Day 8 Documentation

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BDCOM0019

1. Exercise 1.15:

Problem: Rewrite the temperature conversion program of Section 1.2 to use a function For conversion.

Solution: temperature conversion program of Section 1.2 was given bellow:

```
#include <stdio.h>
    /* print Fahrenheit-Celsius table
    for fahr = 0, 20, ..., 300; floating-point version */
    main()
    {
        float fahr, celsius;
        float lower, upper, step;
        lower = 0; /* lower limit of temperatuire scale */
        upper = 300; /* upper limit */
        step = 20; /* step size */
        fahr = lower;
        while (fahr <= upper) {
            celsius = (5.0/9.0) * (fahr-32.0);
            printf("%3.0f %6.1f\n", fahr, celsius);
            fahr = fahr + step;
        }
    }
```

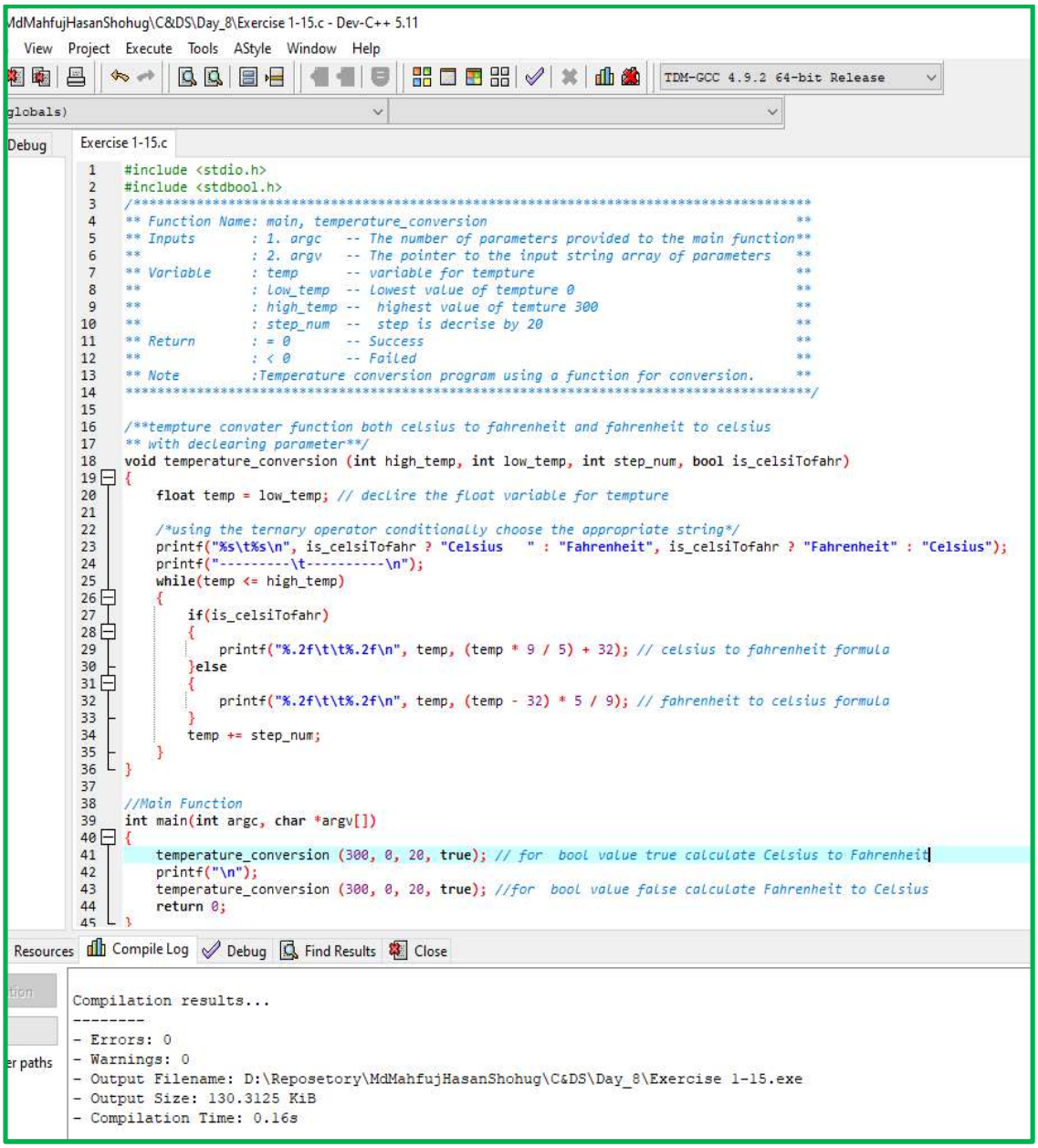
For this temperature conversation in my program I am using one function called “temperature_conversion” which one can convert both calculation Celsius to Fahrenheit and Fahrenheit to Celsius by calling function from the main function. Using a specified temperature range and step size, this application intends to display temperature conversion tables for Celsius to Fahrenheit and Fahrenheit to Celsius. The output will be a structured table with temperature values and their converted equivalents.

The function temperature_conversion calculate this two equation:

1 – For Celsius to Fahrenheit -> (temp * 9 / 5) + 32)

2 – For Fahrenheit to Celsius -> (temp - 32) * 5 / 9)

Source code is here:



Here is this code the temperature_conversion function's internal structure low_temp is used as the initial value of the temp variable. Based on the is_celsiTofahr argument, the table headers are produced, showing the relevant column headers. The supplied step_num is used in a while loop to iterate through the temperature range from low_temp to high_temp. Based on the is_celsiTofahr parameter, the temperature value and its converted value are printed in the loop in a formatted manner. Each repetition increases the temp value by step_num.

In the main function the temperature_conversion function called two times, once with is_celsiTofahr set to true (for converting from Celsius to Fahrenheit) and once with is_celsiTofahr set to false (for converting from Fahrenheit to Celsius). The temperature range (300 to 0), step size (20), and conversion direction are all provided by the function calls. Between the two sets of temperature conversion tables, a newline character is printed. The main function returns 0, indicating that the program has run successfully.

Here is the sample of the output on this code.