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**Subject: Data Structures**

## Practical – 1

**Aim:** Program for counting number of digits in a number.

**Program:**

➤ Using loop:

- Program:

```
#include <stdio.h>
int main() {
    int n;
    printf("Enter a number: ");
    scanf("%d", &n);

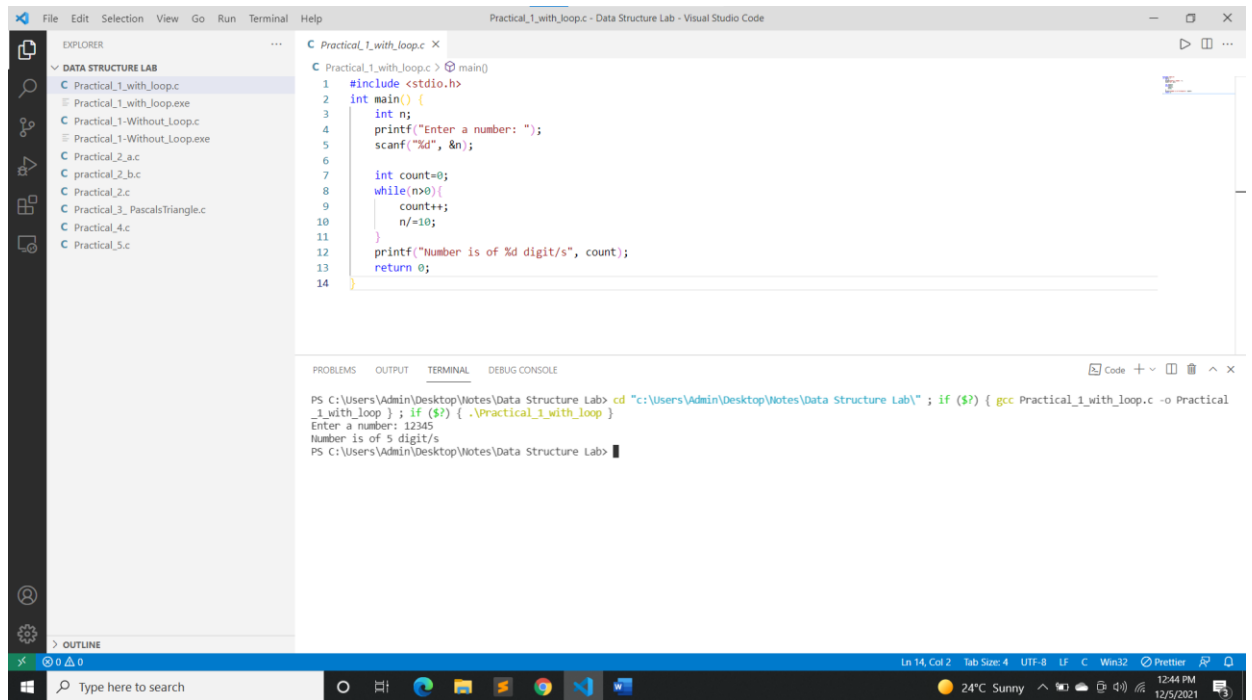
    int count=0;
    while(n>0){
        count++;
        n/=10;
    }
    printf("Number is of %d digit/s", count);
    return 0;
}
```

- Output:

Enter a number: 12345

Number is of 5 digit/s

- Screenshot:



➤ Without using loop:

- Program:

```
#include <stdio.h>
#include <math.h>
int main() {
    int n;
    printf("Enter a number: ");
    scanf("%d", &n);

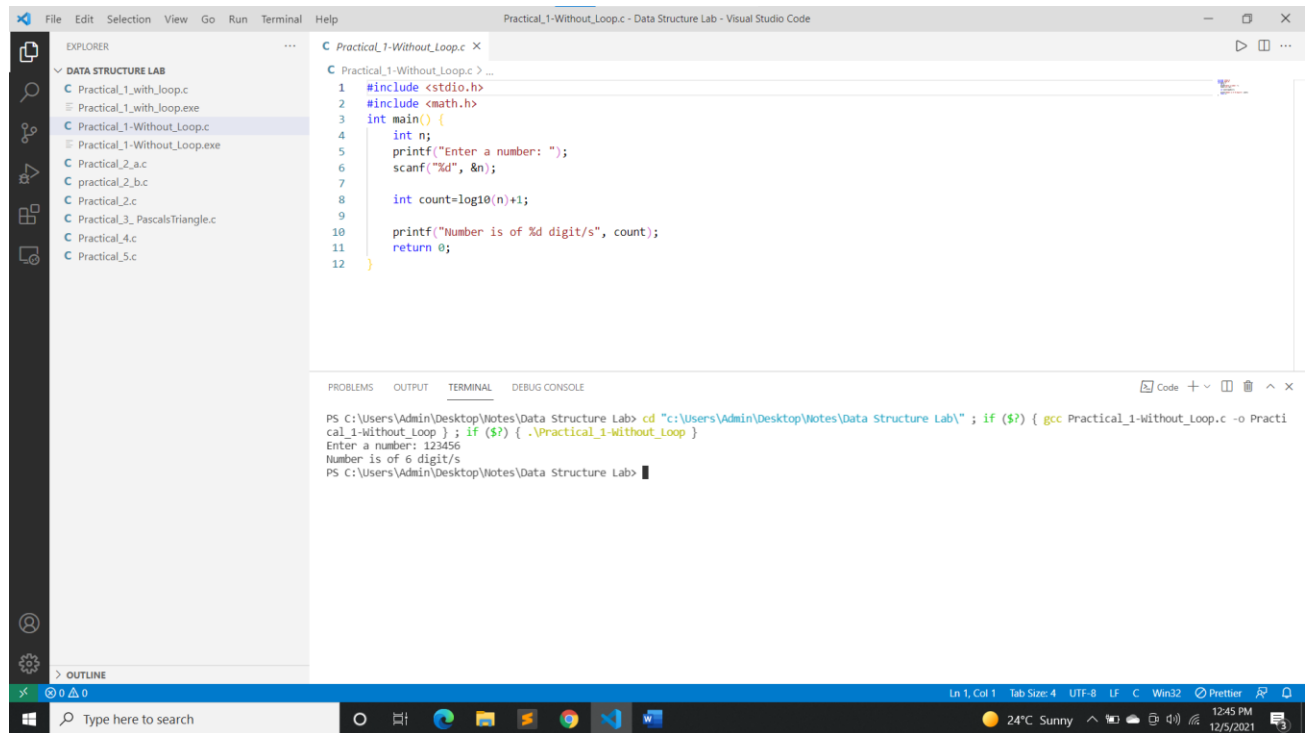
    int count=log10(n)+1;

    printf("Number is of %d digit/s", count);
    return 0;
}
```

- Output:

```
Enter a number: 123465
Number is of 6 digit/s
```

- Screenshot:



The screenshot displays the Visual Studio Code interface. The Explorer panel on the left shows a project named 'DATA STRUCTURE LAB' with several files, including 'Practical\_1-Without\_Loop.c' which is currently selected. The main editor window shows the code for 'Practical\_1-Without\_Loop.c'. The code includes `<stdio.h>` and `<math.h>`, and contains a `main` function that prompts the user for a number, calculates the number of digits using `log10`, and prints the result. The Output panel at the bottom shows the command to compile the program using `gcc` and the execution output, which shows the user entered '123456' and the program correctly identified it as a 6-digit number. The Windows taskbar at the bottom indicates the system time is 12:45 PM on 12/5/2021.

```
1 #include <stdio.h>
2 #include <math.h>
3 int main() {
4     int n;
5     printf("Enter a number: ");
6     scanf("%d", &n);
7
8     int count=log10(n)+1;
9
10    printf("Number is of %d digit/s", count);
11    return 0;
12 }
```

```
PS C:\Users\Admin\Desktop\notes\Data Structure Lab> cd "C:\Users\Admin\Desktop\notes\Data Structure Lab\" ; if ($?) { gcc Practical_1-Without_Loop.c -o Practical_1-Without_Loop } ; if ($?) { .\Practical_1-Without_Loop }
Enter a number: 123456
Number is of 6 digit/s
PS C:\Users\Admin\Desktop\notes\Data Structure Lab>
```

**Conclusion:** I have successfully done practical 1 with and without using loop.