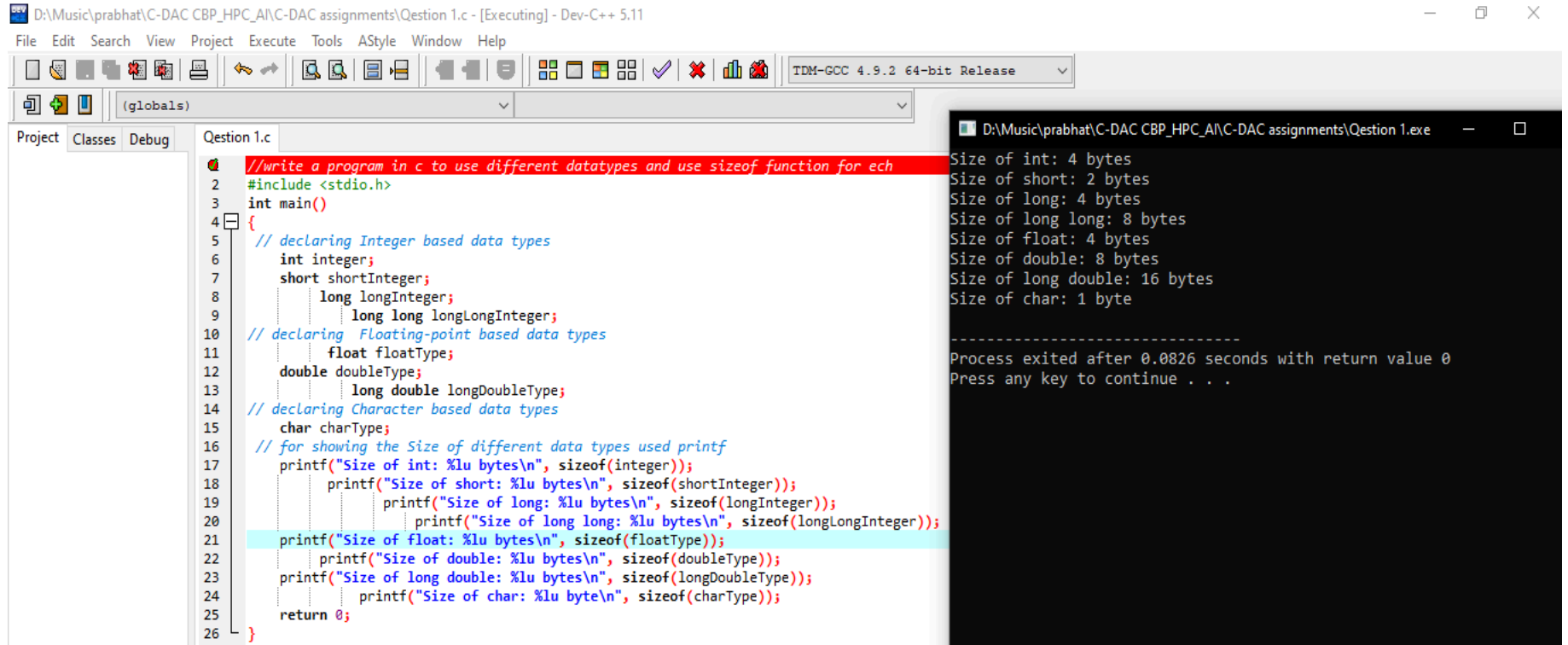


Q1. write a program in c to use different data types and use sizeof function for each



```
D:\Music\prabhat\C-DAC CBP_HPC_AI\C-DAC assignments\Question 1.c - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 4.9.2 64-bit Release
(globals)
Project Classes Debug Question 1.c
//write a program in c to use different datatypes and use sizeof function for ech
#include <stdio.h>
int main()
{
    // declaring Integer based data types
    int integer;
    short shortInteger;
    long longInteger;
    long long longLongInteger;
    // declaring Floating-point based data types
    float floatType;
    double doubleType;
    long double longDoubleType;
    // declaring Character based data types
    char charType;
    // for showing the Size of different data types used printf
    printf("Size of int: %lu bytes\n", sizeof(integer));
    printf("Size of short: %lu bytes\n", sizeof(shortInteger));
    printf("Size of long: %lu bytes\n", sizeof(longInteger));
    printf("Size of long long: %lu bytes\n", sizeof(longLongInteger));
    printf("Size of float: %lu bytes\n", sizeof(floatType));
    printf("Size of double: %lu bytes\n", sizeof(doubleType));
    printf("Size of long double: %lu bytes\n", sizeof(longDoubleType));
    printf("Size of char: %lu byte\n", sizeof(charType));
    return 0;
}
```

Size of int: 4 bytes
Size of short: 2 bytes
Size of long: 4 bytes
Size of long long: 8 bytes
Size of float: 4 bytes
Size of double: 8 bytes
Size of long double: 16 bytes
Size of char: 1 byte

Process exited after 0.0826 seconds with return value 0
Press any key to continue . . .

Q2. C program to modify the precision of float numbers

D:\Music\prabhat\C-DAC CBP_HPC_AI\C-DAC assignments\Question 2.c - [Executing] - Dev-C++ 5.11

The screenshot displays the Dev-C++ IDE interface. The main editor window shows a C program titled "Question 2.c" with the following code:

```
// C program to modify the precision of float numbers
#include <stdio.h>
int main()
{
    float floatNumber = 5689.8563214;
    // here we are Printing float value with there default precision
    printf("Float Number with default precision: %f\n", floatNumber);
    // here we are Printing Float Number with there precision of 2 decimal places
    printf("Float Number with precision of 2 decimal places: %.2f\n", floatNumber);
    //here we are Printing Float Number with there precision of 3 decimal places
    printf("Float Number with precision of 3 decimal places: %.3f\n", floatNumber);
    //here we are Printing Float Number with there precision of 4 decimal places
    printf("Float Number with precision of 4 decimal places: %.4f\n", floatNumber);
    // here we are Printing Float Number with there precision of 5 decimal places
    printf("Float Number with precision of 5 decimal places: %.5f\n", floatNumber);
    return 0;
}
```

The output window on the right shows the execution results:

```
D:\Music\prabhat\C-DAC CBP_HPC_AI\C-DAC assignments\Question 2.exe
Float value with default precision: 5689.856445
Float value with precision of 2 decimal places: 5689.86
Float value with precision of 3 decimal places: 5689.856
Float value with precision of 4 decimal places: 5689.8564
Float value with precision of 5 decimal places: 5689.85645
-----
Process exited after 0.02377 seconds with return value 0
Press any key to continue . . .
```

The bottom status bar shows the compilation results:

```
Compilation results...
-----
- Errors: 0
- Warnings: 0
- Output Filename: D:\Music\prabhat\C-DAC CBP_HPC_AI\C-DAC assignments\Question 2.exe
- Output Size: 128.431640625 KiB
- Compilation Time: 0.47s
```

Q3. write a program in c to demonstrate the following keywords (statements) switch break exit return continue (i am taking scenaro of Toasting machine)

The screenshot shows a C++ IDE with a file named "Question 3.c" open. The code is a C program that demonstrates the use of switch, break, exit, return, and continue keywords in the context of a toaster menu. The program is compiled and executed, showing the output in a separate window.

```
1 //write a program in c to demonstrate the following keywords (statements) switch break exit return continue (i am taking scenaro of Toasting machine)
2 #include <stdio.h>
3 #include <stdlib.h>
4 void toastBread(int choice) {
5     switch(choice)
6     {
7         case 1:
8             printf("Toasting bread lightly...\n");
9             break;
10        case 2:
11            printf("Toasting bread medium...\n");
12            break;
13        case 3:
14            printf("Toasting bread well done...\n");
15            break;
16        default:
17            printf("Invalid selection!\n");
18            return; // Return if choice is invalid
19    }
20    printf("Your toast is ready! Enjoy!\n");
21 }
22 int main() {
23     int option;
24     while (1) {
25         printf("Toaster Menu:\n");
26         printf("1. Light\n");
27         printf("2. Medium\n");
28         printf("3. Well Done\n");
29         printf("4. Exit\n");
30         printf("Enter your choice: ");
31         scanf("%d", &option);
32         if (option == 4) {
33             printf("Exiting toaster machine...\n");
34             break; // Exit the loop and terminate the program
35         }
36         toastBread(option);
37     }
38     return 0;
39 }
```

The execution output shows the program running and displaying the toaster menu. The user enters choices 1, 2, and 3, and the program responds accordingly. When the user enters 4, the program exits with the message "Exiting toaster machine..." and "Process exited after 10.32 seconds with return value 0".

Process exited after 10.32 seconds with return value 0

Q4.write a program in c message followed by name

The screenshot displays the Dev-C++ IDE interface. The main editor window shows a C program for Question 4.c. The code is as follows:

```
1 //write a program in c message followed by name
2 #include <stdio.h>
3 int main() {
4     char name[50];
5
6     printf("Enter the name: ");
7     scanf("%s", name);
8
9     printf("Hello, %s! Welcome to SpaceX Moon program.\n", name);
10
11     return 0;
12 }
13
```

The program is compiled and executed. The output window shows the following text:

```
D:\Music\prabhat\C-DAC CBP_HPC_AI\C-DAC assignments\Qestion 4.exe
Enter the name: Mr.Prabhat
Hello, Mr.Prabhat! Welcome to SpaceX Moon program.

-----
Process exited after 16.55 seconds with return value 0
Press any key to continue . . .
```

The compiler window at the bottom shows the compilation details:

```
- Filename: D:\Music\prabhat\C-DAC CBP_HPC_AI\C-DAC assignments\Qestion 4.c
- Compiler Name: TDM-GCC 4.9.2 64-bit Release

Processing C source file...

- C Compiler: D:\Desktop\Dev-Cpp\MinGW64\bin\gcc.exe
- Command: gcc.exe "D:\Music\prabhat\C-DAC CBP_HPC_AI\C-DAC assignments\Qestion 4.c"

Compilation results...

- Errors: 0
- Warnings: 0
Output File Name: D:\Music\prabhat\C-DAC CBP_HPC_AI\C-DAC assignments\Qestion 4.exe
```

Q5.write a program in c to use ASCII characters to display letters respectively

D:\Music\prabhat\C-DAC CBP_HPC_AI\C-DAC assignments\Question 5.c - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TDM-GCC 4.9.2 64-bit Release

(globals)

Question 1.c [*] Question 2.c Question 3.c Question 4.c Question 5.c

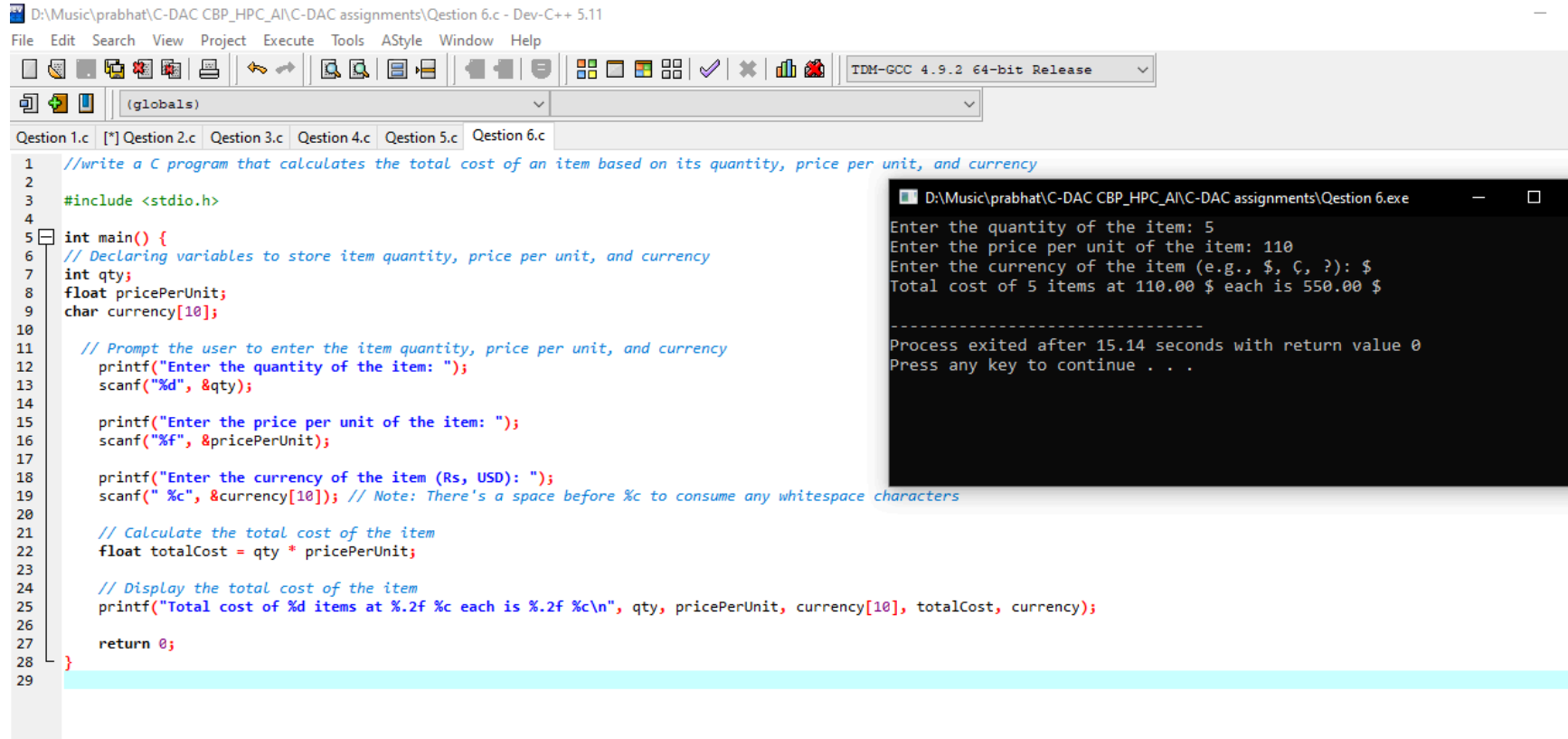
```
1 //write a program in c to use ASCII characters to display letters respectively
2 #include <stdio.h>
3
4 int main() {
5     // Declare a character variable 'ch' and assign it the value 'A'
6     char ch = 'A';
7     // Print the character and its corresponding ASCII value
8     printf("The ASCII value of '%c' is %d\n", ch, ch);
9     // Declare a character variable 'ch1' and assign it the value 'a'
10    char ch1 = 'a';
11    // Print the character and its corresponding ASCII value
12    printf("The ASCII value of '%c' is %d\n", ch1, ch1);
13    // Declare a character variable 'ch2' and assign it the value 'B'
14    char ch2 = 'B';
15    // Print the character and its corresponding ASCII value
16    printf("The ASCII value of '%c' is %d\n", ch2, ch2);
17    // Declare a character variable 'ch3' and assign it the value 'b'
18    char ch3 = 'b';
19    // Print the character and its corresponding ASCII value
20    printf("The ASCII value of '%c' is %d\n", ch3, ch3);
21    // Declare a character variable 'ch4' and assign it the value 'C'
22    char ch4 = 'C';
23    // Print the character and its corresponding ASCII value
24    printf("The ASCII value of '%c' is %d\n", ch4, ch4);
25    // Declare a character variable 'ch5' and assign it the value 'c'
26    char ch5 = 'c';
27    // Print the character and its corresponding ASCII value
28    printf("The ASCII value of '%c' is %d\n", ch5, ch5);
29    // Declare a character variable 'ch6' and assign it the value '5'
30    char ch6 = '5';
31    // Print the character and its corresponding ASCII value
32    printf("The ASCII value of '%c' is %d\n", ch6, ch6);
33    return 0;
34 }
```

D:\Music\prabhat\C-DAC CBP_HPC_AI\C-DAC assignments\Question 5.c

```
The ASCII value of 'A' is 65
The ASCII value of 'a' is 97
The ASCII value of 'B' is 66
The ASCII value of 'b' is 98
The ASCII value of 'C' is 67
The ASCII value of 'c' is 99
The ASCII value of '5' is 53
```

```
-----
Process exited after 0.0734 seconds with return
Press any key to continue . . .
```

Q6.write a C program that calculates the total cost of an item based on its quantity, price per unit, and currency



The image shows a screenshot of a C program being written in Dev-C++ and its execution output. The program is titled "Question 6.c" and is located at "D:\Music\prabhat\C-DAC CBP_HPC_AI\C-DAC assignments\Question 6.c - Dev-C++ 5.11". The program prompts the user to enter the quantity, price per unit, and currency, and then calculates the total cost.

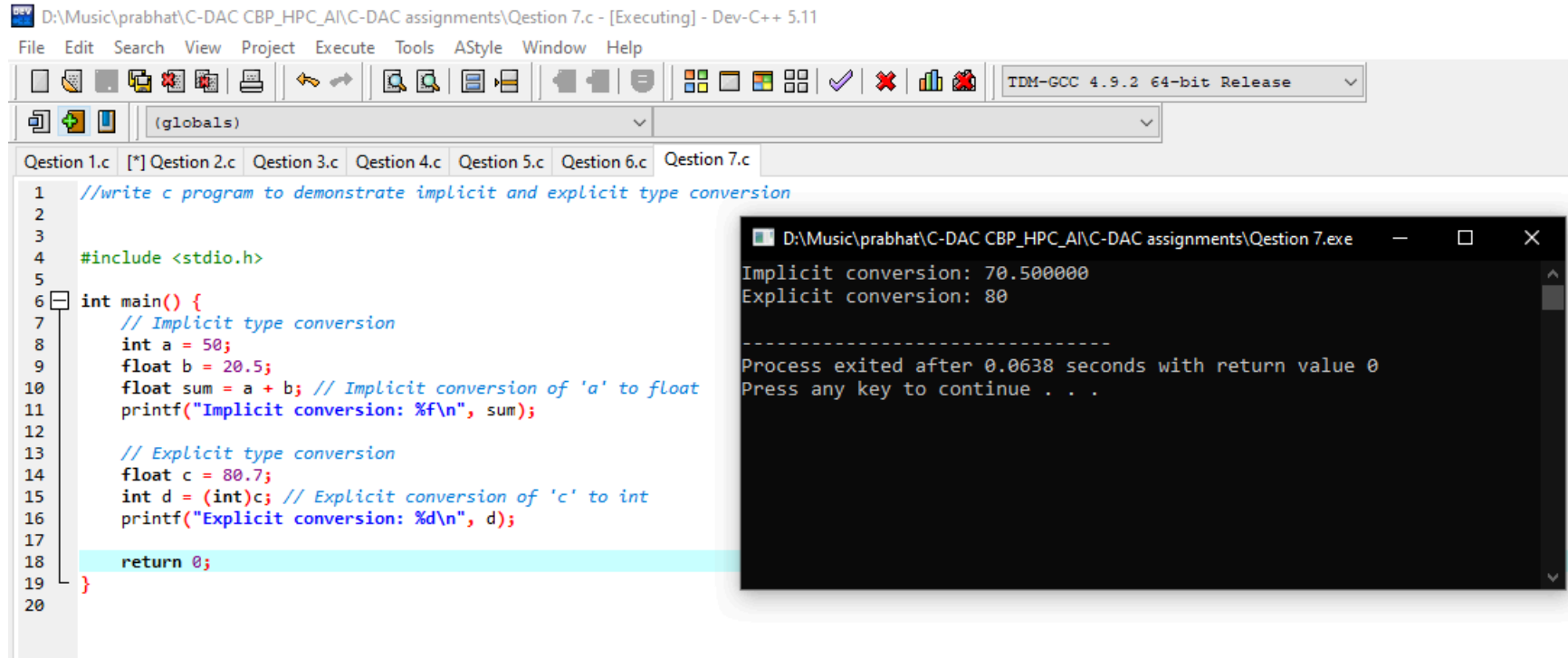
```
1 //write a C program that calculates the total cost of an item based on its quantity, price per unit, and currency
2
3 #include <stdio.h>
4
5 int main() {
6     // Declaring variables to store item quantity, price per unit, and currency
7     int qty;
8     float pricePerUnit;
9     char currency[10];
10
11     // Prompt the user to enter the item quantity, price per unit, and currency
12     printf("Enter the quantity of the item: ");
13     scanf("%d", &qty);
14
15     printf("Enter the price per unit of the item: ");
16     scanf("%f", &pricePerUnit);
17
18     printf("Enter the currency of the item (Rs, USD): ");
19     scanf(" %c", &currency[10]); // Note: There's a space before %c to consume any whitespace characters
20
21     // Calculate the total cost of the item
22     float totalCost = qty * pricePerUnit;
23
24     // Display the total cost of the item
25     printf("Total cost of %d items at %.2f %c each is %.2f %c\n", qty, pricePerUnit, currency[10], totalCost, currency);
26
27     return 0;
28 }
29
```

The execution output shows the program running and displaying the results:

```
D:\Music\prabhat\C-DAC CBP_HPC_AI\C-DAC assignments\Question 6.exe
Enter the quantity of the item: 5
Enter the price per unit of the item: 110
Enter the currency of the item (e.g., $, €, ?): $
Total cost of 5 items at 110.00 $ each is 550.00 $

-----
Process exited after 15.14 seconds with return value 0
Press any key to continue . . .
```

Q7.write c program to demonstrate implicit and explicit type conversion



The screenshot displays the Dev-C++ IDE interface. The title bar indicates the file path: D:\Music\prabhat\C-DAC CBP_HPC_AI\C-DAC assignments\Qestion 7.c - [Executing] - Dev-C++ 5.11. The menu bar includes File, Edit, Search, View, Project, Execute, Tools, AStyle, Window, and Help. The toolbar contains various icons for file operations, compilation, and execution. The variable list at the bottom shows a global variable 'sum' of type 'float'. The main window displays the C program code, which is as follows:

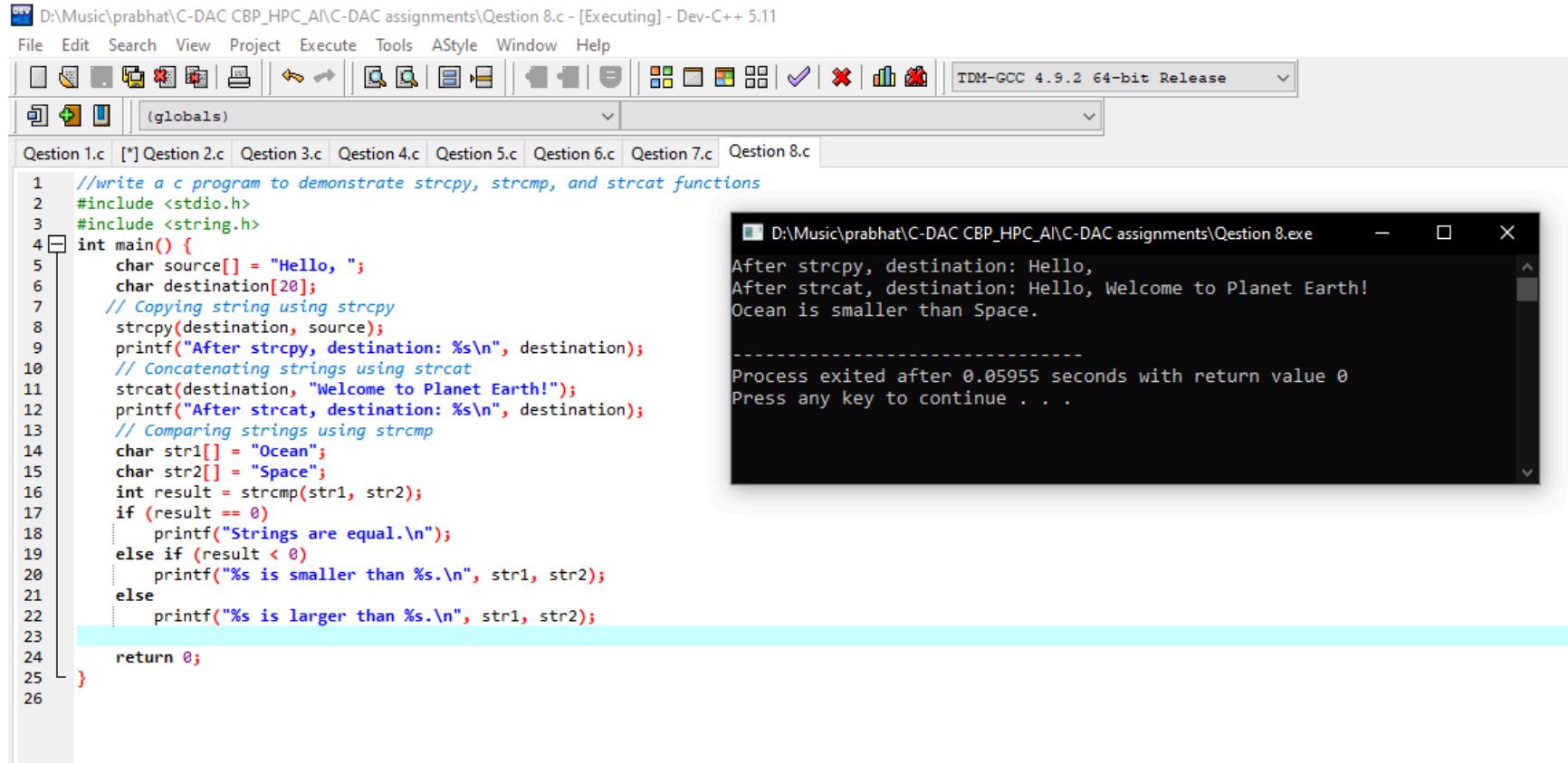
```
1 //write c program to demonstrate implicit and explicit type conversion
2
3
4 #include <stdio.h>
5
6 int main() {
7     // Implicit type conversion
8     int a = 50;
9     float b = 20.5;
10    float sum = a + b; // Implicit conversion of 'a' to float
11    printf("Implicit conversion: %f\n", sum);
12
13    // Explicit type conversion
14    float c = 80.7;
15    int d = (int)c; // Explicit conversion of 'c' to int
16    printf("Explicit conversion: %d\n", d);
17
18    return 0;
19 }
20
```

The output window, titled "D:\Music\prabhat\C-DAC CBP_HPC_AI\C-DAC assignments\Qestion 7.exe", shows the program's execution results:

```
Implicit conversion: 70.500000
Explicit conversion: 80

-----
Process exited after 0.0638 seconds with return value 0
Press any key to continue . . .
```

Q8.write a c program to demonstrate strcpy, strcmp, and strcat functions



The image shows a screenshot of a C program being written in Dev-C++ and its execution output. The program demonstrates the use of `strcpy`, `strcat`, and `strcmp` functions.

Source Code (Question 8.c):

```
1 //write a c program to demonstrate strcpy, strcat, and strcmp functions
2 #include <stdio.h>
3 #include <string.h>
4 int main() {
5     char source[] = "Hello, ";
6     char destination[20];
7     // Copying string using strcpy
8     strcpy(destination, source);
9     printf("After strcpy, destination: %s\n", destination);
10    // Concatenating strings using strcat
11    strcat(destination, "Welcome to Planet Earth!");
12    printf("After strcat, destination: %s\n", destination);
13    // Comparing strings using strcmp
14    char str1[] = "Ocean";
15    char str2[] = "Space";
16    int result = strcmp(str1, str2);
17    if (result == 0)
18        printf("Strings are equal.\n");
19    else if (result < 0)
20        printf("%s is smaller than %s.\n", str1, str2);
21    else
22        printf("%s is larger than %s.\n", str1, str2);
23
24    return 0;
25 }
26
```

Execution Output (Question 8.exe):

```
D:\Music\prabhat\C-DAC CBP_HPC_AI\C-DAC assignments\Question 8.exe
After strcpy, destination: Hello,
After strcat, destination: Hello, Welcome to Planet Earth!
Ocean is smaller than Space.

-----
Process exited after 0.05955 seconds with return value 0
Press any key to continue . . .
```


Q9.writeC program to add elements of a 2D array

D:\Music\prabhat\C-DAC CBP_HPC_AI\C-DAC assignments\Untitled9.c - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

(globals) TDM-GCC 4.9.2 64-bit Release

Question 1.c [*] Question 2.c Question 3.c Question 4.c Question 5.c Question 6.c Question 7.c Question 8.c [*] Untitled9.c

```
1 //C program to add elements of a 2D array
2 #include <stdio.h>
3 #define ROWS 3
4 #define COLS 3
5 int main() {
6     int matrix1[ROWS][COLS];
7     int matrix2[ROWS][COLS];
8     int result[ROWS][COLS];
9     int i, j;
10    // Input elements for matrix1
11    printf("Enter elements for matrix1:\n");
12    for (i = 0; i < ROWS; i++) {
13        for (j = 0; j < COLS; j++) {
14            printf("Enter element [%d][%d]: ", i, j);
15            scanf("%d", &matrix1[i][j]);
16        }
17    } // Input elements for matrix2
18    printf("\nEnter elements for matrix2:\n");
19    for (i = 0; i < ROWS; i++) {
20        for (j = 0; j < COLS; j++) {
21            printf("Enter element [%d][%d]: ", i, j);
22            scanf("%d", &matrix2[i][j]);
23        }
24    } // Perform addition and store the result in the third array
25    for (i = 0; i < ROWS; i++) {
26        for (j = 0; j < COLS; j++) {
27            result[i][j] = matrix1[i][j] + matrix2[i][j];
28        }
29    }
30    // Display the result
31    printf("\nResultant matrix after addition:\n");
32    for (i = 0; i < ROWS; i++) {
33        for (j = 0; j < COLS; j++) {
34            printf("%d ", result[i][j]);
35        }
36        printf("\n");
37    } return 0;
38 }
```

D:\Music\prabhat\C-DAC CBP_HPC_AI\C-DAC assignments\Untitled9.exe

Enter elements for matrix1:

Enter element [0][0]: 2 2

Enter element [0][1]: Enter element [0][2]: 1 2

Enter element [1][0]: Enter element [1][1]: 2 3

Enter element [1][2]: Enter element [2][0]: 4 5

Enter element [2][1]: Enter element [2][2]: 5 6

Enter elements for matrix2:

Enter element [0][0]: Enter element [0][1]: 7 7

Enter element [0][2]: Enter element [1][0]: 7 8

Enter element [1][1]: Enter element [1][2]: 9 4

Enter element [2][0]: Enter element [2][1]: 5 7

Enter element [2][2]:

Resultant matrix after addition:

8 9 8

9 10 12

8 10 12

Process exited after 66.1 seconds with return value 0

Press any key to continue . . .

Activate Windows
Go to Settings to activate Windows.

Q10. write c program to swap a 2 numbers with using temporary variable and without using temporary variable

D:\Music\prabhat\C-DAC CBP_HPC_AI\C-DAC assignments\Untitled10.c - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TDM-GCC 4.9.2 64-bit Release

(globals)

Question 1.c [*] Question 2.c Question 3.c Question 4.c Question 5.c Question 6.c Question 7.c Question 8.c [*] Untitled9.c Untitled10.c [*] Untitled11

```
1 //c code to swap a 2 numbers with using temporary variable and without using temporary variable
2 //temporary variable
3 #include <stdio.h>
4 int main() {
5     int num1, num2, temp;
6     // Input two numbers
7     printf("Enter two numbers: ");
8     scanf("%d %d", &num1, &num2);
9     // Swap using a temporary variable
10    temp = num1;
11    num1 = num2;
12    num2 = temp;
13    // Output the swapped numbers
14    printf("After swapping:\n");
15    printf("First number: %d\n", num1);
16    printf("Second number: %d\n", num2);
17    return 0;
18 }
19
20
```

D:\Music\prabhat\C-DAC CBP_HPC_AI\C-DAC assignments\Untitled10.exe

Enter two numbers: 5 8
After swapping:
First number: 8
Second number: 5

Process exited after 6.626 seconds with return value 0
Press any key to continue . . .

D:\Music\prabhat\C-DAC CBP_HPC_AI\C-DAC assignments\Untitled11.c - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help



TDM-GCC 4.9.2 64-bit Release

(globals)

Question 1.c [*] Question 2.c Question 3.c Question 4.c Question 5.c Question 6.c Question 7.c Question 8.c [*] Untitled9.c Untitled10.c Untitled11.c

```
1 //c code to swap a 2 numbers with using temporary variable and without using temporary variable
2 //without temporary variable
3 #include <stdio.h>
4
5 int main() {
6     int num1, num2;
7     // Input two numbers
8     printf("Enter two numbers: ");
9     scanf("%d %d", &num1, &num2);
10    // Swap without using a temporary variable
11    num1 = num1 + num2;
12    num2 = num1 - num2;
13    num1 = num1 - num2;
14    // Output the swapped numbers
15    printf("After swapping:\n");
16    printf("First number: %d\n", num1);
17    printf("Second number: %d\n", num2);
18    return 0;}
```

D:\Music\prabhat\C-DAC CBP_HPC_AI\C-DAC assignments\Untitled11.exe

Enter two numbers: 21 65

After swapping:

First number: 65

Second number: 21

Process exited after 5.892 seconds with return value 0

Press any key to continue . . .