

BINARY TO DECIMAL CONVERSION

EXP NO: 26

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. $d = d + (\text{remainder} * 2^i)$
 - iv. Increment i by 1
- 6) Display the decimal number, d
- 7) Stop

PROGRAM:

```
#include <stdio.h>

int 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;

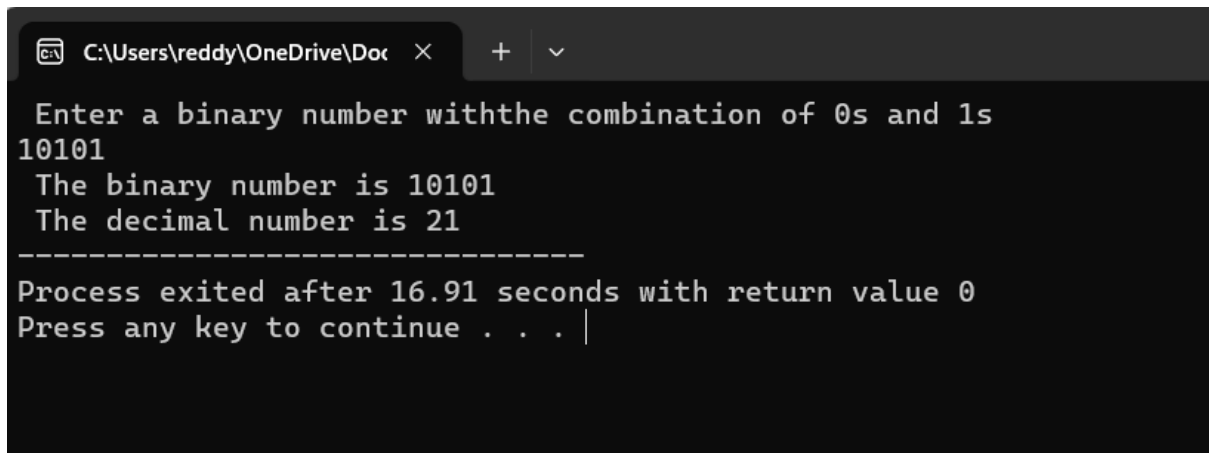
        num = num / 10;

        base = base * 2;
    }

    printf ( " The binary number is %d\t", binary_num);

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

INPUT&OUTPUT:



The screenshot shows a terminal window with a dark background and light-colored text. At the top, there is a tab bar with a single tab labeled 'C:\Users\reddy\OneDrive\Doc' followed by a close button 'X', a plus sign '+', and a dropdown arrow 'v'. The terminal content is as follows:

```
Enter a binary number with the combination of 0s and 1s
10101
The binary number is 10101
The decimal number is 21
-----
Process exited after 16.91 seconds with return value 0
Press any key to continue . . . |
```

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