OCTAL TO BINARY CONVERSION

EXP NO: 31

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

ALGORITHM:

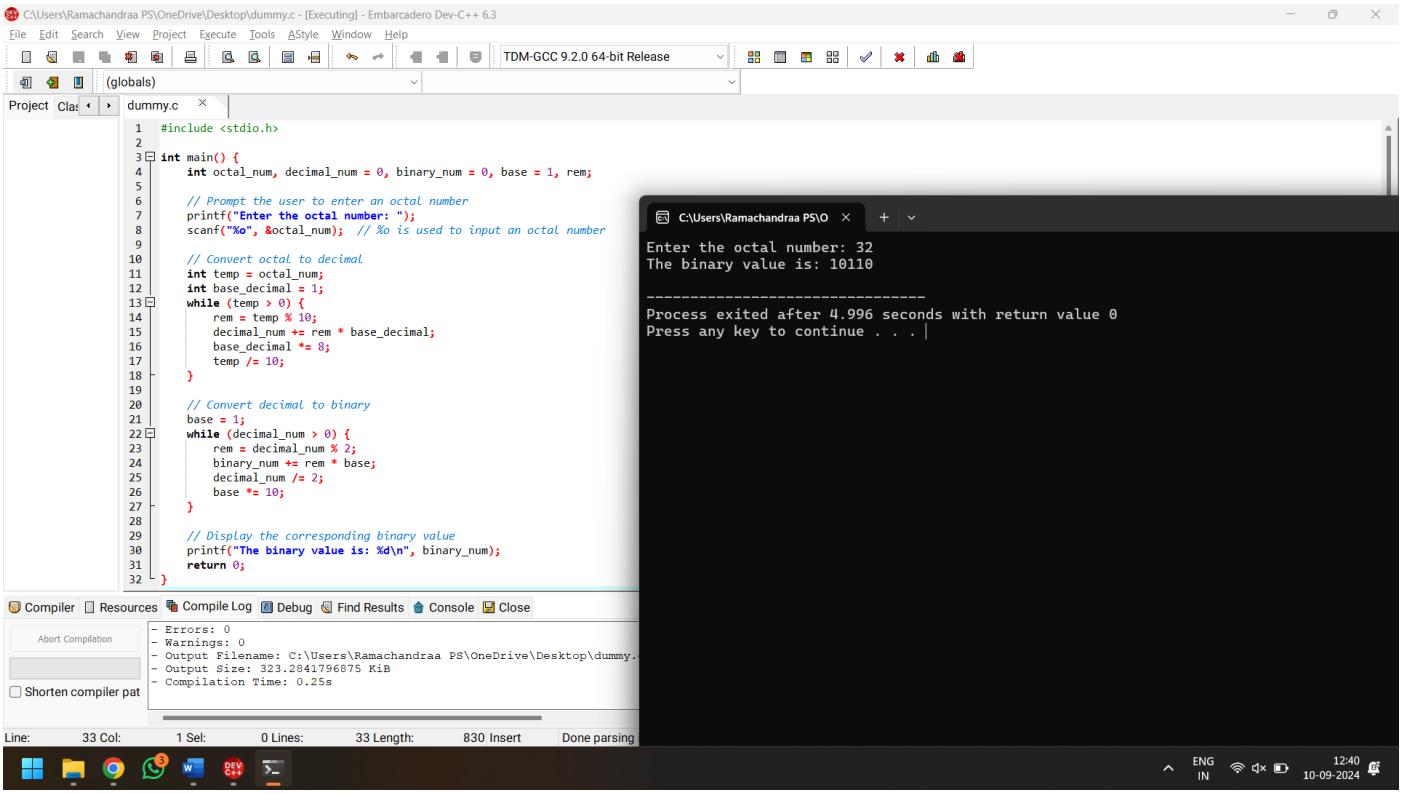
1. Start with the given octal number.
2. Convert each octal digit into its 3-bit binary equivalent:
    - 0 → 000
    - 1 → 001
    - 2 → 010
    - 3 → 011
    - 4 → 100
    - 5 → 101
    - 6 → 110
    - 7 → 111
3. Concatenate the binary values of all digits to get the final binary number.
4. Output the binary equivalent of the given octal number.

PROGRAM:

```
#include <stdio.h>


int main() {
   int octal_num, decimal_num = 0, binary_num = 0, base = 1, rem;


   // Prompt the user to enter an octal number
   printf("Enter the octal number: ");
   scanf("%o", &octal_num);  // %o is used to input an octal number


   // Convert octal to decimal
   int temp = octal_num;
   int base_decimal = 1;
   while (temp > 0) {
      rem = temp % 10;
      decimal_num += rem * base_decimal;
      base_decimal *= 8;
      temp /= 10;
   }
```

```
    // Convert decimal to binary
    base = 1;
    while (decimal_num > 0) {
        rem = decimal_num % 2;
        binary_num += rem * base;
        decimal_num /= 2;
        base *= 10;
    }

    // Display the corresponding binary value
    printf("The binary value is: %d\n", binary_num);
    return 0;
}
```

INPUT & OUTPUT:



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