

Printf Scanf Assignment

Mandatory:

Q1. WAP with

1a. function readdisplay() to read the following data types only one at a time at run time and to display.

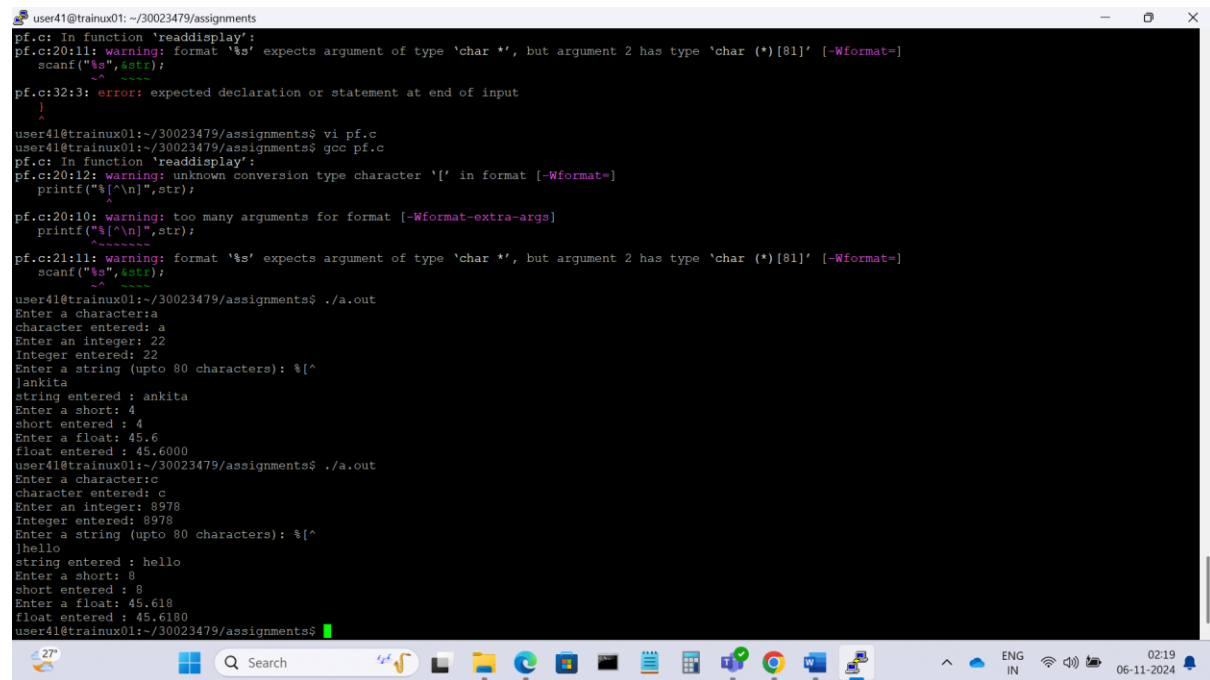
1. char type
2. integer type
3. char array of maximum 80 characters
4. short type
5. float type

TestData:

'c', 8978, "hello", 8, 45.678

'H', 254, "hello Hi How", 256, 145.2678

Ans:



```
user41@trainux01: ~/30023479/assignments
pf.c: In function 'readdisplay':
pf.c:20:11: warning: format '%s' expects argument of type 'char *', but argument 2 has type 'char (*)[81]' [-Wformat=]
   scanf("%s",str);
           ^
pf.c:32:3: error: expected declaration or statement at end of input
   }
   ^
user41@trainux01:~/30023479/assignments$ vi pf.c
user41@trainux01:~/30023479/assignments$ gcc pf.c
pf.c: In function 'readdisplay':
pf.c:20:12: warning: unknown conversion type character '[' in format [-Wformat=]
   printf("%s\n",str);
           ^
pf.c:20:10: warning: too many arguments for format [-Wformat-extra-args]
   printf("%s\n",str);
           ^
pf.c:21:11: warning: format '%s' expects argument of type 'char *', but argument 2 has type 'char (*)[81]' [-Wformat=]
   scanf("%s",str);
           ^
user41@trainux01:~/30023479/assignments$ ./a.out
Enter a character:a
character entered: a
Enter an integer: 22
integer entered: 22
Enter a string (upto 80 characters): %[^
]ankita
string entered : ankita
Enter a short: 4
short entered : 4
Enter a float: 45.6
float entered : 45.6000
user41@trainux01:~/30023479/assignments$ ./a.out
Enter a character:c
character entered: c
Enter an integer: 8978
integer entered: 8978
Enter a string (upto 80 characters): %[^
]hello
string entered : hello
Enter a short: 8
short entered : 8
Enter a float: 45.618
float entered : 45.6180
user41@trainux01:~/30023479/assignments$
```

1b. Create a copy of `readdisplay()` as function `readdisplay2()` with changes below

- Instead of reading 1 data at a time, read all inputs using a single `scanf()`.

Test `readdisplay2()` by changing the read order. Do you observe any issue?

Ans:

```
user41@trainux01: ~/30023479/assignments
1 #include <stdio.h>
2 #include <string.h>
3 void readdisplay(){
4     char ch;
5     int integer;
6     char str[81];
7     short sh;
8     float f;
9
10    printf("Enter a character, an integer, a string, a short, and float: ");
11    scanf("%c %d %s %h %f", &ch, &integer, str, &sh, &f);
12
13    printf("character entered: %c\n",ch);
14    printf("integer entered: %d\n",integer);
15    printf("string entered: %s\n",str);
16    printf("short entered: %hd\n",sh);
17    printf("float entered: %.4f\n",f);
18 }
19
20 int main(){
21     readdisplay();
22     return 0;
23 }
```

"pf2.c" 23L, 491C 1,1 All

```
user41@trainux01: ~/30023479/assignments
Enter an integer: 254
Integer entered: 254
Enter a string (upto 80 characters): %[
]hello hi how
string entered : hello
Enter a short: short entered : 0
Enter a float: float entered : 0.0000
user41@trainux01:~/30023479/assignments$ vi pf2.c
user41@trainux01:~/30023479/assignments$ gcc pf2.c
pf2.c: In function 'main':
pf2.c:21:3: warning: implicit declaration of function 'readdisplay'; did you mean 'readdisply'? [-Wimplicit-function-declaration]
   readdisplay();
   ^~~~~~
pf2.c:21:3: note: 'readdisply' is declared here
/tmp/cc9adg.o: In function 'main':
pf2.c:(.text+0xf1): undefined reference to `readdisplay'
collect2: error: ld returned 1 exit status
user41@trainux01:~/30023479/assignments$ vi pf2.c
user41@trainux01:~/30023479/assignments$ gcc pf2.c
user41@trainux01:~/30023479/assignments$ ./a.out
Enter a character, an integer, a string, a short, and float: w 23 hello 3 56.9

^C
user41@trainux01:~/30023479/assignments$ ./a.out
Enter a character, an integer, a string, a short, and float: w
34
hello
3
45.98
character entered: w
integer entered: 34
string entered: hello
short entered: 3
float entered: 45.9800
user41@trainux01:~/30023479/assignments$
```

1c. display the char array content in upper case

Ans:

```
user41@trainux01: ~/30023479/assignments
1 #include <stdio.h>
2 #include <string.h>
3 void readdisply(){
4     char ch;
5     int integer;
6     char str[81];
7     short sh;
8     float f;
9
10    printf("Enter a character, an integer, a string, a short, and float: ");
11    scanf("%c %d %[^\\n] %hd %f", &ch, &integer, str, &sh, &f);
12
13    for(int i =0; str[i]!='\\0'; i++){
14        if(str[i]>='a' && str[i] <= 'z'){
15            str[i]=str[i]-'a'+'A';
16        }
17    }
18
19    printf("character entered: %c\\n",ch);
20    printf("integer entered: %d\\n",integer);
21    printf("string entered: %s\\n",str);
22    printf("short entered: %hd\\n",sh);
23    printf("float entered: %.4f\\n",f);
24 }
25
26 int main(){
27     readdisply();
28     return 0;
29 }
```

"pf2.c" 29L, 596C 1,1 All

```
user41@trainux01: ~/30023479/assignments
redisply
/tmp/cc19Adge.o: In function 'main':
pf2.c:(.text+0x5f1): undefined reference to 'readdisply'
collect2: error: ld returned 1 exit status
user41@trainux01:~/30023479/assignments$ vi pf2.c
user41@trainux01:~/30023479/assignments$ gcc pf2.c
user41@trainux01:~/30023479/assignments$ ./a.out
Enter a character, an integer, a string, a short, and float: w 23 hello 3 56.9
^C
user41@trainux01:~/30023479/assignments$ ./a.out
Enter a character, an integer, a string, a short, and float: w
34
hello
3
45.98
character entered: w
integer entered: 34
string entered: hello
short entered: 3
float entered: 45.9800
user41@trainux01:~/30023479/assignments$ vi pf2.c
user41@trainux01:~/30023479/assignments$ gcc pf2.c
user41@trainux01:~/30023479/assignments$ ./a.out
Enter a character, an integer, a string, a short, and float: w
45
hello
6
67.098
character entered: w
integer entered: 45
string entered: HELLO
short entered: 6
float entered: 67.0980
user41@trainux01:~/30023479/assignments$
```

1d. Add code to display the size of each data type mentioned in Q1a and sizeof the variables of each datatype (You may refer sample code in data_type_size.c)

Ans:

```
user41@trainux01: ~/30023479/assignments
1 #include<stdio.h>
2 #include<string.h>
3
4 void readdisplay(){
5     char ch;
6     int integer;
7     char str[81];
8     short sh;
9     float f;
10
11     printf("Enter a character:");
12     scanf("%c", &ch);
13
14     printf("Character entered: %c\n",ch);
15     printf("Enter an integer: ");
16     scanf("%d",&integer);
17     printf("Integer entered: %d\n",integer);
18     printf("Enter a string (upto 80 characters): ");
19     printf("%[^\n]",str);
20     scanf("%s",&str);
21     printf("String entered : %s\n",str);
22     printf("Enter a short: ");
23     scanf("%hd",&sh);
24     printf("short entered : %hd\n",sh);
25     printf("Enter a float: ");
26     scanf("%f",&f);
27     printf("float entered : %.4f\n",f);
28
29     printf("nsize of char: %zu bytes\n",sizeof(ch));
30     printf("nsize of integer: %zu bytes\n",sizeof(integer));
31     printf("nsize of string: %zu bytes\n",sizeof(str));
32     printf("nsize of short: %zu bytes\n",sizeof(sh));
33     printf("nsize of float: %zu bytes\n",sizeof(f));
34 }
35
36
37 int main(){
38     readdisplay();
39     return 0;
40 }
41
"pf.c" 41L, 951C 1,1 All

user41@trainux01: ~/30023479/assignments
hello
6
67.098
character entered: w
integer entered: 45
string entered: HELLO
short entered: 6
float entered: 67.0980
user41@trainux01:~/30023479/assignments$ vi pf2.c
user41@trainux01:~/30023479/assignments$ vi pf.c
user41@trainux01:~/30023479/assignments$ gcc pf.c
pf.c: In function 'readdisplay':
pf.c:20:12: warning: unknown conversion type character '[' in format [-Wformat=]
   printf("%[^\n]",str);
           ^
pf.c:20:10: warning: too many arguments for format [-Wformat-extra-args]
   printf("%[^\n]",str);
           ^~~~~~
pf.c:21:11: warning: format '%s' expects argument of type 'char *', but argument 2 has type 'char (*)[81]' [-Wformat=]
   scanf("%s",&str);
           ^
user41@trainux01:~/30023479/assignments$ ./a.out
Enter a character:w
character entered: w
Enter an integer: 456
integer entered: 456
Enter a string (upto 80 characters): %[^\n]
]hello
string entered : hello
Enter a short: 6
short entered: 6
Enter a float: 78.987
float entered : 78.9870

size of char: 1 bytes
size of integer: 4 bytes
size of string: 81 bytes
size of short: 2 bytes
size of float: 4 bytes
user41@trainux01:~/30023479/assignments$
```

Q2. Try to run the program with code snippet below. Check the output and analyse. Fix it to get correct result.

```
#include<stdio.h>

int main()
{
    unsigned long int ul = 2003333333334340;

    printf("value is:%d\n", ul);

    return 0;
```

```
}
```

Ans:

```
user41@trainux01: ~/30023479/assignments
1 #include<stdio.h>
2 int main()
3 {
4     unsigned long int ul = 2003333333334340;
5     printf("value is:%lu\n", ul);
6     return 0;
7 }
```

"change.c" 7L, 138C 1,1 All

```
user41@trainux01: ~/30023479/assignments
string entered: HELLO
short entered: 6
float entered: 67.0980
user41@trainux01:~/30023479/assignments$ vi pf2.c
user41@trainux01:~/30023479/assignments$ vi pf.c
user41@trainux01:~/30023479/assignments$ gcc pf.c
pf.c: In function 'readdisplay':
pf.c:20:12: warning: unknown conversion type character '[' in format [-Wformat=]
   printf("%[^\n]",str);
           ^
pf.c:20:10: warning: too many arguments for format [-Wformat-extra-args]
   printf("%[^\n]",str);
           ^
pf.c:21:11: warning: format '%s' expects argument of type 'char *', but argument 2 has type 'char (*)[81]' [-Wformat=]
   scanf("%s",&str);
         ^
user41@trainux01:~/30023479/assignments$ ./a.out
Enter a character:w
character entered: w
Enter an integer: 456
Integer entered: 456
Enter a string (upto 80 characters): %[^\n]hello
string entered : hello
Enter a short: 6
short entered : 6
Enter a float: 78.987
float entered : 78.9870

size of char: 1 bytes
size of integer: 4 bytes
size of string: 81 bytes
size of short: 2 bytes
size of float: 4 bytes
user41@trainux01:~/30023479/assignments$ vi pf.c
user41@trainux01:~/30023479/assignments$ vi change.c
user41@trainux01:~/30023479/assignments$ gcc change.c
user41@trainux01:~/30023479/assignments$ ./a.out
value is:2003333333334340
user41@trainux01:~/30023479/assignments$
```