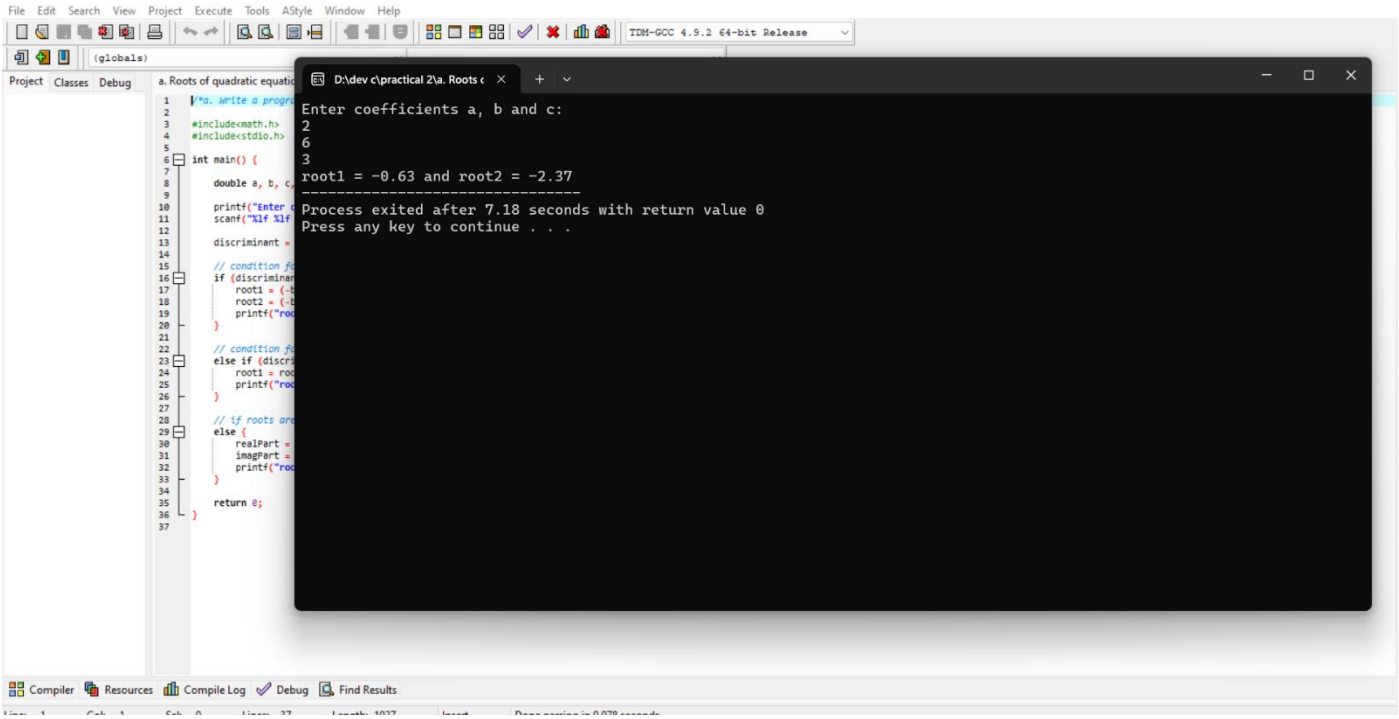
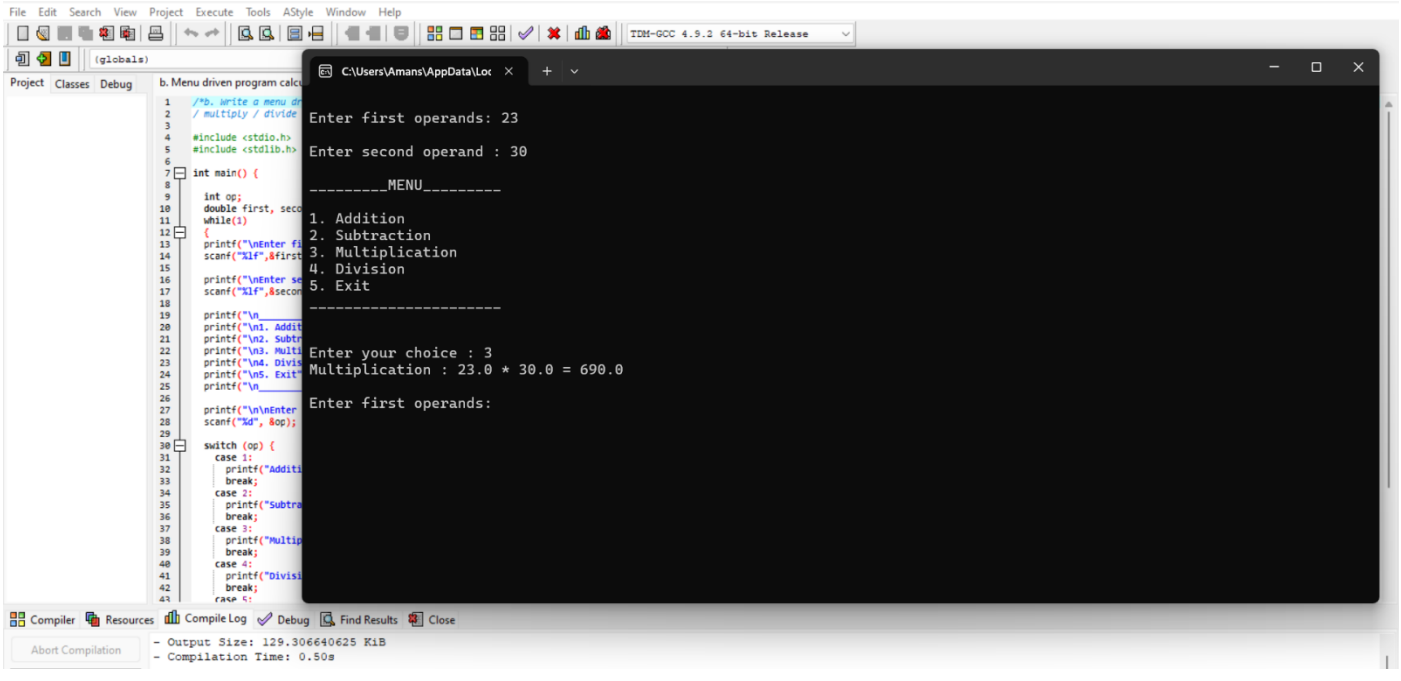
A) Roots of quadratic equation

```
include<math.h>
#include<stdio.h>

int main() {

   double a, b, c, discriminant, root1, root2, realPart, imagPart;

   printf("Enter coefficients a, b and c: ");
   scanf("%lf %lf %lf", &a, &b, &c);

   discriminant = b * b - 4 * a * c;

   // condition for real and different roots
   if (discriminant > 0) {
      root1 = (-b + sqrt(discriminant)) / (2 * a);
      root2 = (-b - sqrt(discriminant)) / (2 * a);
      printf("root1 = %.2lf and root2 = %.2lf", root1, root2);
   }

   // condition for real and equal roots
   else if (discriminant == 0) {
      root1 = root2 = -b / (2 * a);
      printf("root1 = root2 = %.2lf;", root1);
   }

   // if roots are not real
   else {
      realPart = -b / (2 * a);
      imagPart = sqrt(-discriminant) / (2 * a);
      printf("root1 = %.2lf+%.2lfi and root2 = %.2f-%.2fi", realPart, imagPart, realPart, imagPart);
   }

   return 0;
}
```



B) Menu driven program calculator

```
#include <stdio.h>
#include <stdlib.h>

int main() {

 int op;
 double first, second;
 while(1)
 {
 printf("\nEnter first operands: ");
 scanf("%lf",&first);

 printf("\nEnter second operand : ");
 scanf("%lf",&second);

 printf("\n_________MENU_________\n");
 printf("\n1. Addition");
 printf("\n2. Subtraction");
 printf("\n3. Multiplication");
 printf("\n4. Division");
 printf("\n5. Exit");
 printf("\n_____________________\n");

 printf("\n\nEnter your choice : ");
 scanf("%d", &op);

 switch (op) {
  case 1:
   printf("Addition : %.1lf + %.1lf = %.1lf\n", first, second, first + second);
   break;
  case 2:
   printf("Subtraction : %.1lf - %.1lf = %.1lf\n", first, second, first - second);
   break;
  case 3:
   printf("Multiplication : %.1lf * %.1lf = %.1lf\n", first, second, first * second);
   break;
  case 4:
   printf("Division : %.1lf / %.1lf = %.1lf\n", first, second, first / second);
   break;
  case 5:
   printf("End of the program. \nThank You !!");
   exit(0);
  // operator doesn't match any case constant
  default:
   printf("Error! operator is not correct");
 }
}
 return 0;
}
```



c)

```
#include<stdio.h>
int main(){
        int i, j, rows;
        printf("Enter the number of rows:");
        scanf("%d", &rows);
        for(i=1;i<=rows;++i){
          for(j=1;j<=i;++j){
                printf("*");
          }
         printf("\n");
    }
    return 0;
}
```