For While Do while Break Continue Assignment

1. WAP to read a number n and to display the cumulative sum of factorial of all numbers upto n . (use for or while)
   Input: 5
   Ouput: 5!+4!+3!+2!+1! = 153

user64@trainux01: ~/Batch17Oct2024_189/Assignment/program

```
#include<stdio.h>
int factorial(int);
int main()
{
        int n,sum=0,i;
        printf("Enter number:\n");
        scanf("%d",&n);
        for(i=1;i<=n;i++)
                sum=sum+factorial(i);
        printf("Factorial of number:%d\n",sum);
        return 0;
}
int factorial(int n)
{
        int f=1,i;
        for(i=1;i<=n;i++)
                f *=i;
        return f;
}
```

```
user64@trainux01:~/Batch17Oct2024_189/Assignment/program$ vi forr.c
user64@trainux01:~/Batch17Oct2024_189/Assignment/program$ gcc forr.c
user64@trainux01:~/Batch17Oct2024_189/Assignment/program$ ./a.out
Enter number:
5
Factorial of number:153
```

2. Write a program to accept “N” integers from the user. “N” also has to be taken from the user. Take the count of +ve numbers, -ve numbers and 0’s. However the program should not accept a non-integer value. If a non-integer value is entered, used must be asked to re-enter.
   [Hint:
   a. Use the return value of scanf to find out whether the user has entered integer or not.
   b. You also will have to clear the input buffer before taking the next input.

   For clearing the input buffer, use one of the following approaches

- while (getchar() != '\n'); // keep reading till newline and discard the characters
- scanf("%*s"); // read and discard one string[ ]

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```c
#include<stdio.h>

int main()
{
        int n,v;
        int i,pc=0,nc=0,z=0;
        printf("Enter n value");
        scanf("%d",&n);
        i=0;
        while(i<=n)
        {
                if(scanf("%d",&v)==1)
                {
                        if(v>0)
                                pc++;
                        else if(v<0)
                                nc++;
                        else
                                z++;
                }
                else
                {
                        printf("\n Enter a integer value\n");
                        while(getchar()!='\n');
                }
                i++;
        }
        printf("\nPoitive values:%d\n",pc);
        printf("\nNegative values:%d\n",nc);
        printf("\nNumber of zero:%d\n",z);
        printf("\n\n");
        return 0;
}
```

```
user64@trainux01:~/Batch17Oct2024_189/Assignment/program$ ./a.out
Enter n value5
a

 Enter a integer value
3
-2
0
-85
56

Poitive values:2

Negative values:2

Number of zero:1


user64@trainux01:~/Batch17Oct2024_189/Assignment/program$ ./a.out
Enter n value4
a

 Enter a integer value
3
2
4
6

Poitive values:4

Negative values:0

Number of zero:0
```

3. Write a program to continuously read a string of maximum length 80 chars, End the program if string is END, else convert to upper case, display and continue. (use while)

```c
#include<stdio.h>
#include<string.h>
#include<ctype.h>

int main()
{
        char s[81];
        int i;
        while(1)
        {
                printf("\n Enter string");
                fgets(s,sizeof(s),stdin);
                s[strlen(s)-1]='\0';
                if(strcmp(s,"END")==0)
                        break;
                for(i=0;s[i]!='\0';i++)
                        s[i]=toupper(s[i]);
                printf("\nUppercase:%s",s);
        }
        printf("END");
        printf("\n\n");
        return 0;
}
~
~
~
```

```
user64@trainux01:~/Batch17Oct2024_189/Assignment/program$ gcc while.c
user64@trainux01:~/Batch17Oct2024_189/Assignment/program$ ./a.out

 Enter string ASHWINI

Uppercase: ASHWINI
 Enter stringashwini

Uppercase:ASHWINI
 Enter stringi am fine

Uppercase:I AM FINE
```

4. Refer the program “value_out_of_domain.c”. Try to run the program with a large value say 255. Check the output? Is it correct? Fix the issue observed. What improvements do you suggest?

A. The factorial of 255 is a huge value which cannot be stored in int type which holds only 4 bytes with a range of -2,147,483,648 to 2,147,483,647. So store such a large values we need to define an array with large size like array[1000] that holds the value.

5. Refer the code below. It does not output anything. Fix it.

```c
#include <stdio.h>
int main()
{
  int x = 5;
  while (x > 0);
```

```
  {
       printf( "Value of x :%d \n", x);
       x--;
  }
  return 0;
}
```

A. There is a semicolon at the end of while loop. Here the while condition will gets executed continuously and do not enter the block. Therefore the code doesnot give any output.

6. Analyse the code, identify the issues

```
#include <stdio.h>
int main()
{
float cnt = 0, num = 1000;
 do
 {
  printf ("\n%d\n%d", num,cnt);
  num /= cnt;
 } while (cnt --); /* End of while */
return 0;
}
```

A. The variables cnt and num are declared as floats but they are given format specifiers as %d. It can be rectified by taking %f as format specifiers.