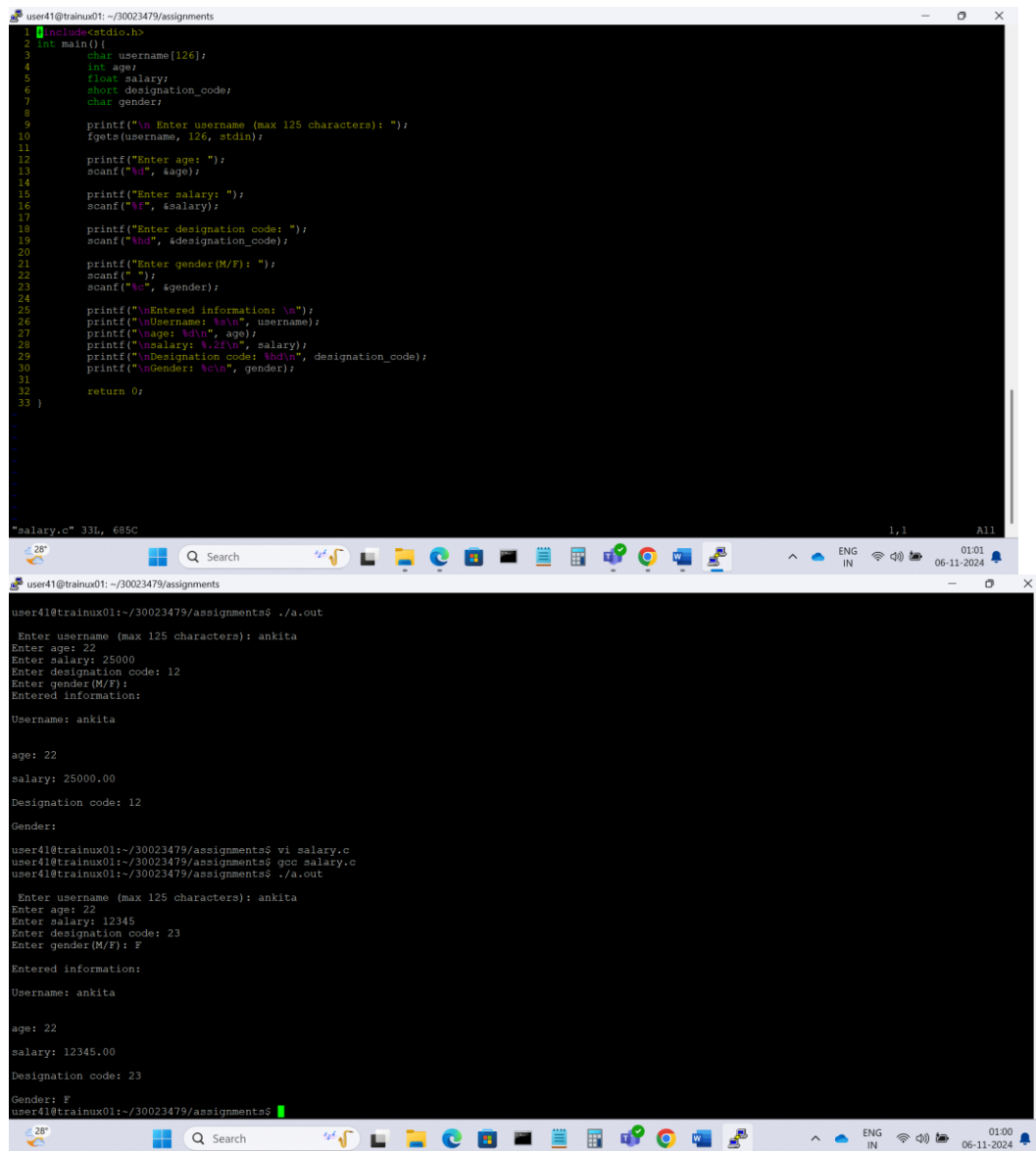


# Datatypes and Format Specifiers Assignment

1. WAP to read the following information at run time and to display. Choose appropriate data type and format specifier.

1. username [maximum of length 125]
2. age
3. Salary [float]
4. Designation code [as short type with values {1, 2, 3, 4, 5, 6}]
5. Gender [a single char field]

Ans:



The image shows a C program in a terminal window and its execution output. The program is named 'salary.c' and is located in the directory '~/30023479/assignments'. It uses the standard C library (`<stdio.h>`) and defines a `main` function. Inside `main`, it declares variables for `username` (char array of size 126), `age` (int), `salary` (float), `designation_code` (short), and `gender` (char). It then prompts the user to enter each of these values and reads them using `scanf`. Finally, it prints the entered information using `printf`.

```
1 #include<stdio.h>
2 int main() {
3     char username[126];
4     int age;
5     float salary;
6     short designation_code;
7     char gender;
8
9     printf("\n Enter username (max 125 characters): ");
10    fgets(username, 126, stdin);
11
12    printf("Enter age: ");
13    scanf("%d", &age);
14
15    printf("Enter salary: ");
16    scanf("%f", &salary);
17
18    printf("Enter designation code: ");
19    scanf("%hd", &designation_code);
20
21    printf("Enter gender (M/F): ");
22    scanf("%c", &gender);
23    scanf("%c", &gender);
24
25    printf("\nEntered informations: \n");
26    printf("\nUsername: %s\n", username);
27    printf("\nage: %d\n", age);
28    printf("\nsalary: %.2f\n", salary);
29    printf("\ndesignation code: %hd\n", designation_code);
30    printf("\ngender: %c\n", gender);
31
32    return 0;
33 }
```

The execution output shows the program running and the user entering the following values: username: ankita, age: 22, salary: 25000, designation code: 12, and gender: F. The program then displays the entered information in a formatted manner.

```
user41@trainux01: ~/30023479/assignments$ ./a.out
Enter username (max 125 characters): ankita
Enter age: 22
Enter salary: 25000
Enter designation code: 12
Enter gender (M/F): F
Entered information:
Username: ankita

age: 22
salary: 25000.00
Designation code: 12
Gender: F

user41@trainux01:~/30023479/assignments$ vi salary.c
user41@trainux01:~/30023479/assignments$ gcc salary.c
user41@trainux01:~/30023479/assignments$ ./a.out
Enter username (max 125 characters): ankita
Enter age: 22
Enter salary: 12345
Enter designation code: 23
Enter gender (M/F): F
Entered information:
Username: ankita

age: 22
salary: 12345.00
Designation code: 23
Gender: F
user41@trainux01:~/30023479/assignments$
```

2. WAP to read a user choice as 'y' or 'Y' or 'n' or 'N' and display read choice as "Yes" or "No" according to the input received.

'y' or 'Y' → display "Yes"

'n' or 'N' → display "No"

for any other character received → display "invalid character" and exit

Ans:

```
user41@trainux01: ~/30023479/assignments
1 #include <stdio.h>
2 int main()
3 {
4     char choice;
5     printf("\nEnter your choice (y/Y/n/N): ");
6     scanf("%c", &choice);
7
8     switch (choice)
9     {
10         case 'Y':
11         case 'y':
12             printf("Yes\n");
13             break;
14         case 'N':
15         case 'n':
16             printf("No\n");
17             break;
18         default:
19             printf("Invalid Character\n");
20             break;
21     }
22     return 0;
23 }
24
25
```

"disp.c" 25L, 317C

```
user41@trainux01: ~/30023479/assignments
Enter gender(M/F):
Entered information:
Username: ankita
age: 22
salary: 25000.00
Designation code: 12
Gender:
user41@trainux01:~/30023479/assignments$ vi salary.c
user41@trainux01:~/30023479/assignments$ gcc salary.c
user41@trainux01:~/30023479/assignments$ ./a.out
Enter username (max 125 characters): ankita
Enter age: 22
Enter salary: 12345
Enter designation code: 23
Enter gender(M/F): F
Entered information:
Username: ankita
age: 22
salary: 12345.00
Designation code: 23
Gender: F
user41@trainux01:~/30023479/assignments$ vi salary.c
user41@trainux01:~/30023479/assignments$ vi disp.c
user41@trainux01:~/30023479/assignments$ gcc disp.c
user41@trainux01:~/30023479/assignments$ ./a.out
Enter your choice (y/Y/n/N): y
Yes
user41@trainux01:~/30023479/assignments$
```

3. WAP to read a number in decimal (0-127) and display it in 2 digit hex characer.

Ans:

```
user41@trainux01: ~/30023479/assignments
1 #include <stdio.h>
2 int main()
3 {
4     int decimal_num;
5     char hex_char;
6
7     printf("Enter a decimal number (0-127): ");
8     scanf("%d", &decimal_num);
9
10    if(decimal_num < 0 || decimal_num > 127) {
11        printf("Invalid input. please enter a number between 0 and 127.\n");
12        return 1;
13    }
14
15    hex_char = (char)decimal_num;
16
17    printf("Hexadecimal equivalent: %c\n", hex_char);
18
19    return 0;
20 }
```

"hex.c" 20L, 370C

```
user41@trainux01: ~/30023479/assignments
user41@trainux01:~/30023479/assignments$ ./a.out
Enter username (max 125 characters): ankita
Enter age: 22
Enter salary: 12345
Enter designation code: 23
Enter gender(M/F): F

Entered information:
Username: ankita

age: 22

salary: 12345.00

Designation code: 23

Gender: F
user41@trainux01:~/30023479/assignments$ vi salary.c
user41@trainux01:~/30023479/assignments$ vi disp.c
user41@trainux01:~/30023479/assignments$ gcc disp.c
user41@trainux01:~/30023479/assignments$ ./a.out

Enter your choice (y/Y/n/N): y
Yes
user41@trainux01:~/30023479/assignments$ vi disp.c
user41@trainux01:~/30023479/assignments$ vi hex.c
user41@trainux01:~/30023479/assignments$ gcc hex.c
hex.c: In function 'main':
hex.c:11:70: warning: missing terminating ' character
    printf("Invalid input. please enter a number between 0 and 127.\n");
                                         ^
hex.c:11:70: error: missing terminating ' character
hex.c:12:4: error: expected ';' before 'return'
    return 1;
    ^~~~~~
user41@trainux01:~/30023479/assignments$ vi hex.c
user41@trainux01:~/30023479/assignments$ gcc hex.c
user41@trainux01:~/30023479/assignments$ ./a.out
Enter a decimal number (0-127): 77
Hexadecimal equivalent: M
user41@trainux01:~/30023479/assignments$
```