Sri Lanka Institute of Information Technology

IT2130 – Operating Systems and System Administration
Year 2, Semester 2- 2026

Practical Answer Submission

Practical Sheet No: 02

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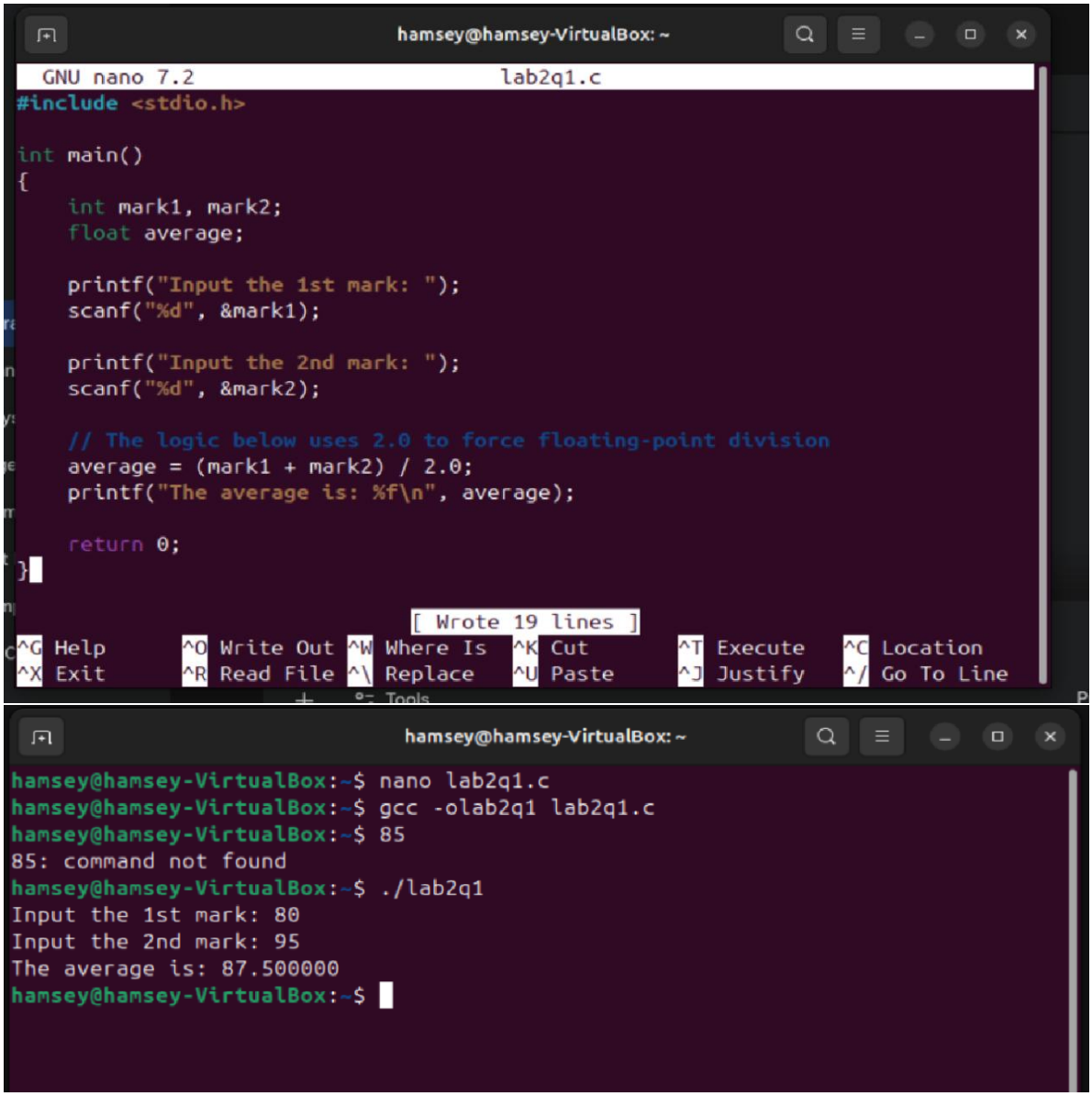
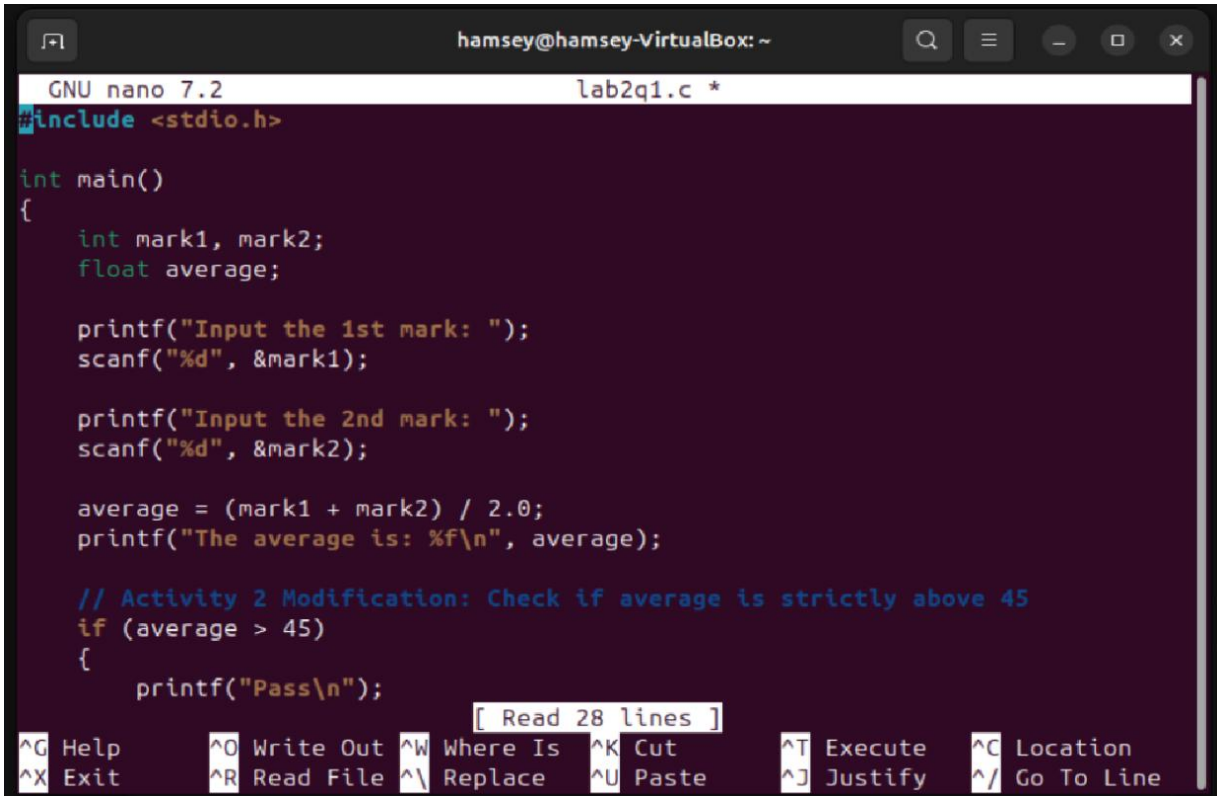
Specialization	AI
Batch No	1

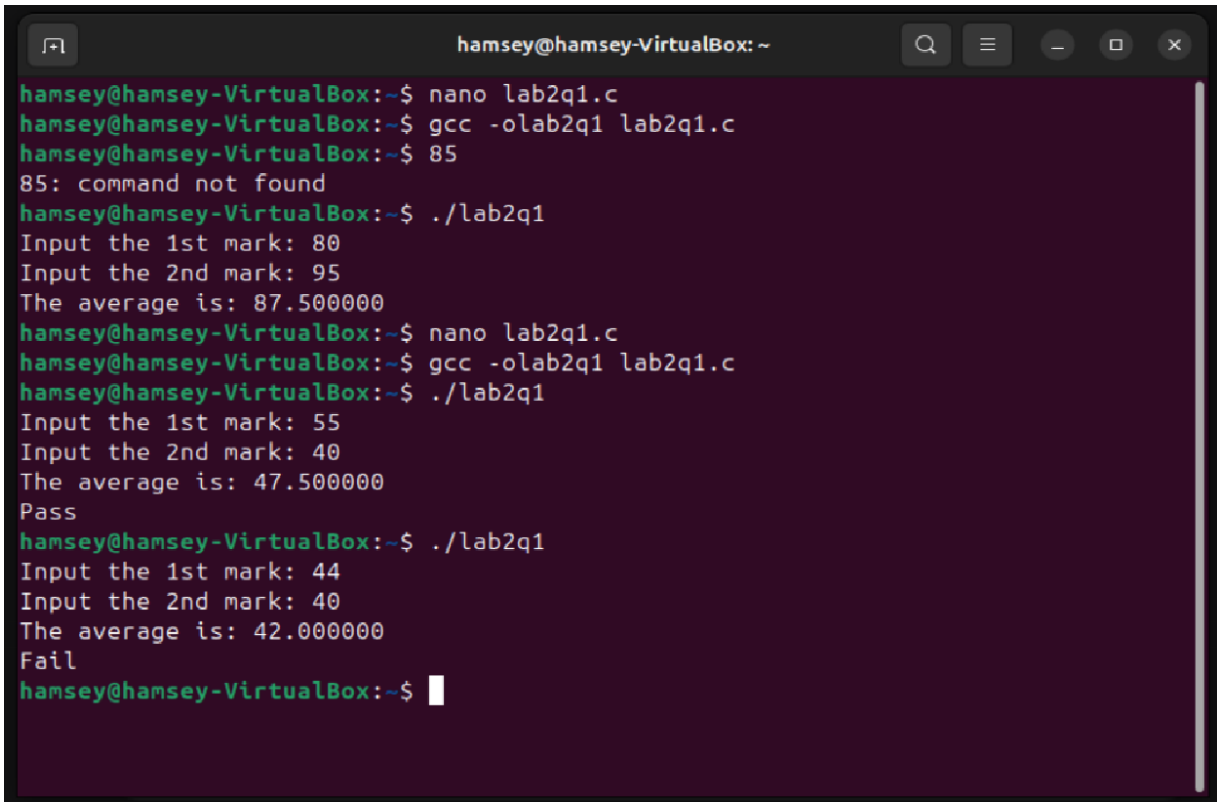
Activity 01



The program functions by accepting two integer inputs from the user, which are stored in the variables mark1 and mark2. It then calculates the average by summing these marks and dividing the total by 2.0. The key observation here is the use of 2.0 instead of 2; this explicitly instructs the program to perform floating-point division rather than integer division. Because one of the numbers in the calculation is a float, the integer sum is automatically promoted to a float type before the division occurs. As a result, the final output is a precise decimal value (for example, 87.500000) rather than a truncated whole number, ensuring that the average is calculated accurately even if the sum is an odd number.

Activity 02


hamsey@hamsey-VirtualBox: ~
GNU nano 7.2 lab2q1.c *
#include <stdio.h>
int main()
{
int mark1, mark2;
float average;
printf("Input the 1st mark: ");
scanf("%d", &mark1);
printf("Input the 2nd mark: ");
scanf("%d", &mark2);
average = (mark1 + mark2) / 2.0;
printf("The average is: %f\n", average);
// Activity 2 Modification: Check if average is strictly above 45
if (average > 45)
{
printf("Pass\n");
[Read 28 lines]
^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify ^/ Go To Line

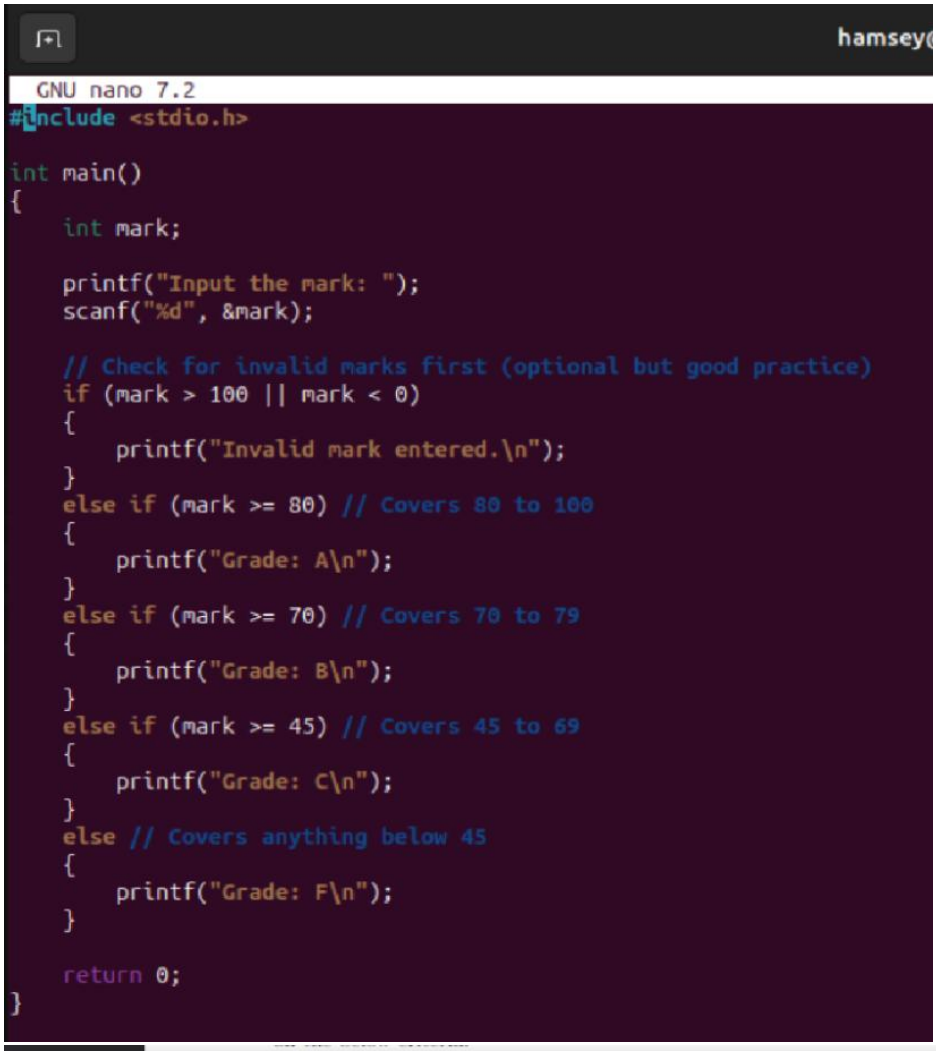

hamsey@hamsey-VirtualBox: ~
hamsey@hamsey-VirtualBox:~$ nano lab2q1.c
hamsey@hamsey-VirtualBox:~$ gcc -olab2q1 lab2q1.c
hamsey@hamsey-VirtualBox:~$ 85
85: command not found
hamsey@hamsey-VirtualBox:~$ ./lab2q1
Input the 1st mark: 80
Input the 2nd mark: 95
The average is: 87.500000
hamsey@hamsey-VirtualBox:~$ nano lab2q1.c
hamsey@hamsey-VirtualBox:~$ gcc -olab2q1 lab2q1.c
hamsey@hamsey-VirtualBox:~$ ./lab2q1
Input the 1st mark: 55
Input the 2nd mark: 40
The average is: 47.500000
Pass
hamsey@hamsey-VirtualBox:~$ ./lab2q1
Input the 1st mark: 44
Input the 2nd mark: 40
The average is: 42.000000
Fail
hamsey@hamsey-VirtualBox:~$

Activity 03

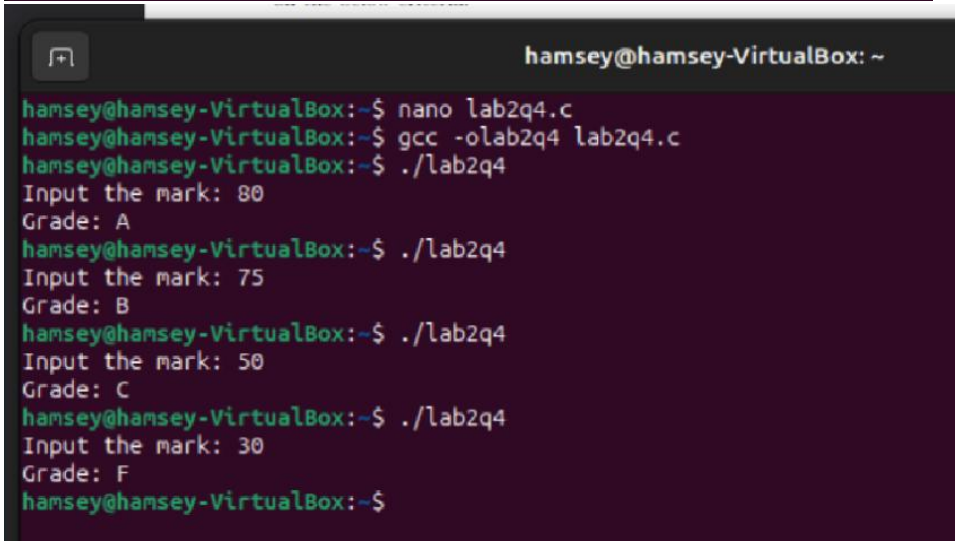
```
 GNU nano 7.2                                                    lab2q3.c *
#include <stdio.h>

int main()
{
    char gender;
    int age;

    // Ask for gender (M for Male, F for Female)
    printf("Enter gender (M/F): ");
    // Note: The space before %c is important to skip any leftover newlines
    scanf(" %c", &gender);

    printf("Enter the age: ");
    scanf("%d", &age);

    // First check: Is the person a senior citizen?
    if (age >= 65)
    {
        // Second check: Determine if Male or Female
        if (gender == 'M' || gender == 'm')
        {
            printf("Senior Male citizen\n");
        }
        else if (gender == 'F' || gender == 'f')
        {
            printf("Senior Female citizen\n");
        }
    }

    return 0;
}
```

```
hamsey@hamsey-VirtualBox: ~
hamsey@hamsey-VirtualBox:~$ nano lab2q3.c
hamsey@hamsey-VirtualBox:~$ gcc -olab2q3 lab2q3.c
hamsey@hamsey-VirtualBox:~$ ./lab2q3
Enter gender (M/F): M
Enter the age: 66
Senior Male citizen
hamsey@hamsey-VirtualBox:~$ ./lab2q3
Enter gender (M/F): F
Enter the age: 70
Senior Female citizen
hamsey@hamsey-VirtualBox:~$
```

Activity 04



```
GNU nano 7.2
#include <stdio.h>

int main()
{
    int mark;

    printf("Input the mark: ");
    scanf("%d", &mark);

    // Check for invalid marks first (optional but good practice)
    if (mark > 100 || mark < 0)
    {
        printf("Invalid mark entered.\n");
    }
    else if (mark >= 80) // Covers 80 to 100
    {
        printf("Grade: A\n");
    }
    else if (mark >= 70) // Covers 70 to 79
    {
        printf("Grade: B\n");
    }
    else if (mark >= 45) // Covers 45 to 69
    {
        printf("Grade: C\n");
    }
    else // Covers anything below 45
    {
        printf("Grade: F\n");
    }

    return 0;
}
```



```
hamsey@hamsey-VirtualBox: ~
hamsey@hamsey-VirtualBox:~$ nano lab2q4.c
hamsey@hamsey-VirtualBox:~$ gcc -olab2q4 lab2q4.c
hamsey@hamsey-VirtualBox:~$ ./lab2q4
Input the mark: 80
Grade: A
hamsey@hamsey-VirtualBox:~$ ./lab2q4
Input the mark: 75
Grade: B
hamsey@hamsey-VirtualBox:~$ ./lab2q4
Input the mark: 50
Grade: C
hamsey@hamsey-VirtualBox:~$ ./lab2q4
Input the mark: 30
Grade: F
hamsey@hamsey-VirtualBox:~$
```

Activity 05

```
  GNU nano 7.2                                                  lab2q5.c *
#include <stdio.h>

int main()
{
    int choice;

    // Display the menu
    printf("Menu:\n");
    printf("1. Print \"Hello\"\n");
    printf("2. Print \"Welcome\"\n");
    printf("3. Print \"Goodbye\"\n");

    printf("Enter your choice (1-3): ");
    scanf("%d", &choice);

    // Switch statement to handle the choice
    switch (choice)
    {
        case 1:
            printf("Hello\n");
            break; // Important: Stops the code from falling into case 2

        case 2:
            printf("Welcome\n");
            break;

        case 3:
            printf("Goodbye\n");
            break;

        default:
            // This runs if the user types anything other than 1, 2, or 3
            printf("Invalid choice\n");
    }

    return 0;
}
```

```
hamsey@hamsey-VirtualBox: ~
hamsey@hamsey-VirtualBox:~$ nano lab2q5.c
hamsey@hamsey-VirtualBox:~$ gcc -olab2q5 lab2q5.c
hamsey@hamsey-VirtualBox:~$ ./lab2q5
Menu:
1. Print "Hello"
2. Print "Welcome"
3. Print "Goodbye"
Enter your choice (1-3): 2
Welcome
hamsey@hamsey-VirtualBox:~$ ./lab2q5
Menu:
1. Print "Hello"
2. Print "Welcome"
3. Print "Goodbye"
Enter your choice (1-3): 4
Invalid choice
hamsey@hamsey-VirtualBox:~$
```

Activity 06

```
  GNU nano 7.2                                                    lab2q6.c *
#include <stdio.h>

int main()
{
    int mark;

    printf("Input the mark: ");
    scanf("%d", &mark);

    // We divide by 10 to convert ranges into single digits.
    // Example: 95/10 = 9, 82/10 = 8, 70/10 = 7.
    switch (mark / 10)
    {
        // 100 divided by 10 is 10
        case 10:
        // 90-99 divided by 10 is 9
        case 9:
        // 80-89 divided by 10 is 8
        case 8:
            printf("Grade: A\n");
            break;

        // 70-79 divided by 10 is 7
        case 7:
            printf("Grade: B\n");
            break;

        // 60-69 divided by 10 is 6
        case 6:
        // 50-59 divided by 10 is 5
        case 5:
            printf("Grade: C\n");
            break;

        // 40-49 divided by 10 is 4.
        // This is the tricky part! We have to check if it's >= 45 inside the case.
        case 4:
            if (mark >= 45)
            {
                printf("Grade: C\n");
            }
            else
            {
                printf("Grade: F\n");
            }
            break;

        // Default handles 0-39 (cases 0, 1, 2, 3) and anything else
        default:
            // Optional: Check for valid range 0-100
            if (mark < 0 || mark > 100)
            {
                printf("Invalid mark\n");
            }
            else
            {
                printf("Grade: F\n");
            }
    }

    return 0;
```

```
hansey@hansey-VirtualBox:~$ nano lab2q6.c
hansey@hansey-VirtualBox:~$ gcc -olab2q6 lab2q6.c
hansey@hansey-VirtualBox:~$ ./lab2q6
Input the mark: 85
Grade: A
hansey@hansey-VirtualBox:~$ ./lab2q6
Input the mark: 35
Grade: F
hansey@hansey-VirtualBox:~$
```