TWO STAGE PIPELINE

EXP NO: 37

AIM: To write a C program to implement two stage pipelining.

PROCEDURE:

Step1:Start
Step 2: Initialize the counter variable to 1.
Step 3:.Prompt the user to enter the first number (a).
Step 4:.Read the first number (a) from the user.
Step 5:Increment the counter by 1.
Step 6:Prompt the user to enter the second number (b).
Step 7:Read the second number (b) from the user.
Step 8:.Increment the counter by 1.
Step 9:Display the menu of operations: Addition, Subtraction, Multiplication, and Division.
Step 10:Prompt the user to select an operation (choice).
Step 11:Read the choice from the user.
Step 12:Use a switch statement to perform the operation based on the selected choice:
12.1For choice 1: Perform addition (res = a + b). Increment the counter by 1.
12.2For choice 2: Perform subtraction (res = a - b). Increment the counter by 1.
12.3. For choice 3: Perform multiplication (res = a * b). Increment the counter by 1.
12.4 For choice 4: Perform division (res = a / b). Increment the counter by 1.
12.5. For any other choice: Display "Wrong input".
Step 13: Display the value of the counter (the number of cycles taken).
Step 14:Prompt the user to enter the number of instructions (ins).
Step 15:Read the number of instructions (ins) from the user.
Step 16:Calculate the performance measure by dividing the number of instructions (ins) by the counter and store it in the
performance measure variable.
Step 17:Display the performance measure
Step 18:End

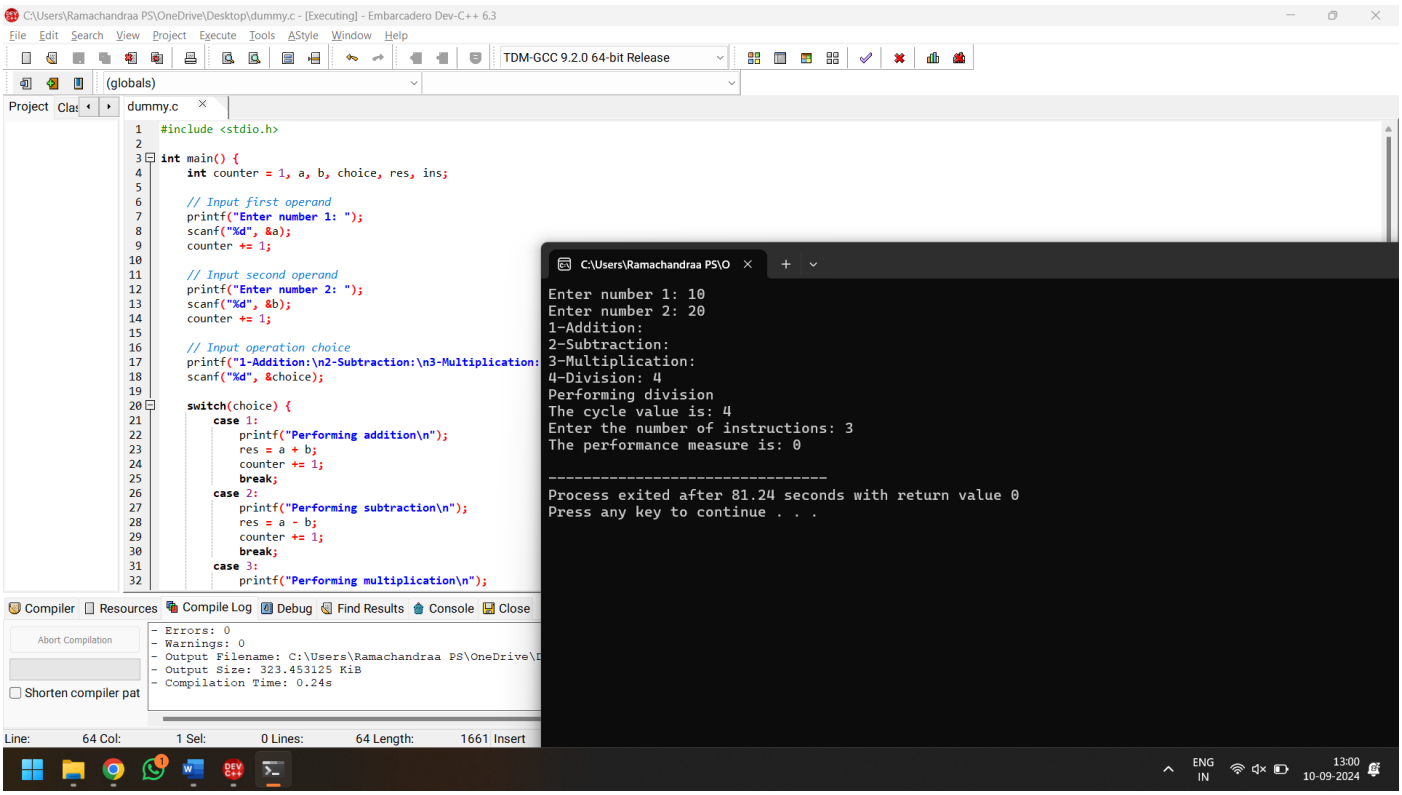
PROGRAM:

```
#include <stdio.h>


int main() {
   int counter = 1, a, b, choice, res, ins;


   // Input first operand
   printf("Enter number 1: ");
   scanf("%d", &a);
   counter += 1;


   // Input second operand
   printf("Enter number 2: ");
   scanf("%d", &b);
   counter += 1;
```

```
// Input operation choice
printf("1-Addition:\n2-Subtraction:\n3-Multiplication:\n4-Division: ");
scanf("%d", &choice);

switch(choice) {
   case 1:
      printf("Performing addition\n");
      res = a + b;
      counter += 1;
      break;
   case 2:
      printf("Performing subtraction\n");
      res = a - b;
      counter += 1;
      break;
   case 3:
      printf("Performing multiplication\n");
      res = a * b;
      counter += 1;
      break;
   case 4:
      if (b == 0) {
         printf("Division by zero is not allowed\n");
      } else {
         printf("Performing division\n");
         res = a / b;
         counter += 1;
      }
      break;
   default:
      printf("Wrong input\n");
      // No counter increment for invalid input
      break;
```

```
    }

    printf("The cycle value is: %d\n", counter);

    // Input number of instructions
    printf("Enter the number of instructions: ");
    scanf("%d", &ins);

    // Calculate performance measure
    int performance_measure = ins / counter;

    printf("The performance measure is: %d\n", performance_measure);

    return 0;
}
```

INPUT & OUTPUT:



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