Assignment 1

Piyush Kumar Uttam - EE18BTECH11036

Download all latex-tikz codes from

```
https://github.com/piyushSTK/C−DS/blob/main/
    Assignment1/assignment1.tex
```

1 Problem

(Q 26) Consider the following C function.

```
void convert(int n){
    if(n<0) printf("%d", n);
    else{
        convert(n/2);
        printf("%d", n%2);
    }
}
```

Which of the following will happen when the function **convert** is called with any positive integer n as argument?

1) It will print the binary representation of **n** and terminate.
2) It will print the binary representation of **n** in the reverse order and terminate.
3) It will print the binary representation of **n** and will not terminate.
4) It will not print anything and will not terminate.

2 Solution

Answer : D) It will not print anything and will not terminate.

Explanation

This is a problem involving recursion, as $n > 0$ the portion

```
    else{
        convert(n/2);
        printf("%d", n%2);
    }
```

will be evaluated. In this portion, convert is called again with value of **n/2** and subsequently **n** goes from $n- > 0$.

However as **n** = 0; the condition

```
    if(n<0) printf("%d", n);
```

is still not satisfied and $0/2 = 0$. Hence it will not terminate and will not print anything as print statement is after **convert(n/2)** call.