Course Title:	Programming Fundamentals Lab (CL1002)
Assignment Title:	Lab Task (Manual 05)
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LAB TASKS [14 Marks]

Scenario: You are developing a mini system for a ride-sharing company. The program must decide fare calculation, driver assignment, discount offers, surge pricing, and passenger eligibility based on multiple conditions.

1. Write a C program that check's passenger's eligibility checks by taking passenger's age and account balance as user input. If age < 21 then print **"Not eligible for ride (underage)"** else if balance < 200 then print **"Not eligible (insufficient balance)** else print **"Eligible for ride".**

2. Write a C program for ride type selection by taking input for ride type: 1 = Economy, 2 = Business, 3 = Luxury and inside each ride type ask for distance (short/long): if short, assign base fare = 100 and if long, assign higher base fare = 300 and finally print the assigned base fare.

3. Write a C program that takes input for **number of rides requested** in an area. Calculate surge multiplier = sqrt(requests) / 2. If multiplier > 3 → cap it at 3 then Print **final surge multiplier**.

4. Write a C program that takes **distance (km)** and **ride type (Economy/Business/Luxury)**.

   Base fares:

   > Economy = 50/km
   > Business = 100/km
   > Luxury = 200/km

   Apply surge multiplier from Task 3. Print **Total Fare**.

5. Write a C program that takes input loyalty points of a passenger. If points > 1000 → discount = 20%. Else → discount = 5%. Print final **discount percentage** using a **ternary operator**.

6. Write a C program that takes input: **driver rating** (1–5) and **driver distance from passenger (in km)**. If rating >= 4 and distance <= 5 print **"Top driver nearby"**, Else if rating >= 3 and distance <= 10 print **"Average driver assigned"**, Else print **"No suitable driver available"**.

7. Write a C program that integrates, Ride type, Surge multiplier, Discounts, Driver assignment and finally, print a complete ride summary: Passenger eligibility, Driver assigned, Final fare after surge and discount.

Question 1

```c
1    #include <stdio.h>
2
3    int main() {
4        int age;
5        int acc_balance;
6
7        printf("Enter age: ");
8        scanf("%d", &age);
9
10       printf("Enter account balance: ");
11       scanf("%f", &acc_balance);
12
13       if (age < 21) {
14           printf("Not eligible for ride (underage)\n");
15       }
16       else if (acc_balance < 200) {
17           printf("Not eligible (insufficient balance)\n");
18       }
19       else {
20           printf("Eligible for ride\n");
21       }
22
23       return 0;
24   }
```

Compile Log | Debug | Find Results | Close

Compilation results...

C:\Users\usman\OneDrive\Documents\PF LAB\q2\LAB MANUAL 5 QUESTION 1.exe

```
Enter age: 24
Enter account balance: 5400
Eligible for ride

---------------------------------
Process exited after 6.458 seconds with return value 0
Press any key to continue . . .
```

Question 2

```c
#include <stdio.h>

int main() {
    int ride;
    char distance;
    int fare;

    printf("Enter your ride code: ");
    scanf("%d", &ride);

    switch (ride) {
        case 1:
            printf("Enter 'S' for short distance and 'L' for long distance: ");
            scanf(" %c", &distance);

            if (distance == 'S' || distance == 's')
                fare = 100;
            else if (distance == 'L' || distance == 'l')
                fare = 300;

            printf("Your ride type: Economy\nYour base fare: %d\n", fare);
            break;

        case 2:
            printf("Enter 'S' for short distance and 'L' for long distance: ");
            scanf(" %c", &distance);

            if (distance == 'S' || distance == 's')
                fare = 100;
            else if (distance == 'L' || distance == 'l')
                fare = 300;

            printf("Your ride type: Business\nYour base fare: %d\n", fare);
            break;

        case 3:
            printf("Enter 'S' for short distance and 'L' for long distance: ");
            scanf(" %c", &distance);

            if (distance == 'S' || distance == 's')
                fare = 100;
            else if (distance == 'L' || distance == 'l')
                fare = 300;

            printf("Your ride type: Luxury\
            break;

        default:
            printf("Invalid ride code.\n");
    }

    return 0;
```
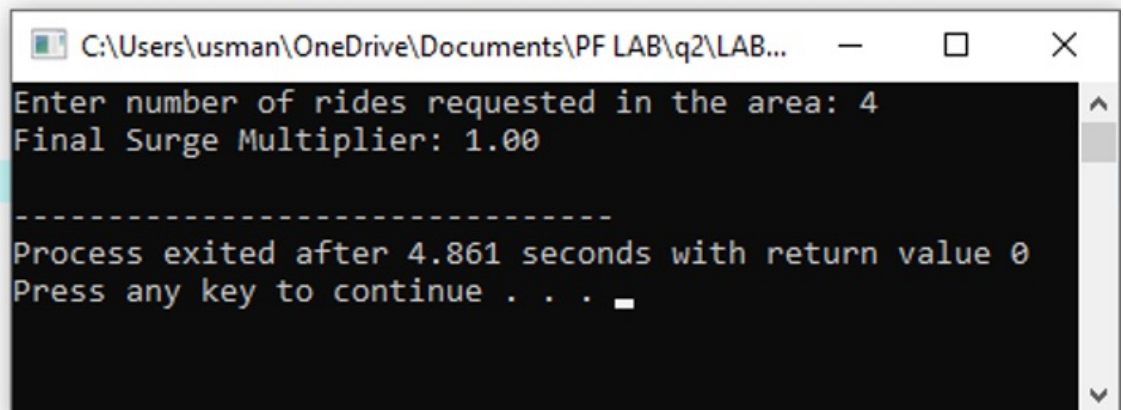
```
C:\Users\usman\OneDrive\Documents\PF LAB\q2\LAB M...   —   □   ×
Enter 'S' for short distance and 'L' for long distance: l
Your ride type: Business
Your base fare: 300

--------------------------------
Process exited after 5.97 seconds with return value 0
Press any key to continue . . .
```

Question 3

```c
1   #include <stdio.h>
2   #include <math.h>
3
4   int main(){
5       int requests;
6       float surge_multiplier;
7
8       printf("Enter number of rides requested in the area: ");
9       scanf("%d", &requests);
10
11
12      surge_multiplier = sqrt(requests) / 2;
13
14      if (surge_multiplier > 3)
15          surge_multiplier = 3;
16
17      printf("Final Surge Multiplier: %.2f\n", surge_multiplier);
18
19
20      return 0;
21  }
22
```

```
C:\Users\usman\OneDrive\Documents\PF LAB\q2\LAB...   —   □   ✕
Enter number of rides requested in the area: 4
Final Surge Multiplier: 1.00

------------------------------------
Process exited after 4.861 seconds with return value 0
Press any key to continue . . . _
```
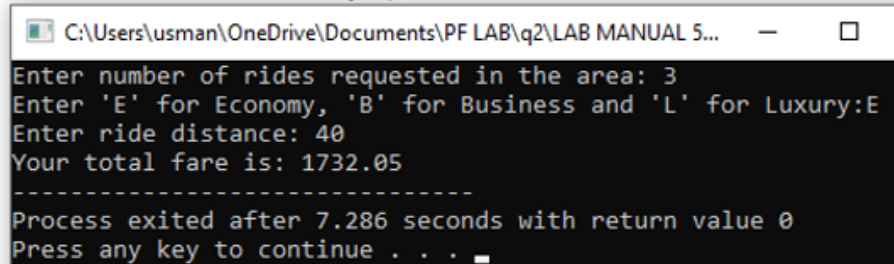
Question 4

```c
#include<stdio.h>
#include<math.h>
int main(){

    char ride;
    int distance;
    int fare;
    int requests;
    float surge_multiplier;
    float total_fare;

    printf("Enter number of rides requested in the area: ");
    scanf("%d", &requests);

    surge_multiplier = sqrt(requests) / 2;

    if (surge_multiplier > 3)
        surge_multiplier = 3;

    printf("Enter 'E' for Economy, 'B' for Business and 'L' for Luxury:");
    scanf(" %c", &ride);

    printf("Enter ride distance: ");
    scanf("%d", &distance);

    if (ride == 'E' || ride == 'e')
    fare = 50;
    else if (ride == 'B' || ride == 'b')
    fare = 100;
    else if
    (ride == 'L' || ride == 'l')
    fare = 200;

    total_fare = surge_multiplier* (fare*distance);

    printf("Your total fare is: %.2f",total_fare);


 return 0;
}
```
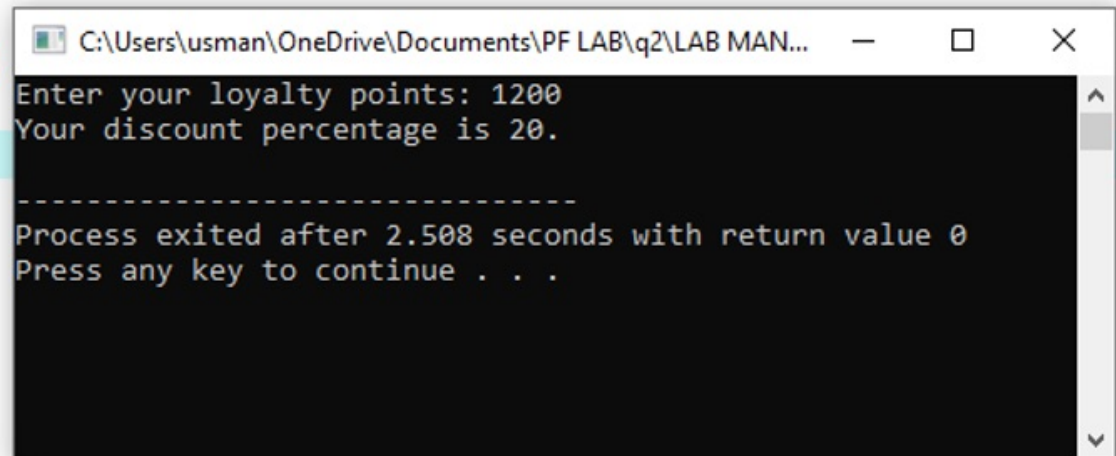
Console output:

```
C:\Users\usman\OneDrive\Documents\PF LAB\q2\LAB MANUAL 5...    —    □    ×

Enter number of rides requested in the area: 3
Enter 'E' for Economy, 'B' for Business and 'L' for Luxury:E
Enter ride distance: 40
Your total fare is: 1732.05
--------------------------------
Process exited after 7.286 seconds with return value 0
Press any key to continue . . .
```

Question 5

```c
1   #include<stdio.h>
2
3   int main(){
4
5       int points, discount;
6
7       printf("Enter your loyalty points: ");
8       scanf("%d", &points);
9
10      (points > 1000) ? (discount = 20) : (discount = 5);
11
12      printf("Your discount percentage is %d.\n", discount);
13
14      return 0;
15  }
16
```
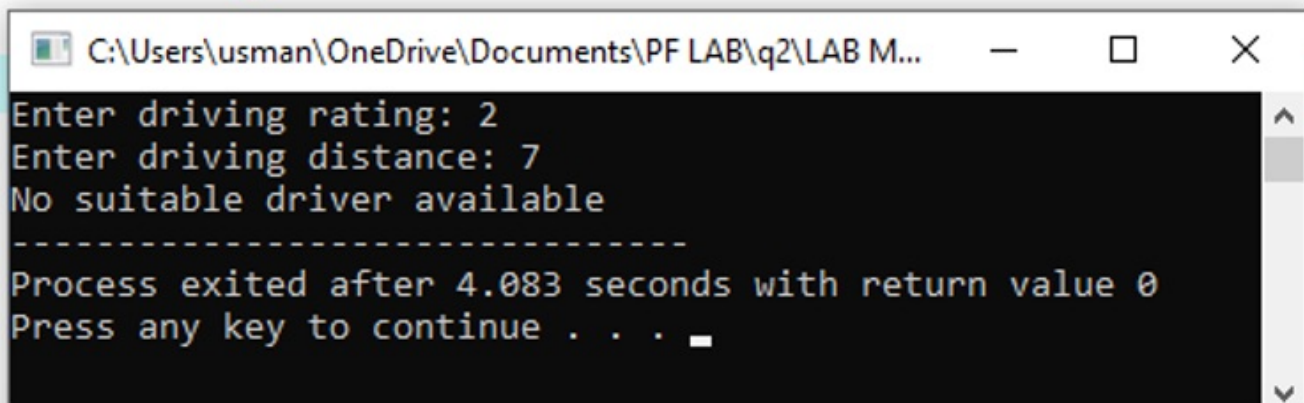
C:\Users\usman\OneDrive\Documents\PF LAB\q2\LAB MAN... — □ ✕

```
Enter your loyalty points: 1200
Your discount percentage is 20.

---------------------------------
Process exited after 2.508 seconds with return value 0
Press any key to continue . . .
```

Question 6

```c
#include<stdio.h>

int main(){

    int rating;
    int distance;

    printf("Enter driving rating: ");
    scanf("%d", &rating);

    printf("Enter driving distance: ");
    scanf("%d", &distance);

    (rating >= 4 && distance <= 5) ?
    printf("Top driver nearby") :
    (rating >= 3 && distance <= 10) ?
    printf("Average driver assigned") :
    printf("No suitable driver available");


    return 0;
}
```

```
C:\Users\usman\OneDrive\Documents\PF LAB\q2\LAB M...     —    □    ✕

Enter driving rating: 2
Enter driving distance: 7
No suitable driver available
---------------------------------
Process exited after 4.083 seconds with return value 0
Press any key to continue . . . _
```

```c
#include <stdio.h>
#include <math.h>
int main() {

    //checking passenger eligibility
    int age;
    int acc_balance;

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

    printf("Enter account balance: ");
    scanf("%f", &acc_balance);

    if (age < 21) {
        printf("Not eligible for ride (underage)\n");
    }
    else if (acc_balance < 200) {
        printf("Not eligible (insufficient balance)\n");
        return 0;
    }
    else {
        printf("Eligible for ride\n");
    }

    //ride type and base fare

    int ride;
    char distance_type;
    int base_fare;

    printf("\nEnter your ride code: ");
    scanf("%d", &ride);

    switch (ride) {
        case 1:
            printf("Enter 'S' for short distance and 'L' for long distance: ");
            scanf(" %c", &distance_type);

            if (distance_type == 'S' || distance_type == 's')
                base_fare = 100;
             else if (distance_type == 'L' || distance_type == 'l')
                base_fare = 300;

            printf("\nYour ride type: Economy\nYour base fare: %d\n", base_fare);
            break;

        case 2:
            printf("\nEnter 'S' for short distance and 'L' for long distance: ");
            scanf(" %c", &distance_type);

            if (distance_type == 'S' || distance_type == 's')
                base_fare = 100;
            else if (distance_type == 'L' || distance_type == 'l')
                base_fare = 300;


            printf("Your ride type: Business\nYour base fare: %d\n", base_fare);
            break;
```

```c
        case 3:
            printf("\nEnter 'S' for short distance and 'L' for long distance: ");
            scanf(" %c", &distance_type);

            if (distance_type == 'S' || distance_type == 's')
                base_fare = 100;
            else if (distance_type == 'L' || distance_type == 'l')
                base_fare = 300;


            printf("\nYour ride type: Luxury\nYour base fare: %d\n", base_fare);
            break;

        default:
            printf("\nInvalid ride code.\n");
    }

    //surge multiplier calc

    int requests;
    float surge_multiplier;

    printf("\nEnter number of rides requested in the area: ");
    scanf("%d", &requests);


    surge_multiplier = sqrt(requests) / 2;

    if (surge_multiplier > 3)
        surge_multiplier = 3;

    printf("Final Surge Multiplier: %.2f\n", surge_multiplier);

    //discount percentage

    int points, discount;

    printf("\nEnter your loyalty points: ");
    scanf("%d", &points);

    (points > 1000) ? (discount = 20) : (discount = 5);

    printf("Your discount percentage is %d.\n", discount);


    //driver assignment

     int rating;
    int rating_distance;

    printf("\nEnter driving rating: ");
    scanf("%d", &rating);

    printf("Enter driving distance: ");
    scanf("%d", &rating_distance);

    (rating >= 4 && rating_distance <= 5) ?
    printf("Top driver nearby") :
    (rating >= 3 && rating_distance <= 10) ?
    printf("Average driver assigned") :
    printf("No suitable driver available");
```

```c
121        printf("No suitable driver available");
122
123        //distance fare/ fare
124
125        int fare;
126        int distance;
127
128        printf("\nEnter ride distance\n: ");
129        scanf("%d", &distance);
130
131        if (ride == 1)
132        fare = 50;
133        else if (ride == 2)
134        fare = 100;
135        else if
136        (ride == 3)
137        fare = 200;
138
139        //total fare
140
141        float total_fare;
142
143        total_fare = surge_multiplier * (fare * distance + base_fare);
144        total_fare -= (total_fare * discount/100);
145
146        printf("        RIDE SUMMARY        \n");
147        printf("Passenger Eligible: Yes\n");
148        printf("Base Fare: %d\n", base_fare);
149        printf("Surge Multiplier: %.2f\n", surge_multiplier);
150        printf("Discount Applied: %d%%\n", discount);
151        printf("Final Fare: %.2f\n", total_fare);
152
153
154
155        return 0;
156  }
```

```
Eligible for ride

Enter your ride code: 2

Enter 'S' for short distance and 'L' for long distance: l
Your ride type: Business
Your base fare: 300

Enter number of rides requested in the area: 3
Final Surge Multiplier: 0.87

Enter your loyalty points: 1100
Your discount percentage is 20.

Enter driving rating: 4
Enter driving distance: 3
Top driver nearby

Enter ride distance: 50

        RIDE SUMMARY
Passenger Eligible: Yes
Base Fare: 300
Surge Multiplier: 0.87
Discount Applied: 20%
Final Fare: 3671.95

--------------------------------
Process exited after 54.89 seconds with return value 0
Press any key to continue . . . _
```