

## BINARY TO DECIMAL CONVERSION

### EXP NO: 24

**AIM:** To write a C program to implement binary to decimal conversion.

### ALGORITHM:

- 1) Start
- 2) Read the binary number from the user, say 'n'
- 3) Initialize the decimal number, d=0
- 4) Initialize i=0
- 5) Repeat while n != 0:
  - i. Extract the last digit by: remainder = n % 10
  - ii. n = n/10
  - iii. d = d + (remainder \* 2<sup>i</sup>)
  - iv. Increment i by 1
- 6) Display the decimal number, d
- 7) Stop

### PROGRAM:

```
#include <stdio.h>

void main()
{
    int num, binary_num, decimal_num = 0, base = 1, rem;
    printf(" Enter a binary number with the combination of 0s and 1s \n");
    scanf("%d", &num);
    binary_num = num;
    while ( num > 0)
```

```

    {
        rem = num % 10;
        decimal_num = decimal_num + rem * base;
        num = num / 10;
        base = base * 2;
    }

    printf ( " The binary number is %d \t", binary_num);
    printf (" \n The decimal number is %d \t", decimal_num);
}

```

**INPUT:**

**1111**

**OUTPUT:**

The screenshot shows a web-based C compiler interface. The code in the editor is as follows:

```

1  #include <stdio.h>
2  void main()
3  {
4      int num, binary_num, decimal_num = 0, base = 1, rem;
5      printf (" Enter a binary number with the combination of 0s and 1s \n");
6      scanf ("%d", &num);
7      binary_num = num;
8      while ( num > 0)
9      {
10         rem = num % 10;
11         decimal_num = decimal_num + rem * base;
12         num = num / 10;
13         base = base * 2;
14     }
15
16     printf ( " The binary number is %d \t", binary_num);
17     printf (" \n The decimal number is %d \t", decimal_num);
18 }
19

```

The output pane on the right shows the following text:

```

Enter a binary number with the combination of 0s and 1s
1111
The binary number is 1111
The decimal number is 15

```

Below the output, it says "=== Code Exited With Errors ===".

**RESULT:** Thus the program was executed successfully using DevC++.

