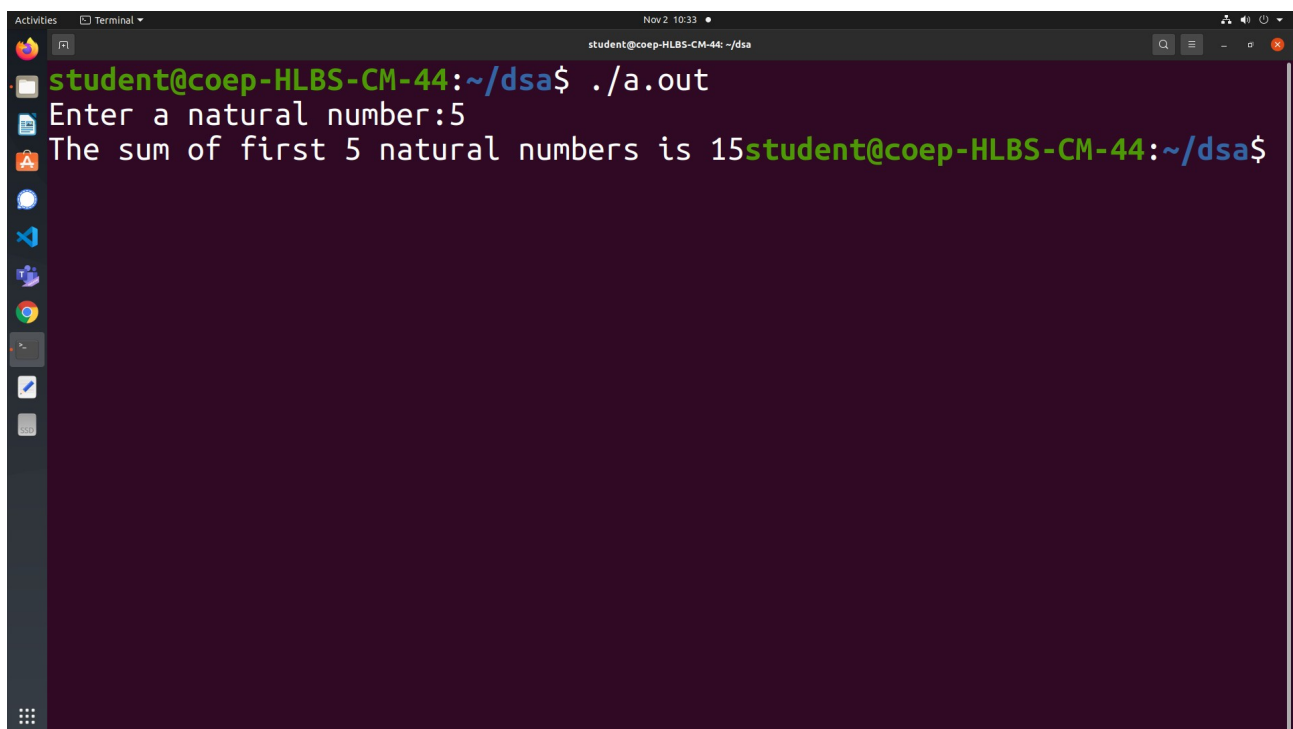
## b)While loop



```
Nov 2 10:35
student@coep-HLBS-CM-44: ~/dsa

#include<stdio.h>
int main(){
    int num,sum = 0;
    printf("Enter a natural number:");
    scanf("%d",&num);
    int i = 0;
    while(i<=num){
        sum+=i;
        i++;
    }
    printf("The sum of first %d natural numbers is %d",num,sum);
    return 0;
}

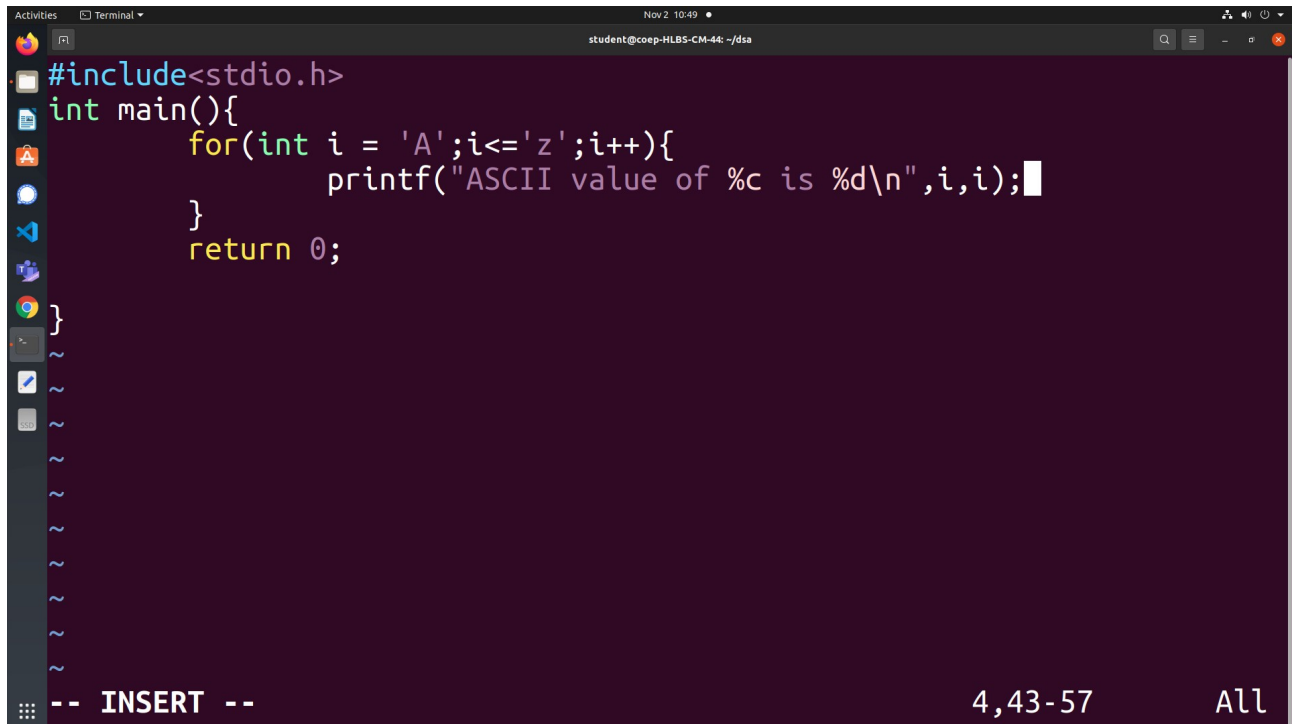
"q1.c" 14L, 228C                                     6,11-18    All
```



```
Nov 2 10:33
student@coep-HLBS-CM-44: ~/dsa

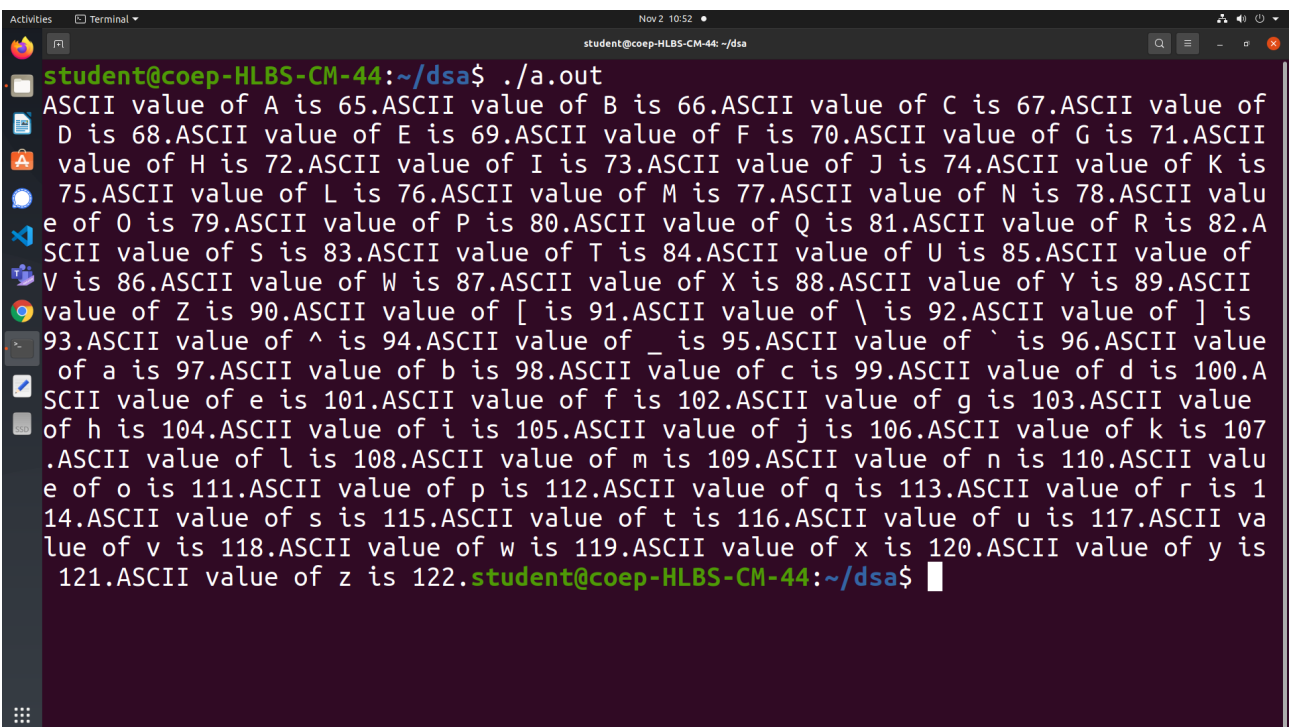
student@coep-HLBS-CM-44:~/dsa$ ./a.out
Enter a natural number:5
The sum of first 5 natural numbers is 15student@coep-HLBS-CM-44:~/dsa$
```

2. Write a C program to print the ASCII value of all alphabets (both lower and upper case) using loop.



```
#include<stdio.h>
int main(){
    for(int i = 'A';i<='z';i++){
        printf("ASCII value of %c is %d\n",i,i);
    }
    return 0;
}
```

-- INSERT -- 4,43-57 All



```
student@coep-HLBS-CM-44:~/dsa$ ./a.out
ASCII value of A is 65.ASCII value of B is 66.ASCII value of C is 67.ASCII value of
D is 68.ASCII value of E is 69.ASCII value of F is 70.ASCII value of G is 71.ASCII
value of H is 72.ASCII value of I is 73.ASCII value of J is 74.ASCII value of K is
75.ASCII value of L is 76.ASCII value of M is 77.ASCII value of N is 78.ASCII valu
e of O is 79.ASCII value of P is 80.ASCII value of Q is 81.ASCII value of R is 82.A
SCII value of S is 83.ASCII value of T is 84.ASCII value of U is 85.ASCII value of
V is 86.ASCII value of W is 87.ASCII value of X is 88.ASCII value of Y is 89.ASCII
value of Z is 90.ASCII value of [ is 91.ASCII value of \ is 92.ASCII value of ] is
93.ASCII value of ^ is 94.ASCII value of _ is 95.ASCII value of ` is 96.ASCII value
of a is 97.ASCII value of b is 98.ASCII value of c is 99.ASCII value of d is 100.A
SCII value of e is 101.ASCII value of f is 102.ASCII value of g is 103.ASCII value
of h is 104.ASCII value of i is 105.ASCII value of j is 106.ASCII value of k is 107
.ASCII value of l is 108.ASCII value of m is 109.ASCII value of n is 110.ASCII valu
e of o is 111.ASCII value of p is 112.ASCII value of q is 113.ASCII value of r is 1
14.ASCII value of s is 115.ASCII value of t is 116.ASCII value of u is 117.ASCII va
lue of v is 118.ASCII value of w is 119.ASCII value of x is 120.ASCII value of y is
121.ASCII value of z is 122.student@coep-HLBS-CM-44:~/dsa$
```

3. Write a C Program to find sum of digits at even location in a given number. Digits are numbered from 0 to n-1 from right to left.

```
Activities Terminal Nov 2 11:01 student@coep-HLBS-CM-44: ~/dsa
#include<stdio.h>
int main(){
    int num;
    printf("Enter a number:");
    scanf("%d",&num);
    int rem;
    int i = 0,sum = 0;
    while(num>0){
        rem = num%10;
        if(i%2==0){
            sum+=rem;
        }
        i++;
        num/=10;
    }
    printf("Sum of even digits of input number is %d",sum);
    return 0;
}
-- INSERT -- 16,51-58 All
```

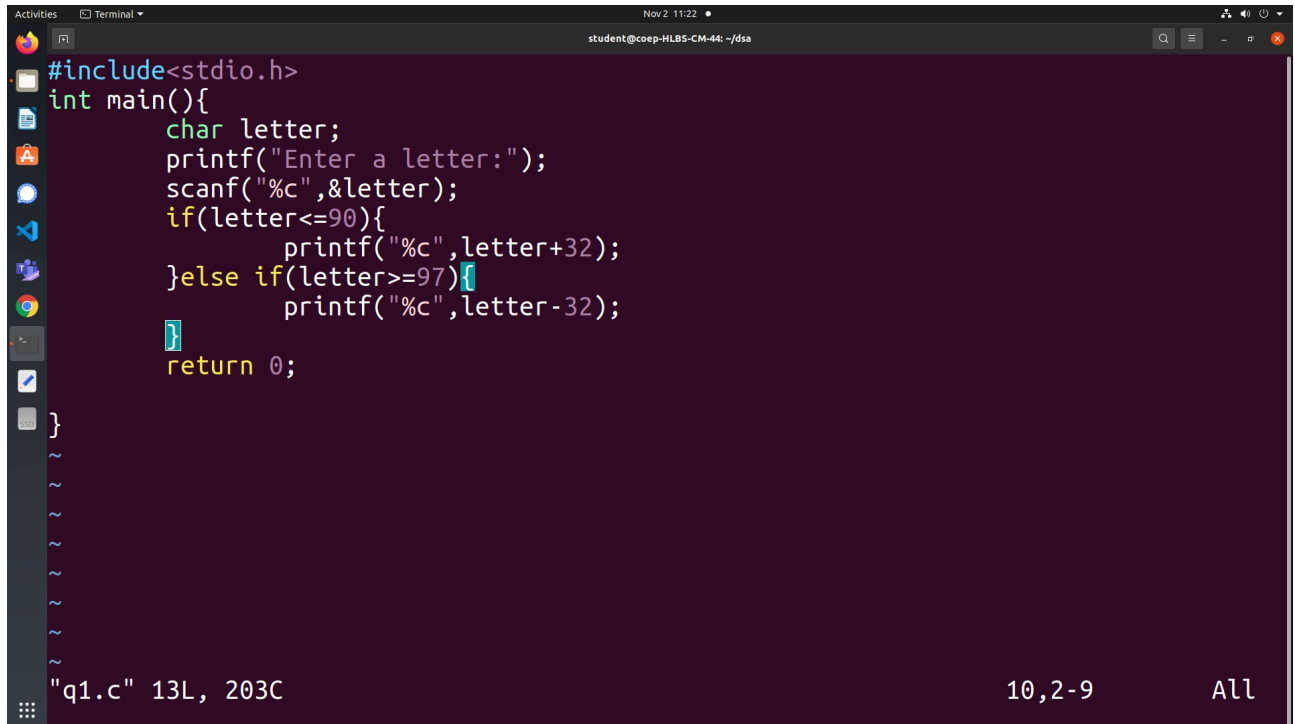
```
Activities Terminal Nov 2 11:01 student@coep-HLBS-CM-44: ~/dsa
student@coep-HLBS-CM-44:~/dsa$ vim q1.c
student@coep-HLBS-CM-44:~/dsa$ gcc q1.c
student@coep-HLBS-CM-44:~/dsa$ ./a.out
Enter a number:4567
Sum of even digits of 0 is 12student@coep-HLBS-CM-44:~/dsa$ vim q1.c
student@coep-HLBS-CM-44:~/dsa$ vim q1.c
student@coep-HLBS-CM-44:~/dsa$ gcc q1.c
student@coep-HLBS-CM-44:~/dsa$ ./a.out
Enter a number:54823
Sum of even digits of input number is 16student@coep-HLBS-CM-44:~/dsa$
```

4. Write a C program to accept a decimal number (Base 10) and convert it to binary and count the number of 1's in the binary number.

[illegible]

```
anonymous17@Turing: ~/Desktop/Myfolder/dsa
anonymous17@Turing:~/Desktop/Myfolder/dsa$ vim q1.c
anonymous17@Turing:~/Desktop/Myfolder/dsa$ gcc q1.c
anonymous17@Turing:~/Desktop/Myfolder/dsa$ ./a.out
Enter a decimal number:16
10000
No of one's is 1
anonymous17@Turing:~/Desktop/Myfolder/dsa$ ./a.out
Enter a decimal number:9
1001
No of one's is 2
anonymous17@Turing:~/Desktop/Myfolder/dsa$
```

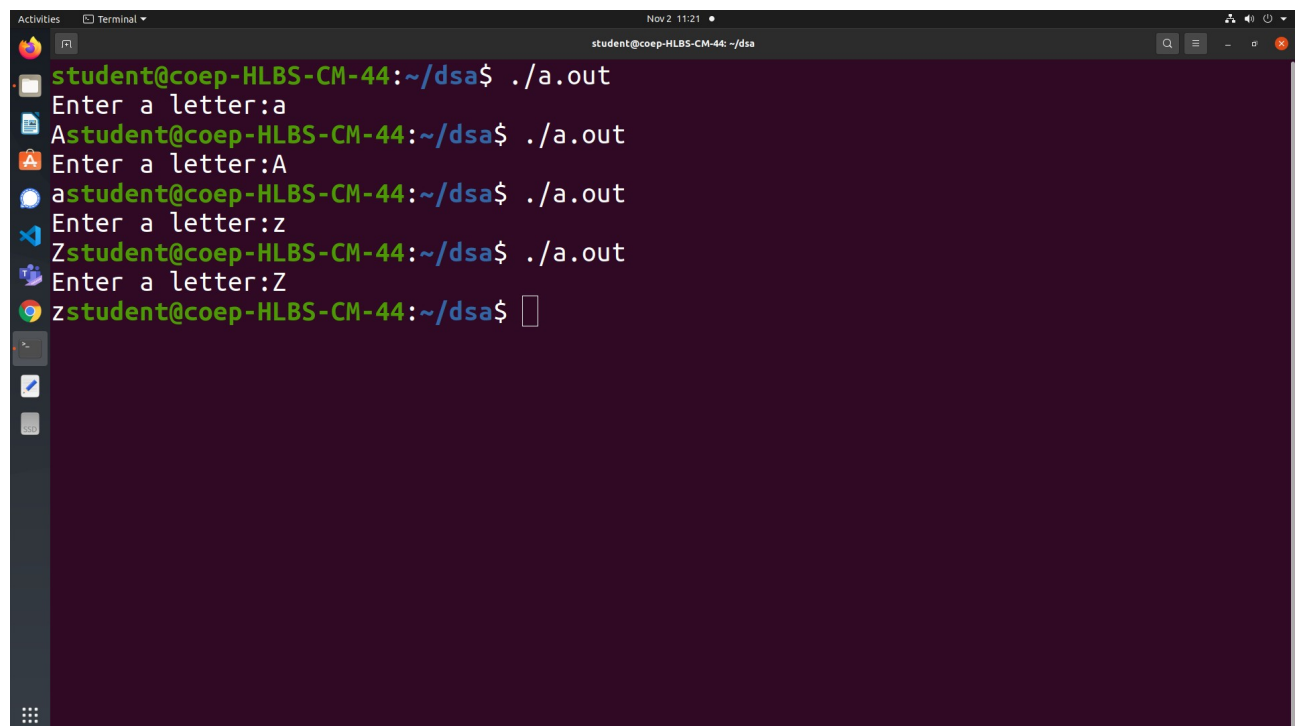
5. Write a C program to change the case of an alphabet.



A screenshot of a terminal window showing a C program. The program includes `stdio.h` and defines a `main` function. It declares a `char letter` and prompts the user to "Enter a letter:". It uses `scanf` to read the letter. An `if` statement checks if the letter is less than or equal to 90 (lowercase 'a'). If true, it prints the letter shifted 32 positions forward. Otherwise, it checks if the letter is greater than or equal to 97 (uppercase 'A') and prints the letter shifted 32 positions backward. The program returns 0. The terminal status bar at the bottom shows the file name "q1.c", its size "13L, 203C", and the number of lines "10,2-9" with a search icon.

```
#include<stdio.h>
int main(){
    char letter;
    printf("Enter a letter:");
    scanf("%c",&letter);
    if(letter<=90){
        printf("%c",letter+32);
    }else if(letter>=97){
        printf("%c",letter-32);
    }
    return 0;
}
```

"q1.c" 13L, 203C 10,2-9 All



A screenshot of a terminal window showing the execution of the program. The user runs `./a.out` five times, entering 'a', 'A', 'z', 'Z', and 'z' respectively. The program correctly outputs the opposite case for each input. The terminal status bar at the bottom shows the file name "q1.c", its size "13L, 203C", and the number of lines "10,2-9" with a search icon.

```
student@coep-HLBS-CM-44:~/dsa$ ./a.out
Enter a letter:a
student@coep-HLBS-CM-44:~/dsa$ ./a.out
Enter a letter:A
student@coep-HLBS-CM-44:~/dsa$ ./a.out
Enter a letter:z
student@coep-HLBS-CM-44:~/dsa$ ./a.out
Enter a letter:Z
student@coep-HLBS-CM-44:~/dsa$ ./a.out
Enter a letter:z
student@coep-HLBS-CM-44:~/dsa$
```

8. Write a C program to generate prime number series from 1 to 100.

```
anonymous17@Turing: ~/Desktop/Myfolder/dsa
#include<stdio.h>
#include<stdbool.h>
int main(){
    bool flag;
    for(int i = 2; i<=100; i++){
        flag = true;
        for(int j = 2; j<=i/2; j++){
            if(i%j==0){
                flag = false;
                break;
            }
        }
        if(flag){
            printf("%d is a prime.\n", i);
        }
    }
}
```

-- INSERT --

17,2 All

```
anonymous17@Turing: ~/Desktop/Myfolder/dsa$ gcc q1.c
anonymous17@Turing: ~/Desktop/Myfolder/dsa$ ./a.out
2 is a prime.
3 is a prime.
5 is a prime.
7 is a prime.
11 is a prime.
13 is a prime.
17 is a prime.
19 is a prime.
23 is a prime.
29 is a prime.
31 is a prime.
37 is a prime.
41 is a prime.
43 is a prime.
47 is a prime.
53 is a prime.
59 is a prime.
61 is a prime.
67 is a prime.
71 is a prime.
73 is a prime.
79 is a prime.
83 is a prime.
89 is a prime.
97 is a prime.
anonymous17@Turing: ~/Desktop/Myfolder/dsa$
```