

DS Practicals

Sem 3

Batch 31

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Q-1 Gross Salary Problem

In a company an employee is paid as under:

Along with the basic salary, the employee would be given dearness allowance of 40% of his basic salary and house rent allowance of 20% of his basic salary. If the basic salary of an employee is received as input, write a program to find his/her gross salary.

Code:

```
#include <stdio.h>

void main() {

    int x;

    printf("Enter your basic salary: ");

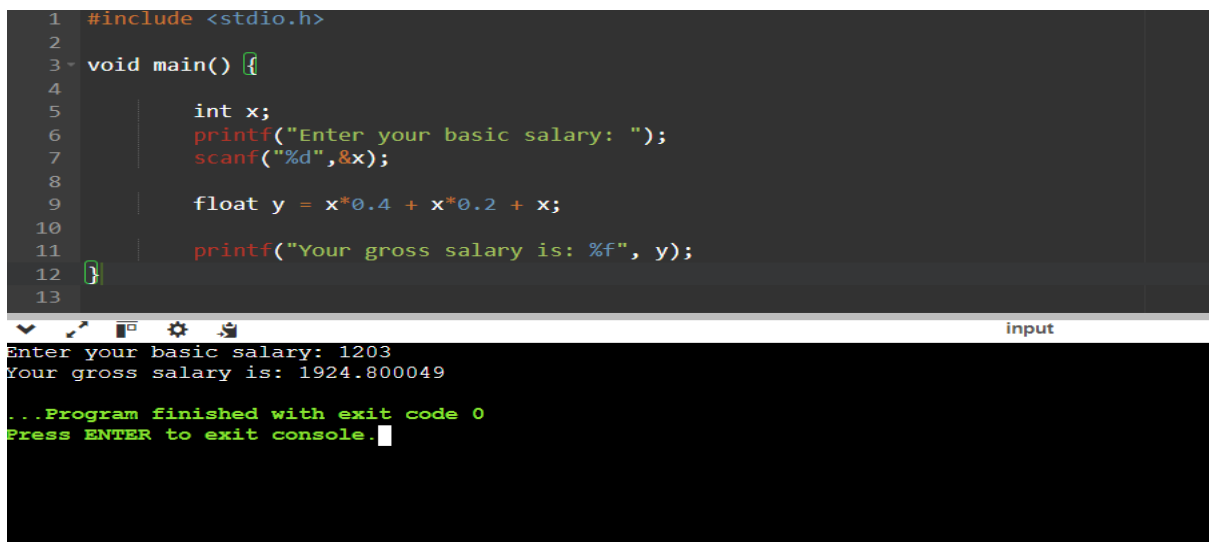
    scanf("%d",&x);

    float y = x*0.4 + x*0.2 + x;

    printf("Your gross salary is: %f", y);

}
```

Screenshot:



```
1  #include <stdio.h>
2
3  void main() {
4
5      int x;
6      printf("Enter your basic salary: ");
7      scanf("%d",&x);
8
9      float y = x*0.4 + x*0.2 + x;
10
11     printf("Your gross salary is: %f", y);
12 }
13
```

input

```
Enter your basic salary: 1203
Your gross salary is: 1924.800049

...Program finished with exit code 0
Press ENTER to exit console.
```

Q-2 Conversion Problem

The distance between two cities (in km.) would be given by the user. Write a program to convert and print this distance in:

1. Feet.
2. Meters.
3. Inches.
4. Centimeters.

Code:

```
#include <stdio.h>

void main() {

    float x;

    printf("Enter your distance in km: ");

    scanf("%f",&x);

    float feet = x*3280.84;

    float inch = x*39370.08;

    float m = x*1000;

    float cm = x*100000;

    printf("Your distance in feet is: %f\n", feet);

    printf("Your distance in inch is: %f\n", inch);

    printf("Your distance in meters is: %f\n", m);

    printf("Your distance in centimeters is: %f\n", cm);

}
```

Screenshot:

```
14 #include <stdio.h>
15
16 void main() {
17
18     float x;
19     printf("Enter your distance in km: ");
20     scanf("%f",&x);
21
22     float feet = x*3280.84;
23     float inch = x*39370.08;
24     float m = x*1000;
25     float cm = x*100000;
26
27     printf("Your distance in feet is: %f\n", feet);
28     printf("Your distance in inch is: %f\n", inch);
29     printf("Your distance in meters is: %f\n", m);
30     printf("Your distance in centimeters is: %f\n", cm);
31
32
33 }
```

input

```
Enter your distance in km: 50
Your distance in feet is: 164042.000000
Your distance in inch is: 1968504.000000
Your distance in meters is: 50000.000000
Your distance in centimeters is: 5000000.000000

...Program finished with exit code 0
Press ENTER to exit console.
```

Q-3 Marks Calculator

A student enters his/her marks of 5 subjects in a program.

Assume that the maximum marks that can be obtained by a student in each subject to be 100.

Write a program to calculate the aggregate marks of the student. Also, calculate the percentage marks obtained by the student.

Code:

```
#include <stdio.h>
```

```
#include <stdlib.h>
```

```
void main(){
```

```
    int x[5];
```

```
    int sum = 0;
```

```
printf("Enter your marks for 5 subjects: ");
```

```
for (int i = 0; i < 5; i++)
```

```
{
```

```
    scanf("%d", &x[i]);
```

```
}
```

```
for (int i = 0; i < 5; i++)
```

```
{
```

```
    if (x[i] > 100)
```

```
    {
```

```
        printf("Invalid marks");
```

```
        exit(0);
```

```
    }
```

```
    else
```

```
    {
```

```
        sum = sum + x[i];
```

```
    }
```

```
}
```

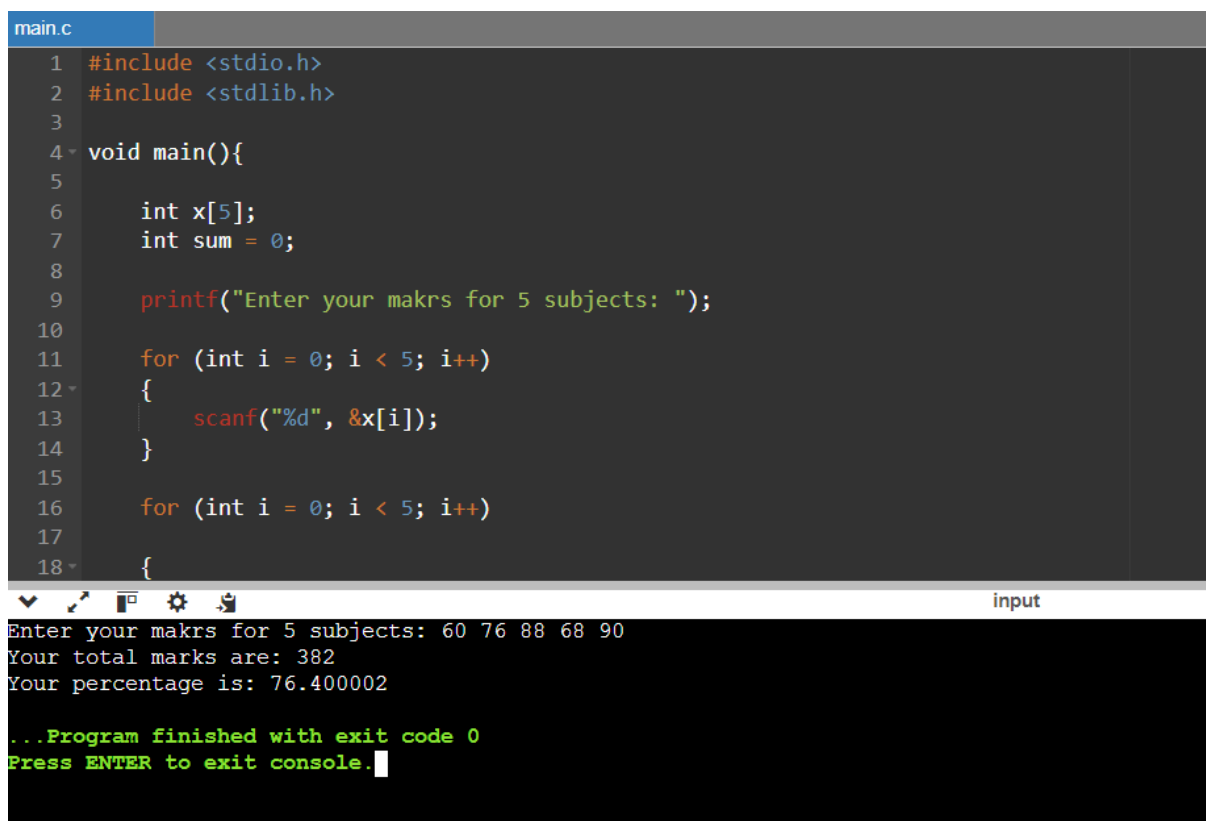
```
printf("Your total marks are: %d", sum);
```

```
float percentage = (sum/500.0)*100;
```

```
printf("\nYour percentage is: %f", percentage);
```

```
}
```

Screenshot:



The screenshot shows a code editor with a file named 'main.c'. The code is a C program that calculates the sum and percentage of marks for 5 subjects. The code is as follows:

```
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 void main(){
5
6     int x[5];
7     int sum = 0;
8
9     printf("Enter your makrs for 5 subjects: ");
10
11     for (int i = 0; i < 5; i++)
12     {
13         scanf("%d", &x[i]);
14     }
15
16     for (int i = 0; i < 5; i++)
17     {
18
```

The console output shows the program's execution with the following text:

```
Enter your makrs for 5 subjects: 60 76 88 68 90
Your total marks are: 382
Your percentage is: 76.400002
...Program finished with exit code 0
Press ENTER to exit console.
```

Q-4 Sum of Digits

The user will enter a four-digit number.

Write a program that calculates the sum of its digits. (Hint: Use the modulus operator '%').

Input:

Four-digit number.

Code:

```
#include <stdio.h>
```

```
void main(){
```

```
    int x;
```

```
    printf("Enter a four digit number: ");
```

```
    scanf("%d", &x);
```

```
    int a = x/1000;
```

```
int b = (x/100)%10;

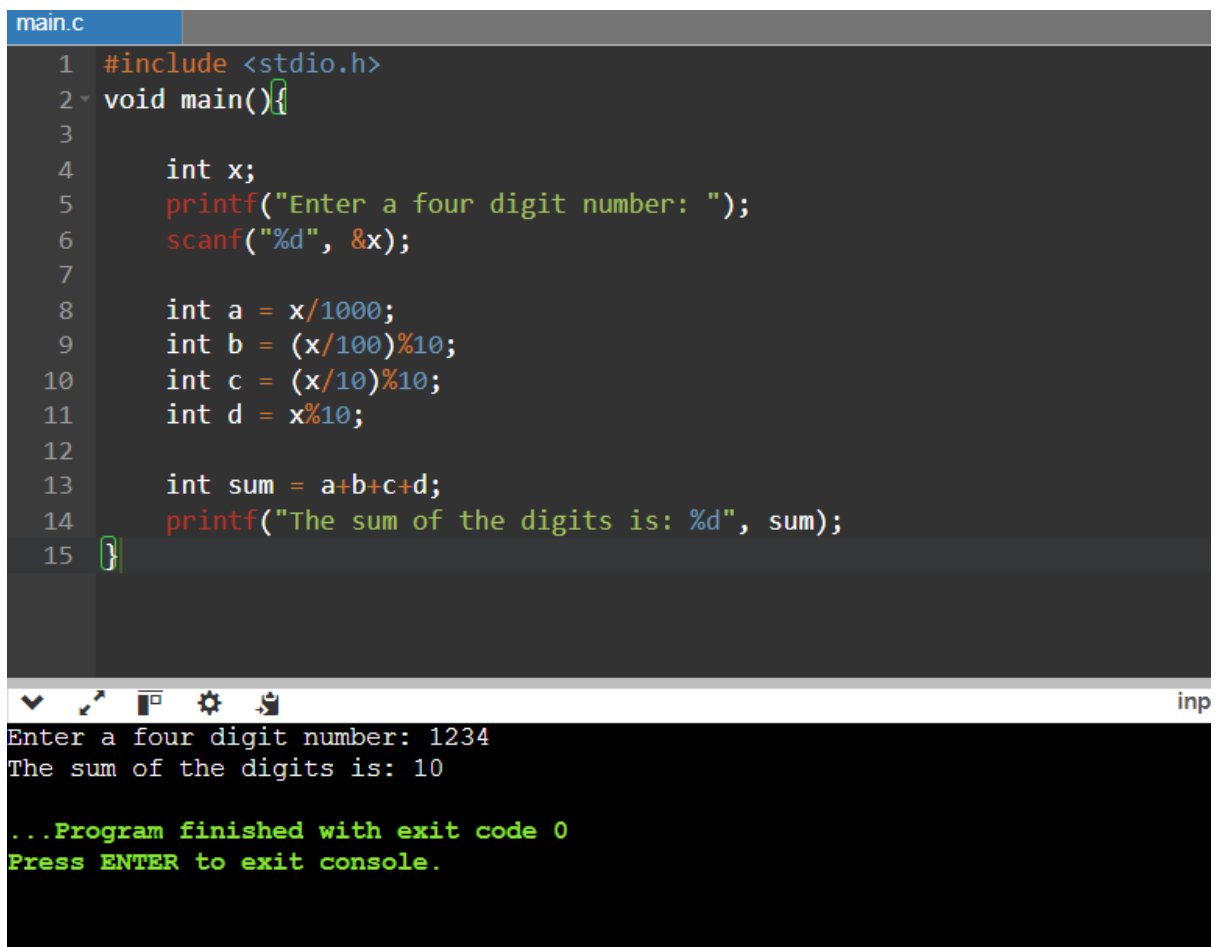
int c = (x/10)%10;

int d = x%10;


int sum = a+b+c+d;

printf("The sum of the digits is: %d", sum);
}
```

Screenshot:



The screenshot shows a code editor window titled 'main.c' with the following C code:

```
1  #include <stdio.h>
2  void main(){
3
4      int x;
5      printf("Enter a four digit number: ");
6      scanf("%d", &x);
7
8      int a = x/1000;
9      int b = (x/100)%10;
10     int c = (x/10)%10;
11     int d = x%10;
12
13     int sum = a+b+c+d;
14     printf("The sum of the digits is: %d", sum);
15 }
```

Below the code editor is a terminal window showing the program's execution. It prompts for a four-digit number, receives '1234', calculates the sum of digits (1+2+3+4=10), and displays the result. The terminal also shows the program finishing with exit code 0 and a prompt to press ENTER to exit the console.

```
Enter a four digit number: 1234
The sum of the digits is: 10

...Program finished with exit code 0
Press ENTER to exit console.
```

Q-5 Decrementing Digit Problem

Suppose a five-digit number is input by a user.

Write a program to print a new number by subtracting one to each of its digits. For example if the number that is input is 12391 then the output should be displayed as 01280.

Code:

```
#include <stdio.h>

void main(){

    int x;

    printf("Enter a four digit number: ");

    scanf("%d", &x);

    int y = (x/10000)-1;

    int a = ((x/1000)%10)-1;

    int b = ((x/100)%10)-1;

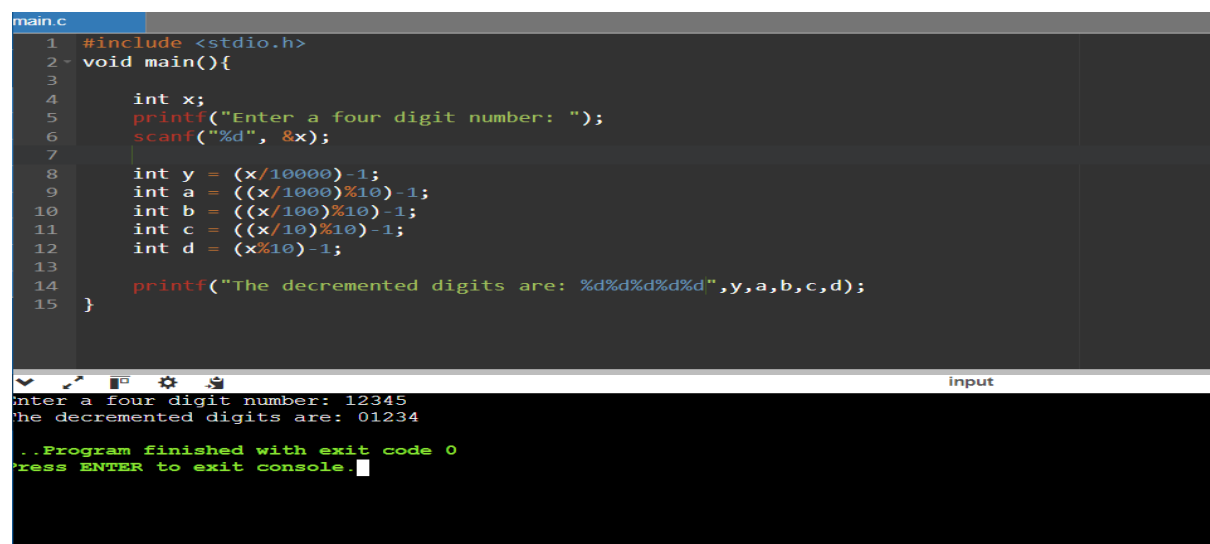
    int c = ((x/10)%10)-1;

    int d = (x%10)-1;

    printf("The decremented digits are: %d%d%d%d%d",y,a,b,c,d);

}
```

Screenshot:

The screenshot shows a code editor with a C program and its execution output. The code defines a main function that prompts the user for a four-digit number, reads it into variable x, and then calculates five decremented digits (y, a, b, c, d) by dividing x by powers of 10 and subtracting 1. The output shows the program running with input 12345, producing the output 01234, and then finishing with exit code 0.

```
main.c
1  #include <stdio.h>
2  void main(){
3
4      int x;
5      printf("Enter a four digit number: ");
6      scanf("%d", &x);
7
8      int y = (x/10000)-1;
9      int a = ((x/1000)%10)-1;
10     int b = ((x/100)%10)-1;
11     int c = ((x/10)%10)-1;
12     int d = (x%10)-1;
13
14     printf("The decremented digits are: %d%d%d%d%d",y,a,b,c,d);
15 }
```

input

Enter a four digit number: 12345
The decremented digits are: 01234

..Program finished with exit code 0
Press ENTER to exit console.