



Green University of Bangladesh
Department of Computer Science and Engineering (CSE)
Faculty of Sciences and Engineering
Semester: (Spring, Year:2022), B.Sc. in CSE (Day)

LAB REPORT NO -02
Course Title: Structured Programming Lab
Course Code: CSE 104 Section: PC-213DB

Lab Experiment Name:

1. Write a C Program to Calculate the Area of a Square, take the length of one side as user input.
2. Write a C program to enter temperature in °Celsius and convert it into °Fahrenheit.
3. Write a C program to enter the temperature in Fahrenheit(°F) and convert it into Celsius(°C).
4. Write a C program to enter marks of five subjects and calculate total and average marks.

Student Details

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Lab Date : 12.02.22
Submission Date : 18.02.22 (11.59 PM)
Course Teacher's Name : Md.Solaiman Mia

[For Teachers use only: **Don't Write Anything inside this box**]

<u>Project Proposal Status</u>	
Marks:	Signature:
Comments:	Date:

Problem 01

1. TITLE OF THE LAB EXPERIMENT:

Write a C Program to Calculate the Area of a Square, take the length of one side as user input.

2. OBJECTIVES:

Our object is to take the input length of the area, the calculate the area.

3. PROCEDURE / ANALYSIS / DESIGN :

Algorithm:

Step 1: Start

Step 2: Declare the variables length, area.

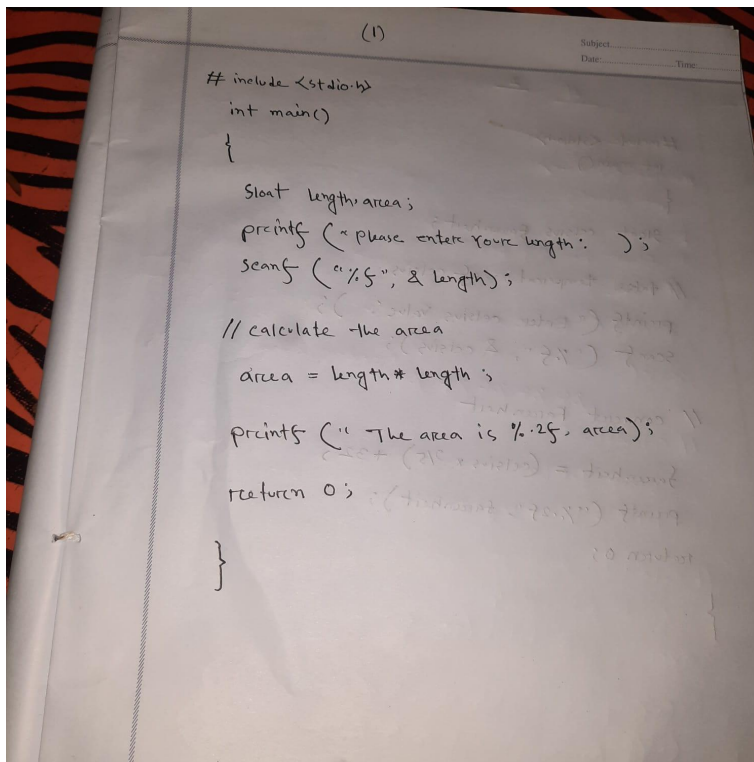
Step 3: Read the values for length.

Step 4: calculate the area ($\text{area} = \text{length} * \text{length}$)

Step 5: Display the area

Step 6: End

4. IMPLEMENTATION:



The image shows a handwritten C program on a piece of paper. The code is as follows:

```
(1)
#include <stdio.h>
int main()
{
    float length, area;
    printf ("Please enter your length: ");
    scanf ("%f", &length);
    // calculate the area
    area = length * length;
    printf ("The area is %.2f, area);
    return 0;
}
```

The code is written in a cursive, handwritten style. There are some faint annotations and corrections visible, such as "float" being written over "int" for the variables, and "area" being written over "length" in the printf statement. The paper has a header with "Subject", "Date", and "Time" fields, which are mostly blank.

5. OUTPUTS:

```
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS F:\Programming Lab> cd "f:\Programming Lab\3rd lab\" ; if ($?) { gcc arithmetic.c
please enter your length 7.7
The area is 59.29
PS F:\Programming Lab\3rd lab> 
```

6. ANALYSIS AND DISCUSSION:

In this program, we take the two variables length and area respectively. Then we take length input from the users and then we display the area of the square. We know the area of square=length+length. So if we are able to take one side of length, then we will calculate the area .and that we did it.

Problem 02

1. TITLE OF THE LAB EXPERIMENT:

Write a C program to enter temperature in °Celsius and convert it into °Fahrenheit.

2. OBJECTIVES:

Our object is to take the input celsius temperature, then convert the celsius into Fahrenheit.

3. PROCEDURE / ANALYSIS / DESIGN:

Algorithm:

Step 1: Start

Step 2: Declare the variables celsius, fahrenheit.

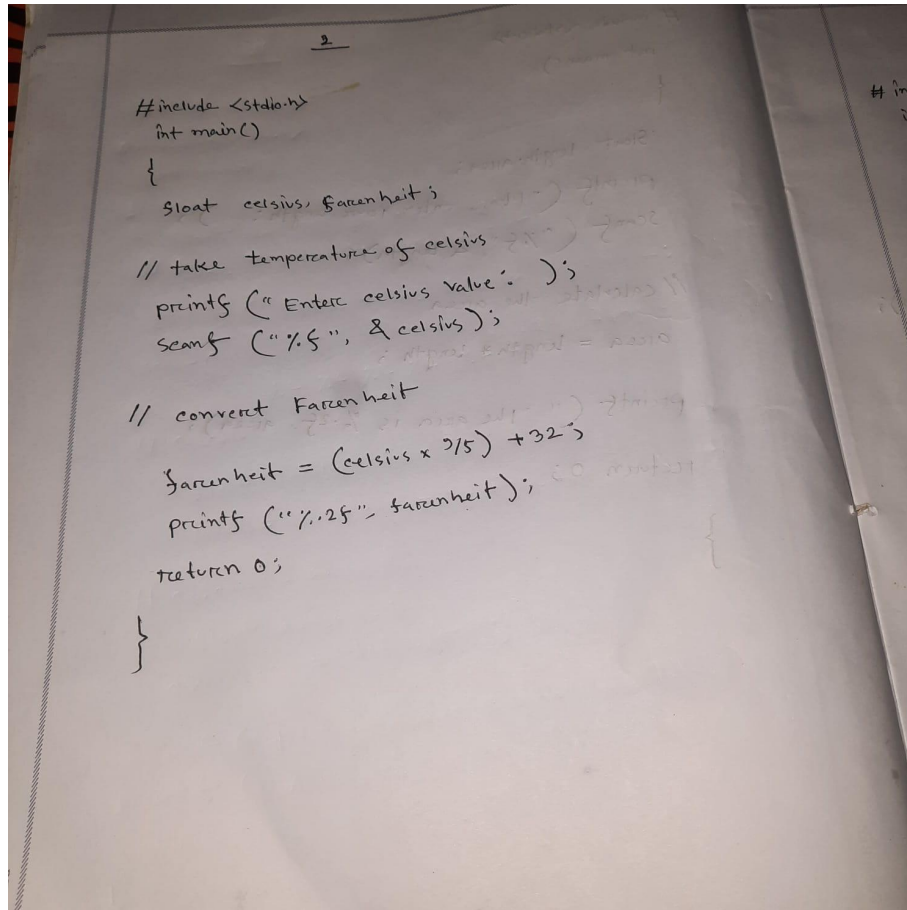
Step 3: Read the values for celsius.

Step 4 : calculate the temperature ($\text{fahrenheit} = (\text{celsius} * 9/5) + 32$)

Step 5 : Display fahrenheit

Step 6 : End

4. IMPLEMENTATION:



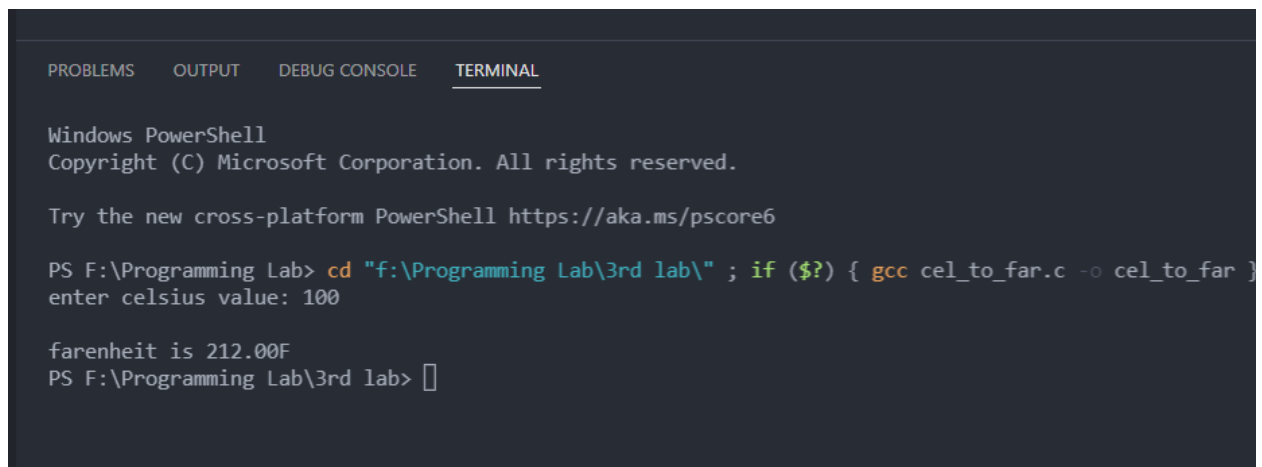
A photograph of a piece of paper with handwritten C code. The code is for a program that takes a Celsius temperature and converts it to Fahrenheit. The code is written in black ink and includes comments. The code is as follows:

```
#include <stdio.h>
int main()
{
    float celsius, fahrenheit;

    // take temperature of celsius
    printf("Enter celsius value: ");
    scanf("%f", &celsius);

    // convert Fahrenheit
    fahrenheit = (celsius * 9/5) + 32;
    printf("%.2f", fahrenheit);
    return 0;
}
```

5. OUTPUTS:



A screenshot of a Windows PowerShell terminal window. The window has tabs for 'PROBLEMS', 'OUTPUT', 'DEBUG CONSOLE', and 'TERMINAL', with 'TERMINAL' being the active tab. The terminal shows the execution of a C program that converts Celsius to Fahrenheit. The user enters '100' for the Celsius value, and the program outputs 'fahrenheit is 212.00F'.

```
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS F:\Programming Lab> cd "f:\Programming Lab\3rd lab\" ; if ($?) { gcc cel_to_far.c -o cel_to_far }
enter celsius value: 100

fahrenheit is 212.00F
PS F:\Programming Lab\3rd lab> 
```

6. ANALYSIS AND DISCUSSION:

In this program, we take the two variables Celsius and Fahrenheit respectively. Then we take Celsius temperature and we know $\text{fahrenheit} = (\text{celsius} * 9/5) + 32$. We apply the Fahrenheit formula for converting Celsius into Fahrenheit. Then we print the Fahrenheit temperature.

Problem 03

1. TITLE OF THE LAB EXPERIMENT:

Write a C program to enter the temperature in Fahrenheit($^{\circ}\text{F}$) and convert it into Celsius($^{\circ}\text{C}$).

2. OBJECTIVES:

Our object is to take the input Fahrenheit temperature, then convert the Fahrenheit into Celsius.

3. PROCEDURE / ANALYSIS / DESIGN:

Algorithm:

Step 1: Start

Step 2: Declare the variables celsius, fahrenheit.

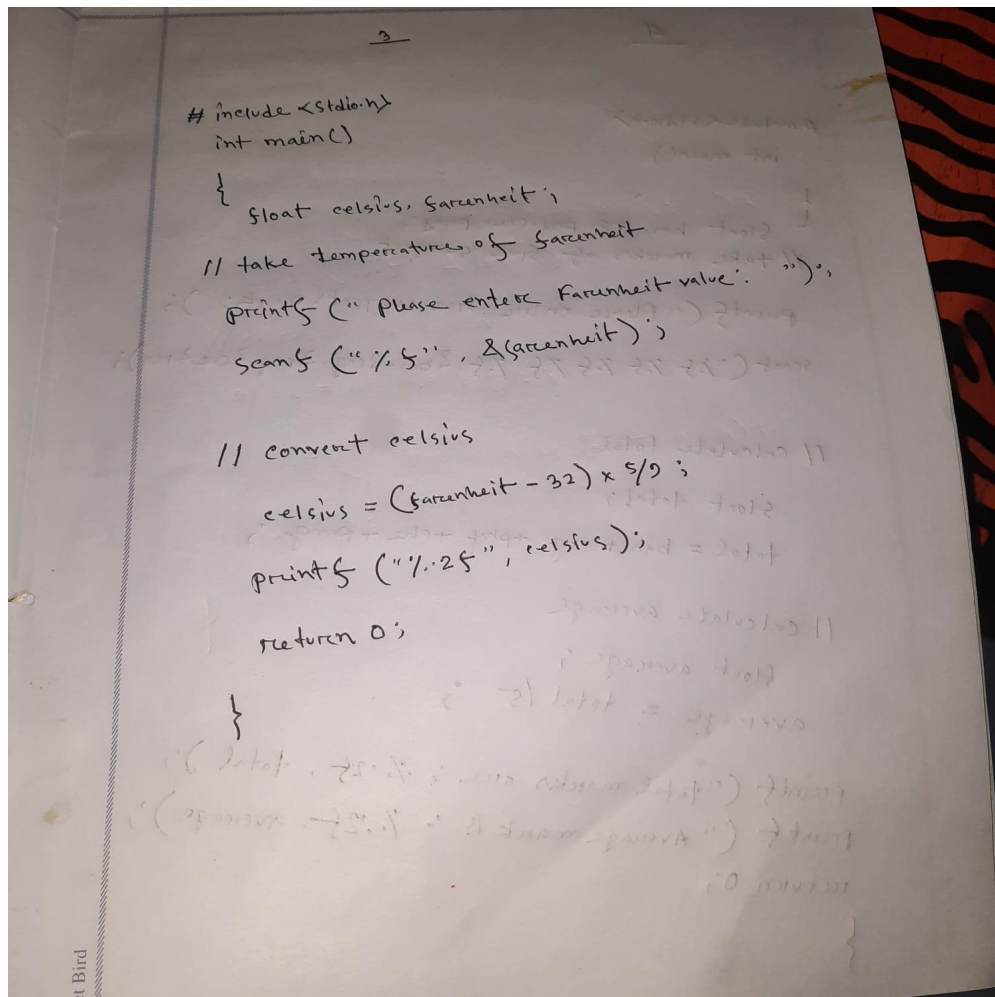
Step 3: Read the values for fahrenheit.

Step 4 : calculate the temperature (celsius = (fahrenheit - 32) * 5/9)

Step 5 : Display Celsius

Step 6 : End

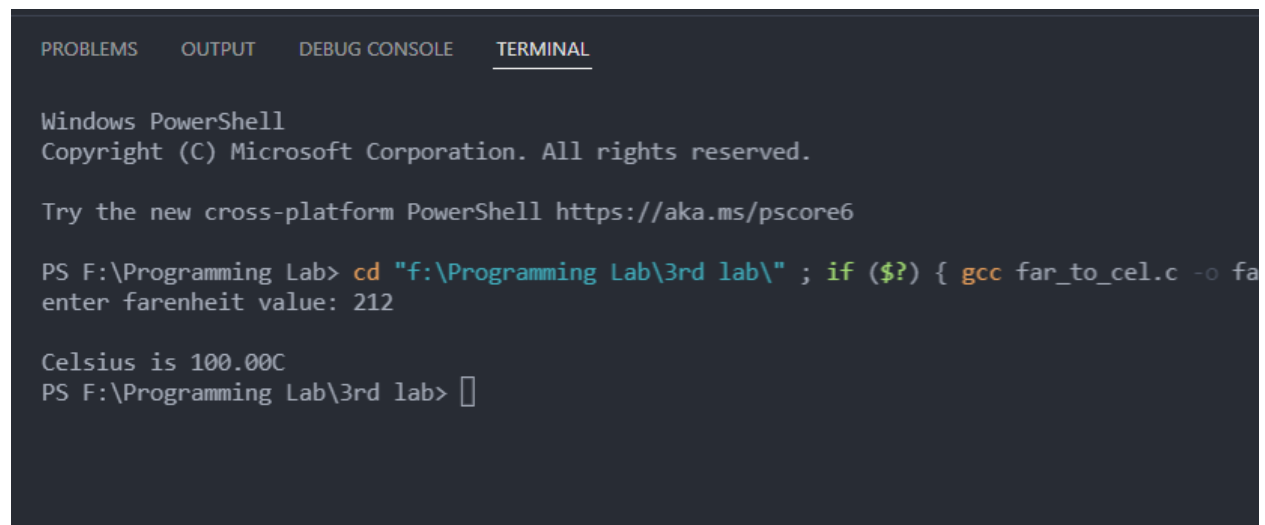
4. IMPLEMENTATION:



```
#include <iostream>
int main()
{
    float celsius, fahrenheit;
    // take temperatures of fahrenheit
    printf("Please enter Fahrenheit value: ");
    scanf("%f", &fahrenheit);

    // convert celsius
    celsius = (fahrenheit - 32) * 5/9;
    printf("%.2f", celsius);
    return 0;
}
```


5. OUTPUTS:



```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL

Windows PowerShell
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PS F:\Programming Lab> cd "f:\Programming Lab\3rd lab\" ; if ($?) { gcc far_to_cel.c -o fa
enter farenheit value: 212

Celsius is 100.00C
PS F:\Programming Lab\3rd lab> 
```

6. ANALYSIS AND DISCUSSION:

In this program, we take the two variables Celsius and Fahrenheit respectively. Then we take Fahrenheit temperature and we know $\text{celsius} = (\text{Fahrenheit} - 32) * 5/9$. We apply the Celsius formula for converting Fahrenheit into Celsius. Then we print the Celsius temperature.

Problem 04

1. TITLE OF THE LAB EXPERIMENT:

Write a C program to enter marks of five subjects and calculate total and average marks.

2. OBJECTIVES:

Our object is to take the input marks of bang,eng,phy,che,prog, then calculate the total marks and average mark.

3. PROCEDURE / ANALYSIS / DESIGN :

Algorithm :

Step 1: Start

Step 2: Declare variable ban,eng,phy,che,prog.

Step 3: Read the values for ban,eng,phy,che,prog.

Step 4:Declare variable total,average;

Step 5: Calculate total (total = (bang+eng+phy+che+prog))

Step 6: Calculate average (average = (total / 5))

Step 7:Display total and average.

Step 8: End

4. IMPLEMENTATION:

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```
#include <stdio.h>
int main()
{
    float bm, eng, phy, che, prog;
    // take marks of five subject
    printf("Please enter five subjects mark: ");
    scanf("%f %f %f %f %f", &bm, &eng, &phy, &che, &prog);

    // calculate total
    float total;
    total = bm + eng + phy + che + prog;

    // calculate average
    float average;
    average = total / 5;

    printf("Total marks are : %.2f, total");
    printf("Average mark is : %.2f, average");
    return 0;
}
```

5. OUTPUTS:

```
BLEMS    OUTPUT    DEBUG CONSOLE    TERMINAL

Windows PowerShell
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F:\Programming Lab> cd "f:\Programming Lab\3rd lab\" ; if ($?) { gcc r
ase enter the five subjects mark 60

al marks are 359.00average mark is 71.80
F:\Programming Lab\3rd lab> 
```

6. ANALYSIS AND DISCUSSION:

In this program, we take five variables for five subjects like bang,eng,phy,che,prog Then we take input marks from users. after that, we add all subject marks and we finish the program with the average of the marks.