

Institute of Computer Technology  
B. Tech. Computer Science and Engineering

Sub: ESFP – I  
Course Code: 2CSE102

**Practical – 10**

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**Q.1.Problem Definition:**

**Definition:**

You're given an integer N. Write a program to calculate the sum of all the digits of N.

Input Format:

The first line contains an integer T, the total number of test cases.

Then follow T lines, each line contains an integer N.

Output Format:

For each test case, calculate the sum of digits of N, and display it in a new line.

Constraints:

$1 \leq T \leq 1000$

$1 \leq N \leq 100000$

Expected Sample Input and Output:

3

12345

15

31203

9

2123

8

### **Explanation:**

In sample input and output,

1. The first line indicates the number of test cases.
2. The second and third line indicates the first test case value input and their output.
3. Fourth and fifth line indicates second test case value input and their output.
4. Sixth and seventh line indicate the third test case value input and their output.

### **Solution:**

Code:-

```
#include <stdio.h>

int main()
{
    int in1,i,in2;
    int j=0,a=0;

    printf("Enter the number of inputs:\n");
    scanf("%d",&in1);

    for(i=0;i<in1;i++)
    {
        j=0;
        printf("Enter the %d time\n",i+1);
        scanf("%d",&in2);
```

```

        for(;;)
        {
            a=in2%10; //This is to get every
decimal one-by-one of the number 'in2' written.

            in2=(in2-a)/10; //This is the
detector for when to brack.

            j=j+a; //This is to add all
decimals one-by-one (Total of entire digit).

            if(in2 == 0) //To end the function
to end the program when we reach '0.' digits.
            {
                break;
            }

        }

        printf("\tsum=%d \n\n",j);

    }

    return 0;
}

```

**Output:-**

```
22
23
24      in2=(in2-a)/10; //This is the detector for when to brack.
25
26      j=j+a; //This is to add all decimals one-by-one (Total of entire digit).
27
28      if(in2 == 0) //To end the fuction to end the program when we reach "0." digits.
29      {
30          break;
31      }
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\dwijd\Downloads\esfp-1 Prcticals\ESFP-1_Practicals_codes> cd "c:\Users\dwijd\Downloads\esfp-1 Prcticals\ESFP-1_Practicals_codes\Practical_10\" ; if ($?) { gcc Practical-10_Q-1.c -o Practical-10_Q-1 } ; if ($?) { .\Practical-10_Q-1
}
Enter the number of inputs:
2
Enter the 1 time inputs:-
123
sum=6

Enter the 2 time inputs:-
4378
sum=22

PS C:\Users\dwijd\Downloads\esfp-1 Prcticals\ESFP-1_Practicals_codes\Practical_10>
```

```
PS C:\Users\dwijd\Downloads\esfp-1 Prcticals\ESFP-1_Practicals_codes> cd "c:\Users\dwijd\
}
Enter the number of inputs:
2
Enter the 1 time inputs:-
123
sum=6

Enter the 2 time inputs:-
4378
sum=22

PS C:\Users\dwijd\Downloads\esfp-1 Prcticals\ESFP-1_Practicals_codes\Practical_10>
```

**Q.2.Problem Definition:**

**Definition:**

If Give an integer N . Write a program to obtain the sum of the first and last digits of this number.

Input Format:

The first line contains an integer T, the total number of test cases.

Then follow T lines, each line contains an integer N.

Output Format:

For each test case, display the sum of first and last digits of N in a new line.

Constraints:

$1 \leq T \leq 1000$

$1 \leq N \leq 1000000$

**Sample Input:**

3

1234

124894

242323

**Sample Output:**

5

5

5

**Solution:**

Code:-

```
#include <stdio.h>

int main()
{
    int in1,i,in2;
    int j=0;
    int a,n,first,last;

    printf("\nEnter the number of inputs:\n");
    scanf("%d",&in1);
```

```

        for(i=0;i<in1;i++)
        {
            // j=0;
            printf("\bEnter the %d time
inputs:-\n",i+1);
            scanf("%d",&in2);

            last=in2%10;

            while(in2>10)
            {
                in2=in2/10;
                first=in2;
            }

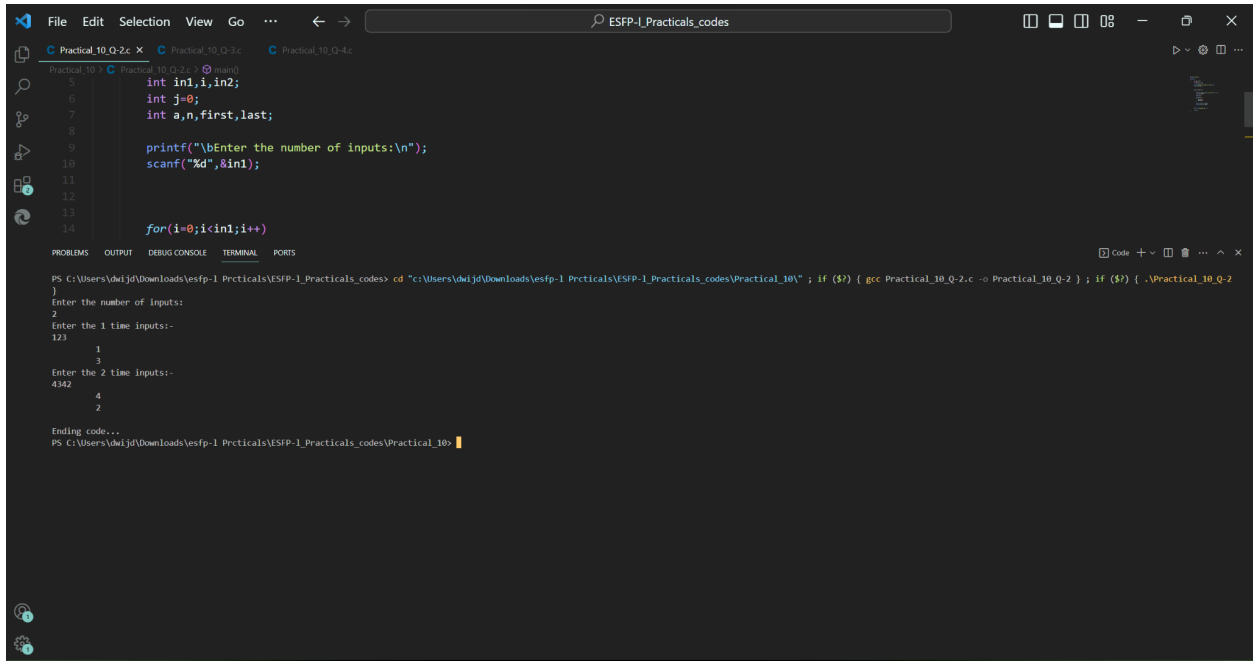
            printf("\t %d \n",first);
            printf("\t %d \n",last);

        }
        printf("\n\bEnding code...");

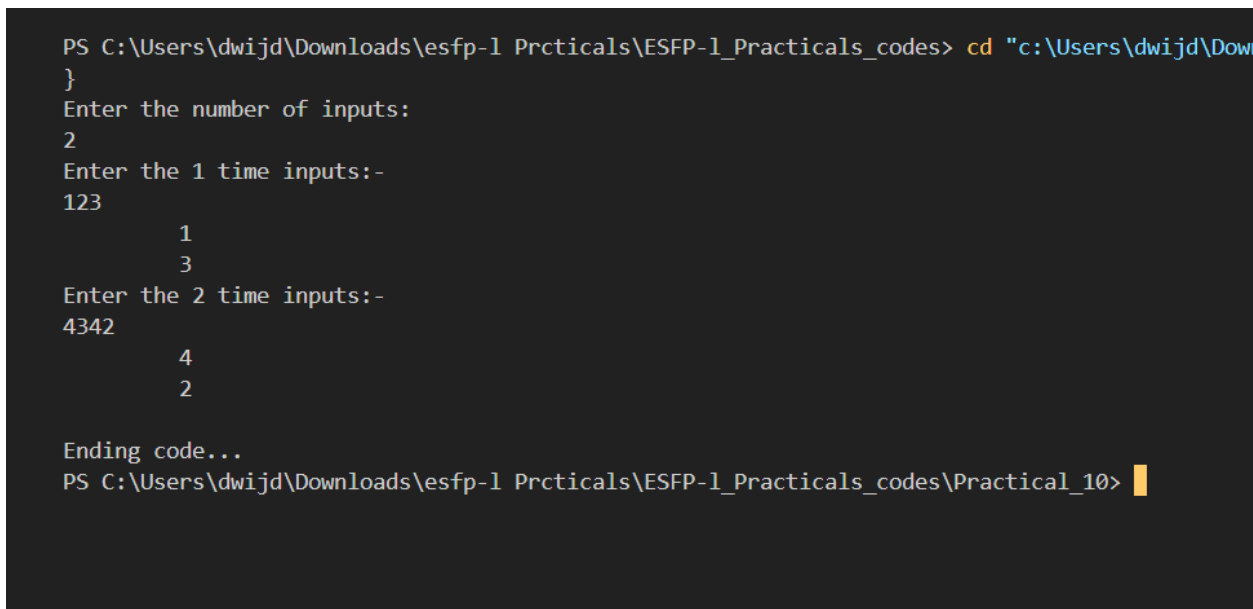
        return 0;
}

```

**Output:-**



```
File Edit Selection View Go ... ESFP-1_Practicals_codes
Practical_10_Q-2.c Practical_10_Q-3.c Practical_10_Q-4.c
5 int in1,i,in2;
6 int j=0;
7 int a,n,first,last;
8
9 printf("\nEnter the number of inputs:\n");
10 scanf("%d",&in1);
11
12
13 for(i=0;i<in1;i++)
14
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\dwijd\Downloads\esfp-1 Prcticals\ESFP-1_Practicals_codes> cd "c:\Users\dwijd\Downloads\esfp-1 Prcticals\ESFP-1_Practicals_codes\Practical_10"; if ($?) { gcc Practical_10_Q-2.c -o Practical_10_Q-2 }; if ($?) { .\Practical_10_Q-2
}
Enter the number of inputs:
2
Enter the 1 time inputs:-
123
    1
    3
Enter the 2 time inputs:-
4342
    4
    2
Ending code...
PS C:\Users\dwijd\Downloads\esfp-1 Prcticals\ESFP-1_Practicals_codes\Practical_10>
```



```
PS C:\Users\dwijd\Downloads\esfp-1 Prcticals\ESFP-1_Practicals_codes> cd "c:\Users\dwijd\Down
}
Enter the number of inputs:
2
Enter the 1 time inputs:-
123
    1
    3
Enter the 2 time inputs:-
4342
    4
    2
Ending code...
PS C:\Users\dwijd\Downloads\esfp-1 Prcticals\ESFP-1_Practicals_codes\Practical_10>
```

**Q.3.Problem Definition:**  
Chef is a big fan of Coldplay. Every Sunday, he will drive to a park taking M minutes to reach there, and during the ride he will play a single song on a loop. Today, he has got the latest

song which is in total S minutes long. He is interested to know how many times will he be able to play the song completely.

**Solution:**

Code:-

```
#include <stdio.h>

int main()
{
    int in1,in2,in3;
    //in1=testcases    in2=trip length    in3=time length
of music

    printf("\nEnter the number of testcase:-\t");
    scanf("%d",&in1);

    int y,x;
    //y=for loop integer    x=equation(to find number for
music replay)

    for(y=1;y<=in1;y++)
    {

        printf("Enter the trip length:-\t");
        scanf("%d",&in2);

        printf("Enter the music length(in min):-\t");
        scanf("%d",&in3);

        x=in2/in3;
```



```

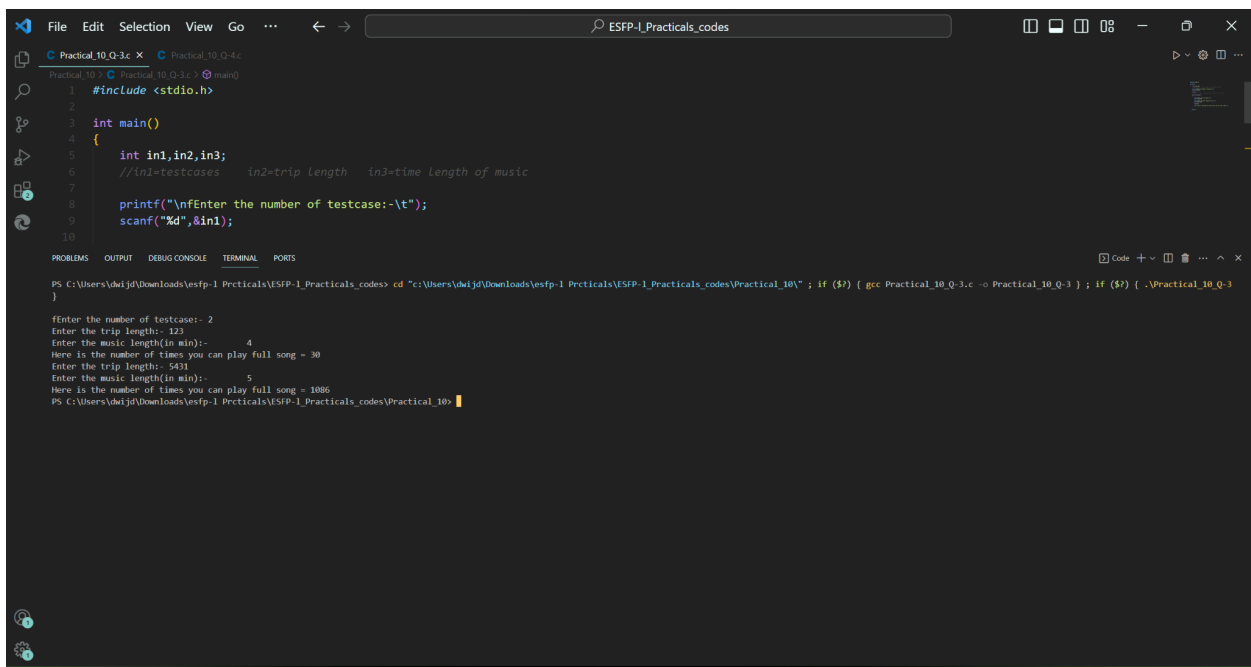
        printf("Here is the number of times you can play
full song = %d\n",x);

    }

    return 0;
}

```

## Output:-



The screenshot shows a Visual Studio Code editor with a C program in a file named `Practical_10_Q-3.c`. The program is a simple C program that takes three inputs: the number of testcases, the trip length, and the music length, and then calculates the number of times a full song can be played.

```

1 #include <stdio.h>
2
3 int main()
4 {
5     int in1,in2,in3;
6     //in1=testcases in2=trip length in3=time length of music
7
8     printf("\nEnter the number of testcase:-\n");
9     scanf("%d",&in1);
10

```

The terminal output shows the execution of the program. It prompts the user to enter the number of testcases, the trip length, and the music length. For the first test case, the user enters 2 for the number of testcases, 123 for the trip length, and 4 for the music length. The program outputs "Here is the number of times you can play full song = 30". For the second test case, the user enters 5431 for the trip length and 5 for the music length. The program outputs "Here is the number of times you can play full song = 1086".

```

PS C:\Users\dwijd\Downloads\esfp-1 Prcticals\ESFP-1 Prcticals_codes\Practical_10> if ($?) { gcc Practical_10_Q-3.c -o Practical_10_Q-3 } ; if ($?) { .\Practical_10_Q-3 }

Enter the number of testcase:- 2
Enter the trip length:- 123
Enter the music length(in min):- 4
Here is the number of times you can play full song = 30
Enter the trip length:- 5431
Enter the music length(in min):- 5
Here is the number of times you can play full song = 1086
PS C:\Users\dwijd\Downloads\esfp-1 Prcticals\ESFP-1 Prcticals_codes\Practical_10>

```

```

PS C:\Users\dwijd\Downloads\esfp-1 Prcticals\ESFP-1_Practicals_codes> cd "c:\Users\dwijd\Down
}

fEnter the number of testcase:- 2
Enter the trip length:- 123
Enter the music length(in min):-          4
Here is the number of times you can play full song = 30
Enter the trip length:- 5431
Enter the music length(in min):-          5
Here is the number of times you can play full song = 1086
PS C:\Users\dwijd\Downloads\esfp-1 Prcticals\ESFP-1_Practicals_codes\Practical_10>

```

## **Q.4.Problem Definition:**

### **Definition:**

Chefland has 2 different types of coconut, type  $A$  and type  $B$ . Type  $A$  contains only  $x_a$  milliliters of coconut water and type  $B$  contains only  $x_b$  grams of coconut pulp. Chef's nutritionist has advised him to consume  $X_a$  milliliters of coconut water and  $X_b$  grams of coconut pulp every week in the summer. Find the total number of coconuts (type  $A$  + type  $B$ ) that Chef should buy each week to keep himself active in the hot weather.

## **Solution:**

### **Code:-**

```

#include<stdio.h>
int main()
{
    int
water,pulp,req_water,req_pulp,coconutA,coconutB,total_coc
onut,cases;

    int y;

    printf("\nEnter the number of testcases :- ");
    scanf("%d",&cases);

```

```
for(y=1;y<=cases;y++)
{
    printf("\nTestcase number - %d",y);

    printf("\nEnter the amount of coconut water in a
coconut of Type A :- ");
    scanf("%d",&water);

    printf("\nEnter the amount of coconut pulp in a
coconut of Type B :- ");
    scanf("%d",&pulp);

    printf("\nEnter the amount of coconut water,
nutritionist advised to consume in a week :- ");
    scanf("%d",&req_water);

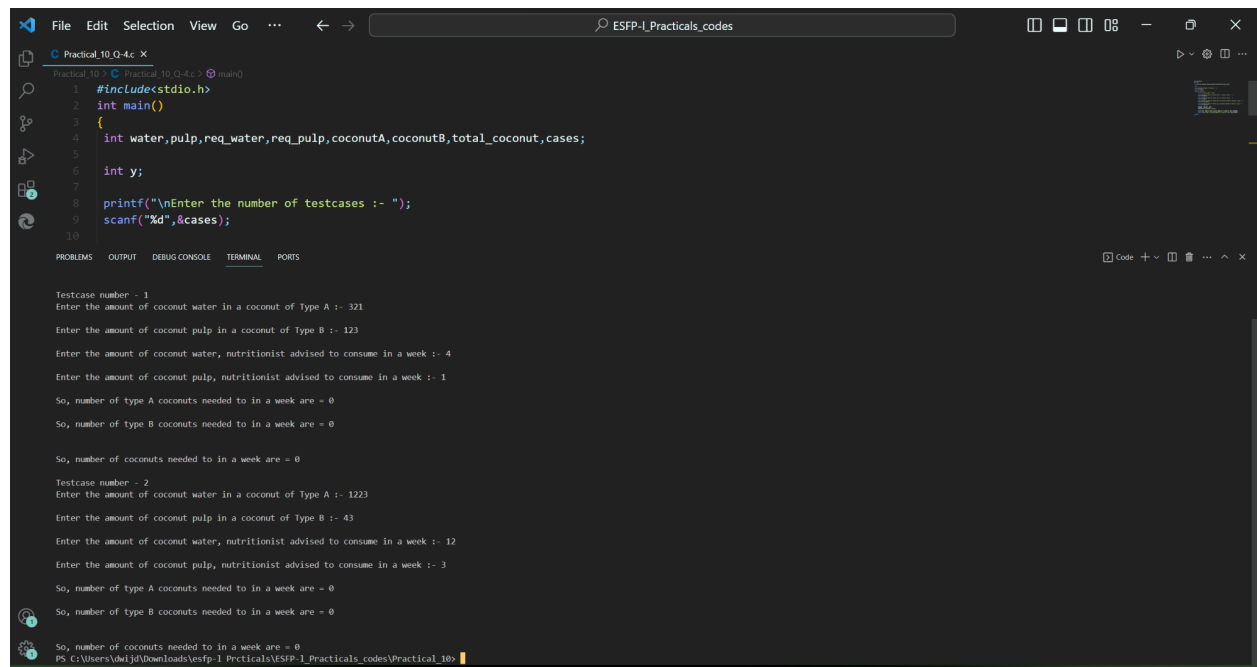
    printf("\nEnter the amount of coconut pulp,
nutritionist advised to consume in a week :- ");
    scanf("%d",&req_pulp);

    coconutA = req_water / water ;
    coconutB = req_pulp / pulp ;
    total_coconut = coconutA + coconutB;

    printf("\nSo, number of type A coconuts needed to
in a week are = %d\n",coconutA);
    printf("\nSo, number of type B coconuts needed to
in a week are = %d\n",coconutB);
    printf("\n\nSo, number of coconuts needed to in a
week are = %d\n",total_coconut);
}
return 0;
```

```
}
```

## Output:-



The screenshot shows a Visual Studio Code editor with a C program in a file named 'Practical\_10\_Q-4.c'. The program is a simple input-output application that asks for the number of test cases and then processes two test cases. Each test case involves entering the amount of coconut water, pulp, and water/nutritionist advice for a week, and then calculating the number of coconuts needed for Type A and Type B.

```
1 #include<stdio.h>
2 int main()
3 {
4     int water,pulp,req_water,req_pulp,coconutA,coconutB,total_coconut,cases;
5
6     int y;
7
8     printf("\nEnter the number of testcases :- ");
9     scanf("%d",&cases);
10 }
```

The terminal output shows the execution of the program for two test cases. For each test case, it prompts for the amount of coconut water, pulp, and water/nutritionist advice for a week, and then calculates the number of coconuts needed for Type A and Type B.

```
Testcase number - 1
Enter the amount of coconut water in a coconut of Type A :- 321
Enter the amount of coconut pulp in a coconut of Type B :- 123
Enter the amount of coconut water, nutritionist advised to consume in a week :- 4
Enter the amount of coconut pulp, nutritionist advised to consume in a week :- 1
So, number of type A coconuts needed to in a week are = 0
So, number of type B coconuts needed to in a week are = 0

So, number of coconuts needed to in a week are = 0

Testcase number - 2
Enter the amount of coconut water in a coconut of Type A :- 1223
Enter the amount of coconut pulp in a coconut of Type B :- 43
Enter the amount of coconut water, nutritionist advised to consume in a week :- 12
Enter the amount of coconut pulp, nutritionist advised to consume in a week :- 3
So, number of type A coconuts needed to in a week are = 0
So, number of type B coconuts needed to in a week are = 0

So, number of coconuts needed to in a week are = 0
PS C:\Users\dwijd\Downloads\esfp-1 Practicals\ESFP-1 Practicals_codes\Practical_10>
```

```
PS C:\Users\dwijid\Downloads\esfp-1 Prcticals\ESFP-1_Practicals_codes> cd "c:\Users\dwijid\Downloads\esfp-1 Prcticals\ESFP-1_Practicals_codes"
}
```

```
Enter the number of testcases :- 2
```

```
Testcase number - 1
```

```
Enter the amount of coconut water in a coconut of Type A :- 321
```

```
Enter the amount of coconut pulp in a coconut of Type B :- 123
```

```
Enter the amount of coconut water, nutritionist advised to consume in a week :- 4
```

```
Enter the amount of coconut pulp, nutritionist advised to consume in a week :- 1
```

```
So, number of type A coconuts needed to in a week are = 0
```

```
So, number of type B coconuts needed to in a week are = 0
```

```
So, number of coconuts needed to in a week are = 0
```

```
Testcase number - 2
```

```
Enter the amount of coconut water in a coconut of Type A :- 1223
```

```
Enter the amount of coconut pulp in a coconut of Type B :- 43
```

```
Enter the amount of coconut water, nutritionist advised to consume in a week :- 12
```

```
Enter the amount of coconut pulp, nutritionist advised to consume in a week :- 3
```

```
So, number of type A coconuts needed to in a week are = 0
```

```
So, number of type B coconuts needed to in a week are = 0
```

```
So, number of coconuts needed to in a week are = 0
```

```
PS C:\Users\dwijid\Downloads\esfp-1 Prcticals\ESFP-1_Practicals_codes\Practical_10> █
```