C_23 → **Formatted Input Functions in C**

[**Scanf ()**] → defined in stdio.h.

* main ()

{

    int a = 5, b = 4;   Static values.

}

* Scanf() is used to enter values at the run time.
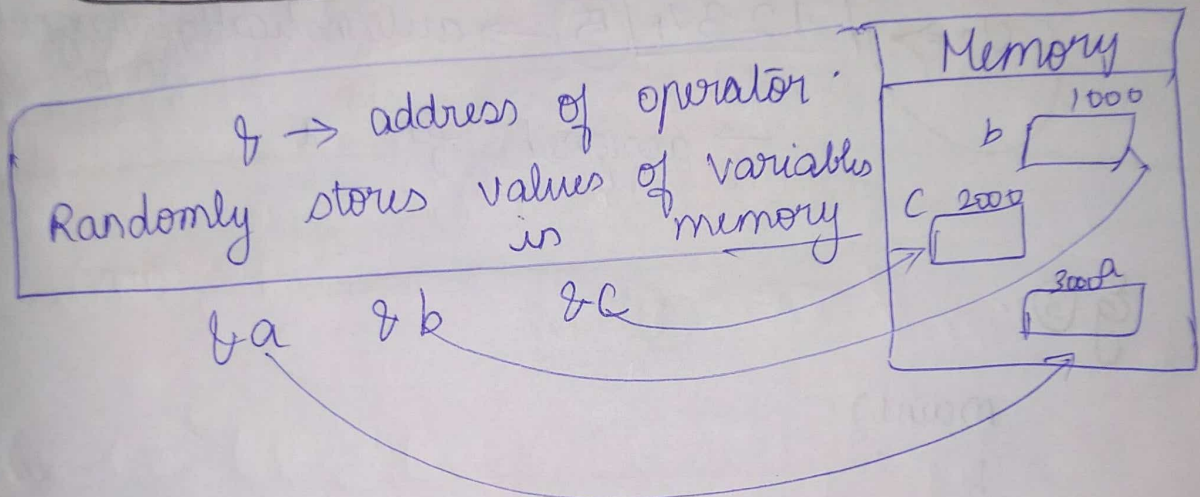
Eg:① main ()
{
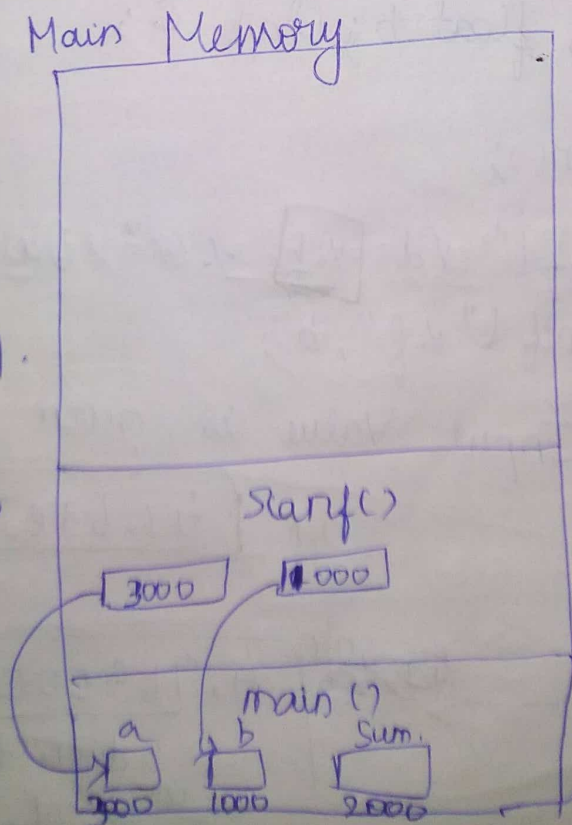   int a, b, sum;

    clrscr();

    scanf ("%d%d", &a, &b);

    sum = a + b;
    printf ("%d", sum);
}

scanf ("control string", <arg1>, <arg 2>,... <arg n>);

& → address of operator.

Randomly stores values of variables in memory

&a   &b   &c

Memory

b [ ] 1000

c 2000 [ ]

3000 [ ]

Main Memory

Pointer is used.
↑
returns address
of a & b

(&a)

(&b)

scanf()

3000 [ ]   4000 [ ]

main ()
a   b   Sum.
[ ]   [ ]   [ ]
3000   1000   2000

eg ②

```
main()
{
    int a, b, sum;
    clrscr();
    scanf(" %.4d %d ", &a, &b);
    sum = a + b;
3.  printf("%d", sum);
}
```

→ width of variable value.

o/p ⇒ 1 2 3 4 5 → automatically assigned for b.

↳ assigned for a

eg ③ :-

```
main()
{
    int a; float b; char c;

    clrscr();
    scanf(" %d %f %c ", &a &b &c);
    printf(" %f ", b);
}
```

o/p ⇒

Input " %f ;&b [Input value is given as] $e^{-1} \left(\frac{1}{10}\right)$

I/P 47.63e⁻¹   47.63
                 4.763

output %f &b → 4.763 o/p 4.763000
                              6 digits after precision
                              in float

eg ③

```
main ()
{
    int a, b, sum, x;

    clrscr();

    x = scanf ("%d %d", &a, &b);

    sum = a+b;

    printf (" sum is %d", sum);
    printf (" %d", x);
}
```

return
no.
of
inputs.

O/P →

eg ④

```
int a, b, x;

x = scanf ("%d %d %d &a, &b);
printf ("%d", x);
```

O/P ⟹

CODE 1:

```
1    #include <stdio.h>
2    #include <stdlib.h>
3    /* FORMATTED INPUT FUNCTION */
4    int main()
5    {
6        int a,b,sum;
7        //printf("Enter two number:\n");
8        scanf("%d %d",&a,&b);
9        sum=a+b;
10       printf("%d\n",sum);
11
12    }
13
```

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```
5
6
11

Process returned 0 (0x0)    execution time : 3.910 s
Press any key to continue.
```

```c
#include <stdio.h>
#include <stdlib.h>
/* 1 FORMATTED INPUT FUNCTION */
int main()
{
    int a,b,sum;
    printf("Enter two number:\n");
    scanf("%d %d",&a,&b);
    sum=a+b;
    printf("%d\n",sum);

}
```

```
Enter two number:
5
6
11

Process returned 0 (0x0)   execution time : 2.921 s
Press any key to continue.
```

CODE 2:

```
1    #include <stdio.h>
2    #include <stdlib.h>
3    /* 2 FORMATTED INPUT FUNCTION */
4    int main()
5    {
6        int a,b,sum;
7        printf ("Enter the two number:\n");
8        scanf("%2d %d",&a,&b);
9        sum=a+b;
10       printf("%d\n",sum);
11   }
12
```

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```
Enter the two number:
222222
2244

Process returned 0 (0x0)   execution time : 20.422 s
Press any key to continue.
```

22|2222

%2d =22 (accepts only first 2 integers)

%d = 2222(remaining are assigned, for this no limit)

```c
1    #include <stdio.h>
2    #include <stdlib.h>
3    /* 2 FORMATTED INPUT FUNCTION */
4    int main()
5    {
6        int a,b,sum;
7        printf ("Enter the two number:\n");
8        //scanf("%2d %d",&a,&b);
9        scanf("%2d %2d",&a,&b);
10       sum=a+b;
11       printf("%d\n",sum);
12   }
13
```

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```
Enter the two number:
223344
55

Process returned 0 (0x0)    execution time : 25.051 s
Press any key to continue.
```
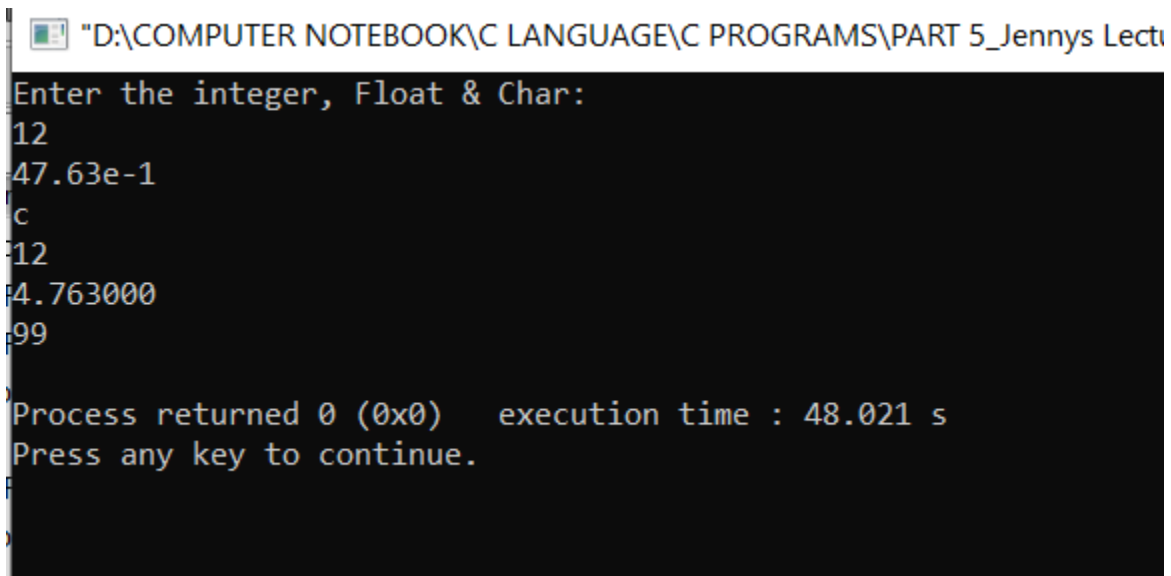
22|33|44

%2d =22 (accepts only first 2 integers)

%2d = 33(accepts only next 2 integers)

CODE 3:

```c
#include <stdio.h>
#include <stdlib.h>
/* 3 FORMATTED INPUT FUNCTION */
int main()
{
    int a; float b; char c;
    printf("Enter the integer, Float & Char:\n");
    scanf("%d %f %c",&a,&b,&c);
    printf("%d\n",a);
    printf("%f\n",b);
    printf("%d\n",c);

}
```

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```
Enter the integer, Float & Char:
12
47.63e-1
c
12
4.763000
99

Process returned 0 (0x0)   execution time : 48.021 s
Press any key to continue.
```

e-1=1/10

47.63e-1=4.763

%f=4.763000(%f float will give 6 digits precession after decimal point)

CODE 4:

```c
1    #include <stdio.h>
2    #include <stdlib.h>
3    /* 4 FORMATTED INPUT FUNCTION */
4    // PRINTING NUMBER OF OUTPUTS WE GET USING scanf
5    int main()                     IN
6    {
7    int a,b,sum,x;
8    printf("Enter the two digits:\n");
9    x=scanf("%d %d",&a,&b);
10   sum=a+b;
11   printf("%d\n",sum);
12   printf("%d\n",x);// we get two inputs a and b
13
14   }
```

```
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Enter the two digits:
5
5
10
2

Process returned 0 (0x0)   execution time : 7.859 s
Press any key to continue.
```