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 + (remainder * 2^i)
   iv. Increment i by 1
6) Display the decimal number, d
7) Stop

PROGRAM:

```c
#include <stdio.h>


void main() {

   int num, binary_num, decimal_num = 0, base = 1, rem;


   // Prompt the user to enter a binary number

   printf("Enter a binary number with the combination of 0s and 1s:\n");

   scanf("%d", &num);


   binary_num = num;


   // Convert binary number to decimal

   while (num > 0) {

      rem = num % 10;          // Get the last digit (0 or 1)

      decimal_num = decimal_num + rem * base; // Update the decimal value

      num = num / 10;          // Remove the last digit from the binary number

      base = base * 2;         // Update base value for next binary digit

   }


   // Display results

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

   printf("The decimal number is: %d\n", decimal_num);

}
```
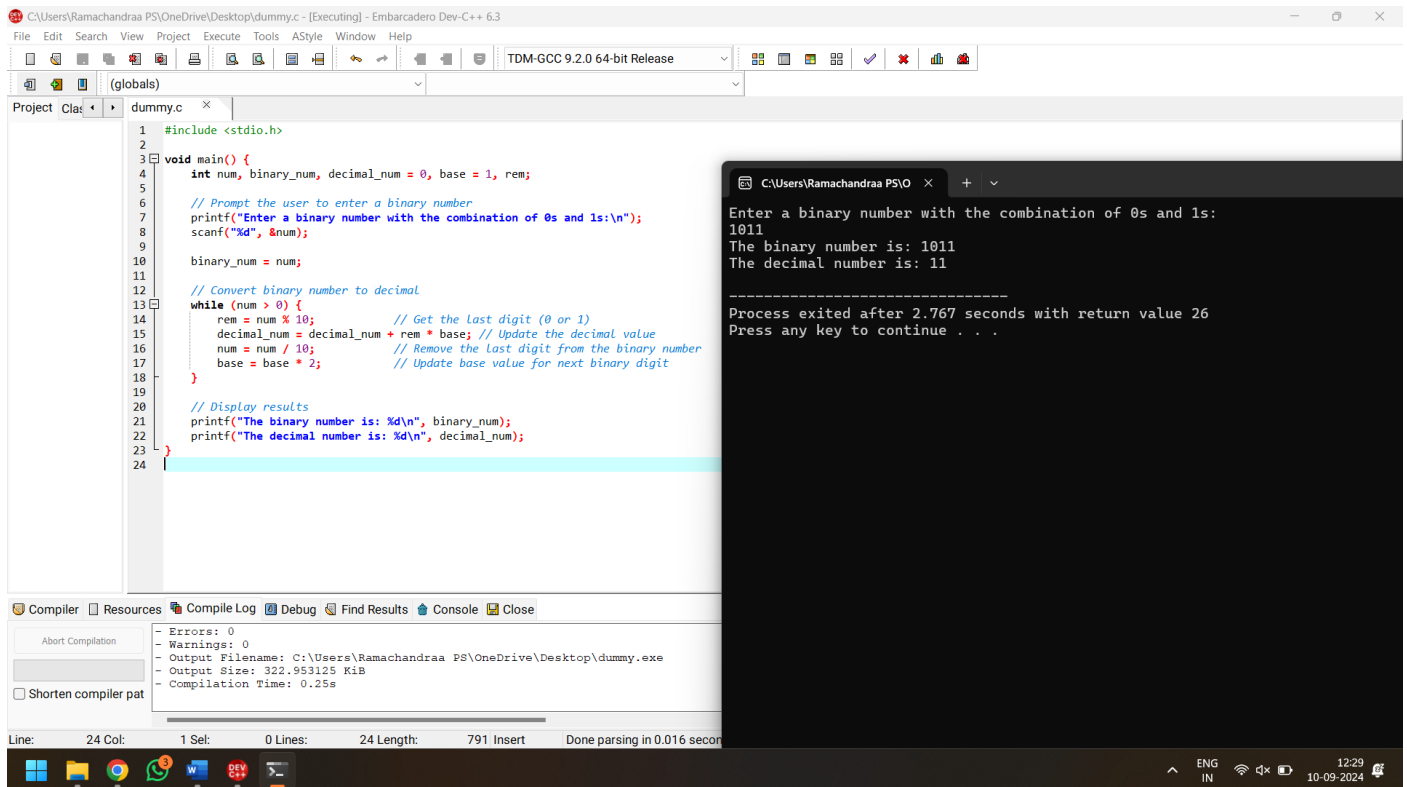
INPUT & OUTPUT:

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