



Logistics Management System

Assignment

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Github Repository URL: <https://github.com/rashmika733/logistics-management-system.git>

Course : Applied Science

Module Name : Introduction To Computer Programming

Module Code : CSC 101 2.0

Semester : 01

Date Of Submission : 26th of October 2025

Introduction

In real logistics operations, several factors such as distance, delivery weight, vehicle type, fuel efficiency, and time all contribute to the overall delivery cost. This project focuses on bringing these real-world considerations into a practical program that allows users to add cities, define distances between them, create and manage delivery requests, and calculate important details like delivery cost, fuel consumption, and estimated delivery time. Users can also select the most suitable vehicle based on the weight of the goods being transported to ensure efficient use of resources.

Additionally, the system can find the least-cost route between two cities, helping to minimize expenses and improve delivery performance. By combining these features in a single, menu-driven application, the Logistics Management System provides a simple yet effective way to understand how programming concepts can be applied to solve real-world logistics problems.

Objectives

- To design and implement a menu-driven logistics management system using the C programming language.
- To manage cities, distances, vehicles, and delivery requests through modular programming.
- To calculate delivery costs, fuel consumption, and estimated delivery times accurately.
- To maintain delivery records and generate performance reports for analysis.
- To implement an algorithm for finding the least-cost or shortest delivery route between cities

System Functionalities

The system provides the following nine features:

1. Add Cities– Add city names.
2. Rename City– Rename city name.
3. Remove City – Remove city name.
4. Input Distance– Input distance between cities.
5. Show Distance Table– Show table about distance between cities.
6. Show Vehicle – Show the details of all available vehicles.
7. Handle Delivery –Calculate the delivery cost between cities.
8. Show Report –Genarate reports for deliveries, cost, and other data.

Results

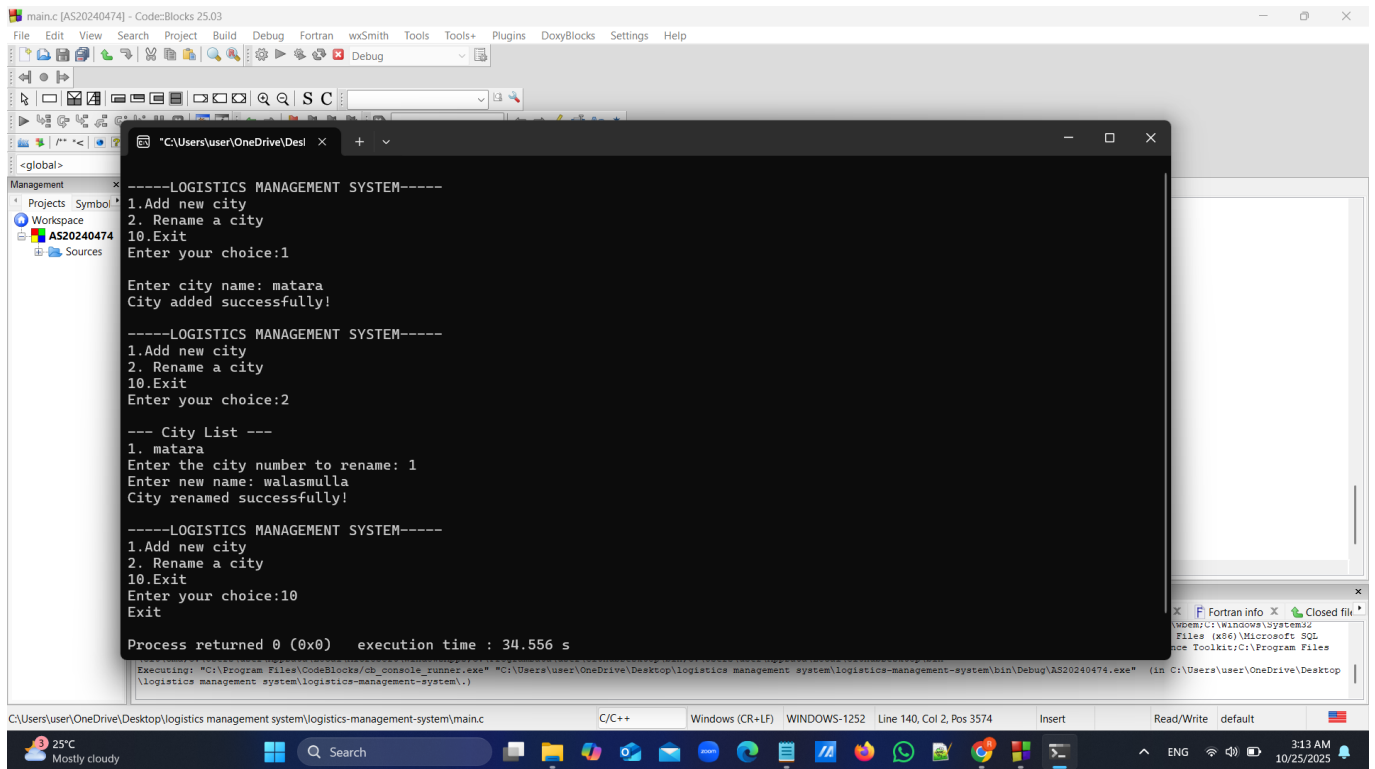
Output:

```
-----LOGISTICS MANAGEMENT SYSTEM-----
10.Exit
Enter your choice:10
Exit
Process returned 0 (0x0) execution time : 3.077 s
Press any key to continue.
```

After adding the add cities function:

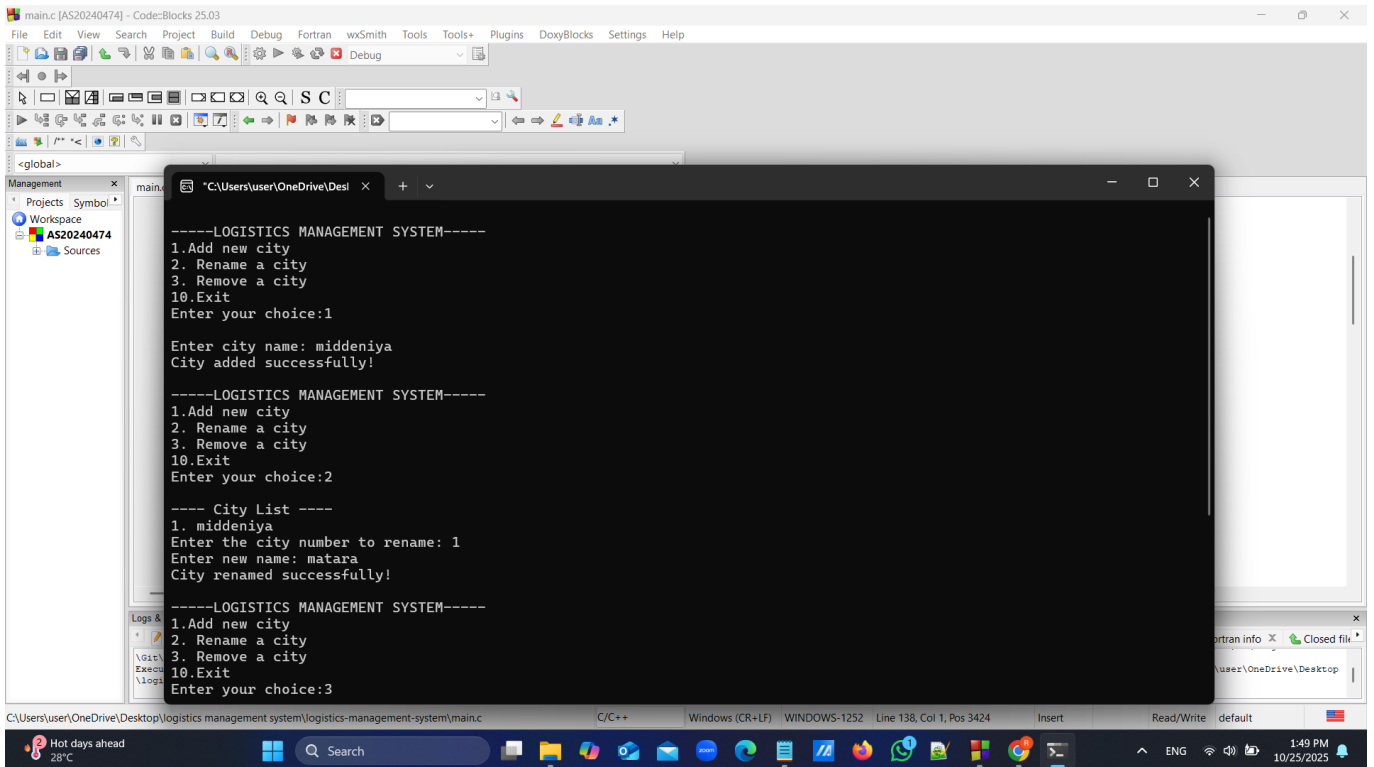
```
-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
10.Exit
Enter your choice:1
Enter city name: matara
City added successfully!
-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
10.Exit
Enter your choice:1
Enter city name: colombu
City added successfully!
-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
10.Exit
Enter your choice:1
Enter city name: galle
City added successfully!
-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
10.Exit
Enter your choice:
```

After adding the rename a city function:



```
main.c [AS20240474] - Code::Blocks 25.03
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help
-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
2. Rename a city
10.Exit
Enter your choice:1
Enter city name: matara
City added successfully!
-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
2. Rename a city
10.Exit
Enter your choice:2
--- City List ---
1. matara
Enter the city number to rename: 1
Enter new name: walasmulla
City renamed successfully!
-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
2. Rename a city
10.Exit
Enter your choice:10
Exit
Process returned 0 (0x0)   execution time : 34.556 s
Executing: "C:\Program Files\CodeBlocks\cb_console_runner.exe" "C:\Users\user\OneDrive\Desktop\logistics management system\logistics-management-system\bin\Debug\AS20240474.exe" (in C:\Users\user\OneDrive\Desktop\logistics management system\logistics-management-system\)
```

After adding the remove a city function:



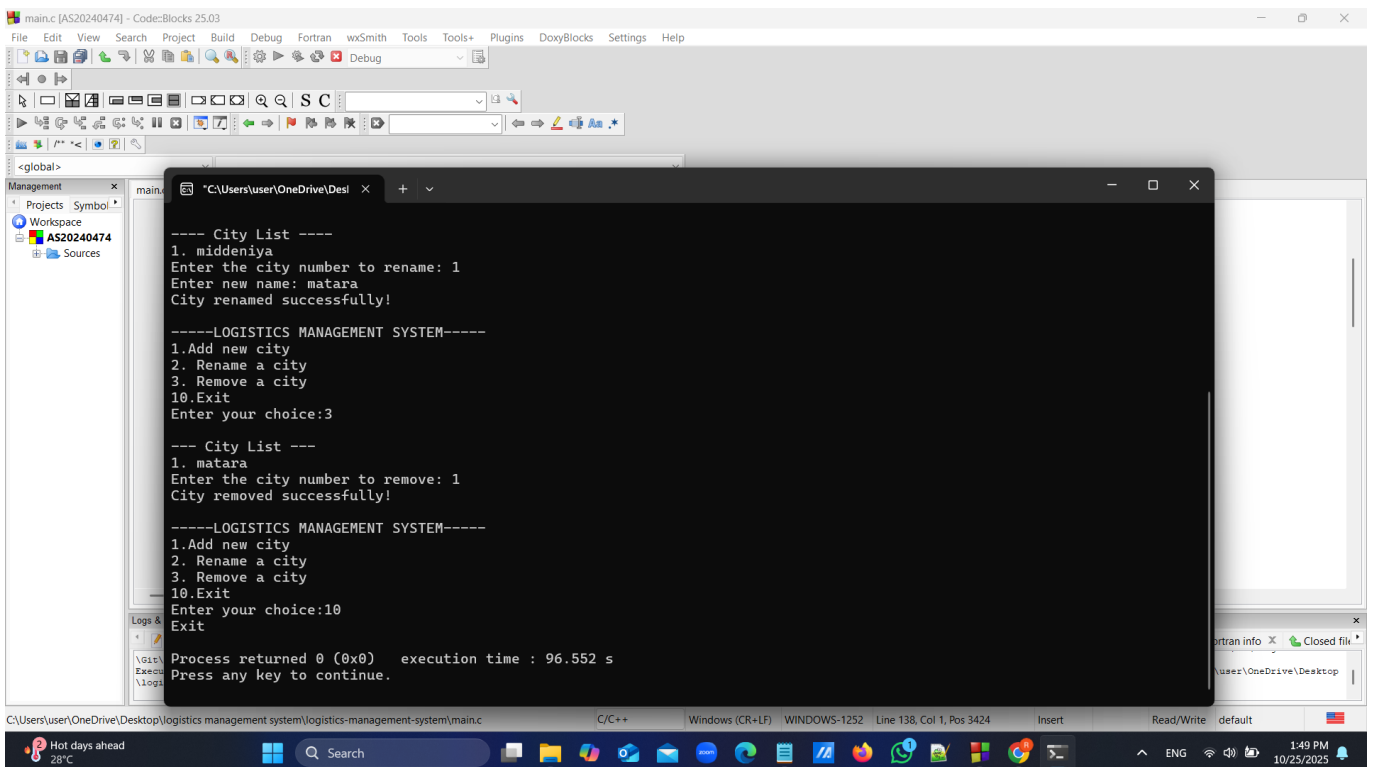
```
main.c [AS20240474] - Code::Blocks 25.03
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help
-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
2. Rename a city
3. Remove a city
10.Exit
Enter your choice:1

Enter city name: middeniya
City added successfully!

-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
2. Rename a city
3. Remove a city
10.Exit
Enter your choice:2

---- City List ----
1. middeniya
Enter the city number to rename: 1
Enter new name: matara
City renamed successfully!

-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
2. Rename a city
3. Remove a city
10.Exit
Enter your choice:3
```



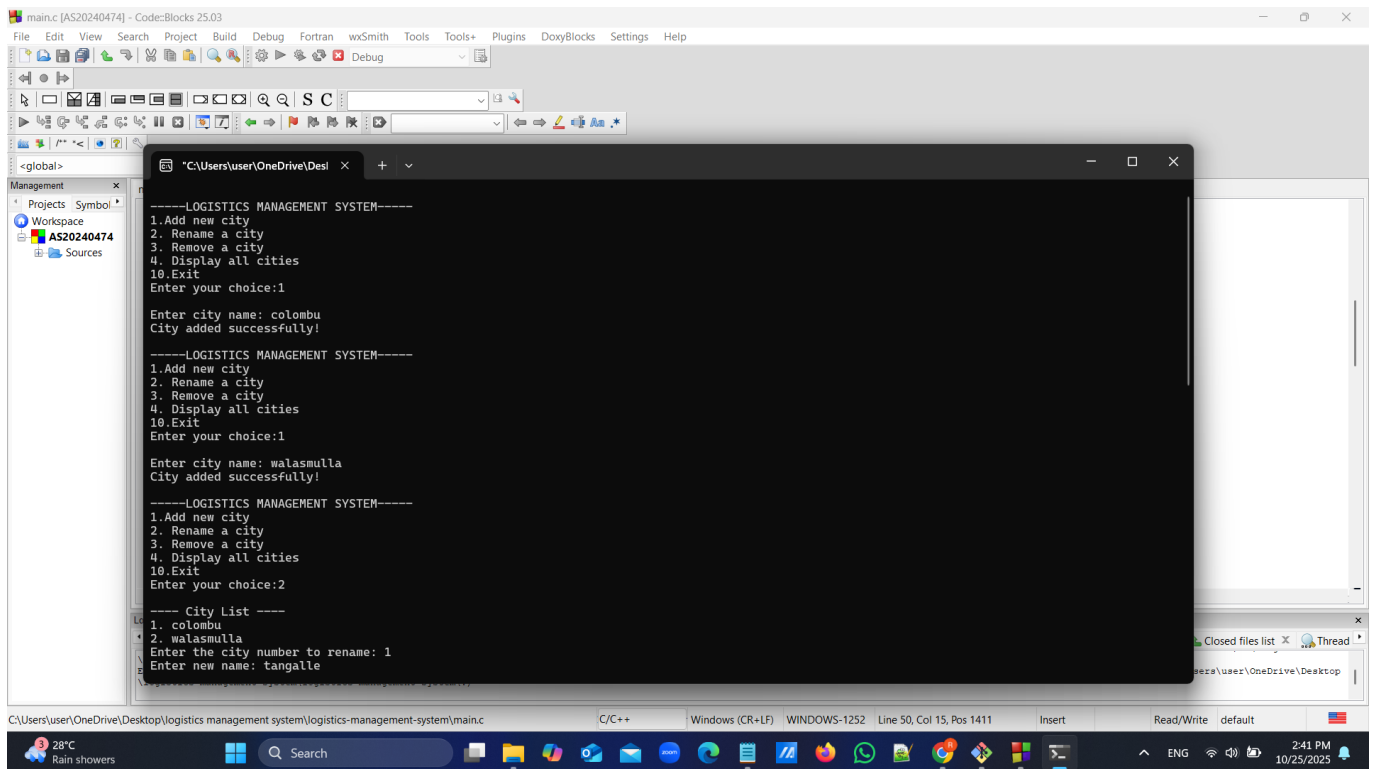
```
main.c [AS20240474] - Code::Blocks 25.03
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help
----- City List ----
1. middeniya
Enter the city number to rename: 1
Enter new name: matara
City renamed successfully!

-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
2. Rename a city
3. Remove a city
10.Exit
Enter your choice:3

--- City List ---
1. matara
Enter the city number to remove: 1
City removed successfully!

-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
2. Rename a city
3. Remove a city
10.Exit
Enter your choice:10
Exit
Process returned 0 (0x0) execution time : 96.552 s
Press any key to continue.
```

After adding the display all cities feature :



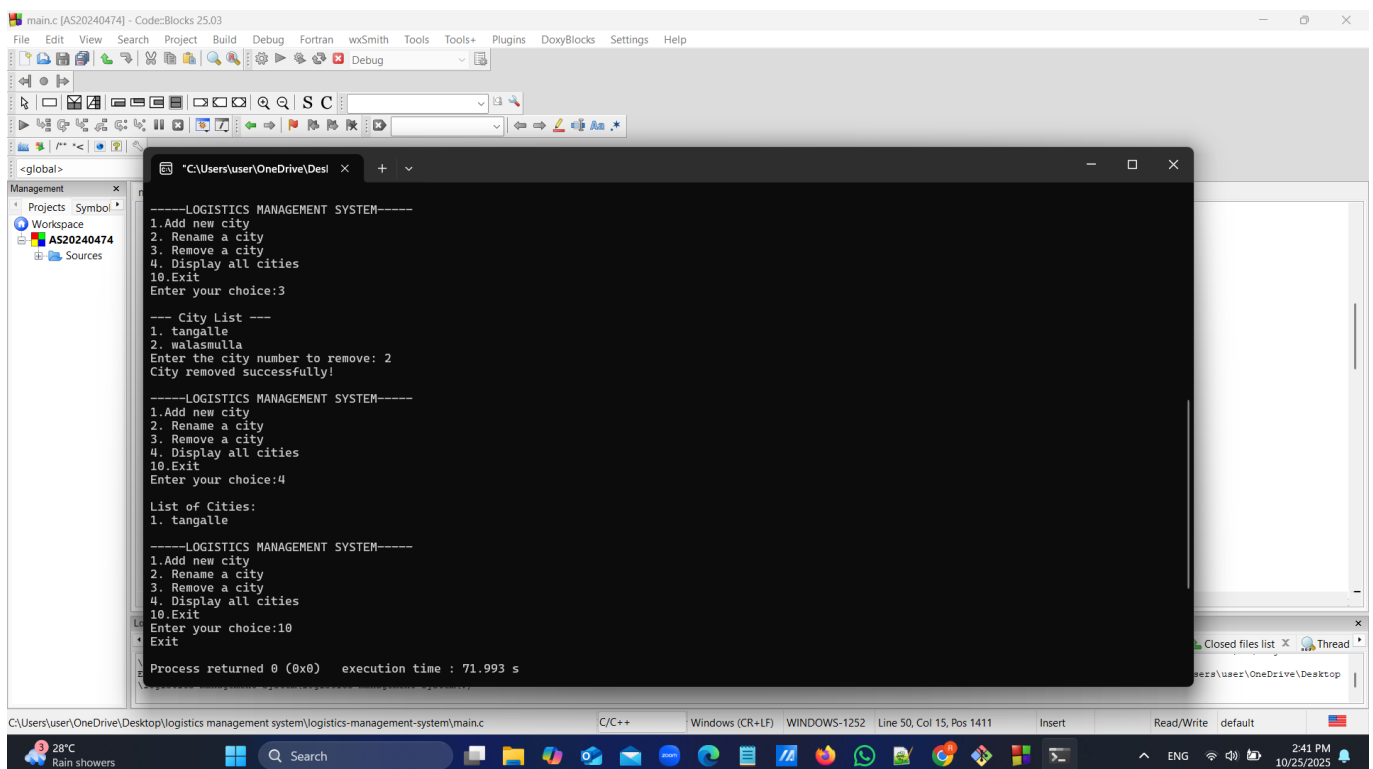
```
main.c [AS20240474] - Code::Blocks 25.03
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help
C:\Users\user\OneDrive\Desktop\logistics management system\logistics-management-system\main.c
C/C++ Windows (CR+LF) WINDOWS-1252 Line 50, Col 15, Pos 1411 Insert Read/Write default
28°C Rain showers 2:41 PM 10/25/2023

-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
2. Rename a city
3. Remove a city
4. Display all cities
10.Exit
Enter your choice:1
Enter city name: colombu
City added successfully!

-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
2. Rename a city
3. Remove a city
4. Display all cities
10.Exit
Enter your choice:1
Enter city name: walasmulla
City added successfully!

-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
2. Rename a city
3. Remove a city
4. Display all cities
10.Exit
Enter your choice:2

---- City List ----
1. colombu
2. walasmulla
Enter the city number to rename: 1
Enter new name: tangalle
```



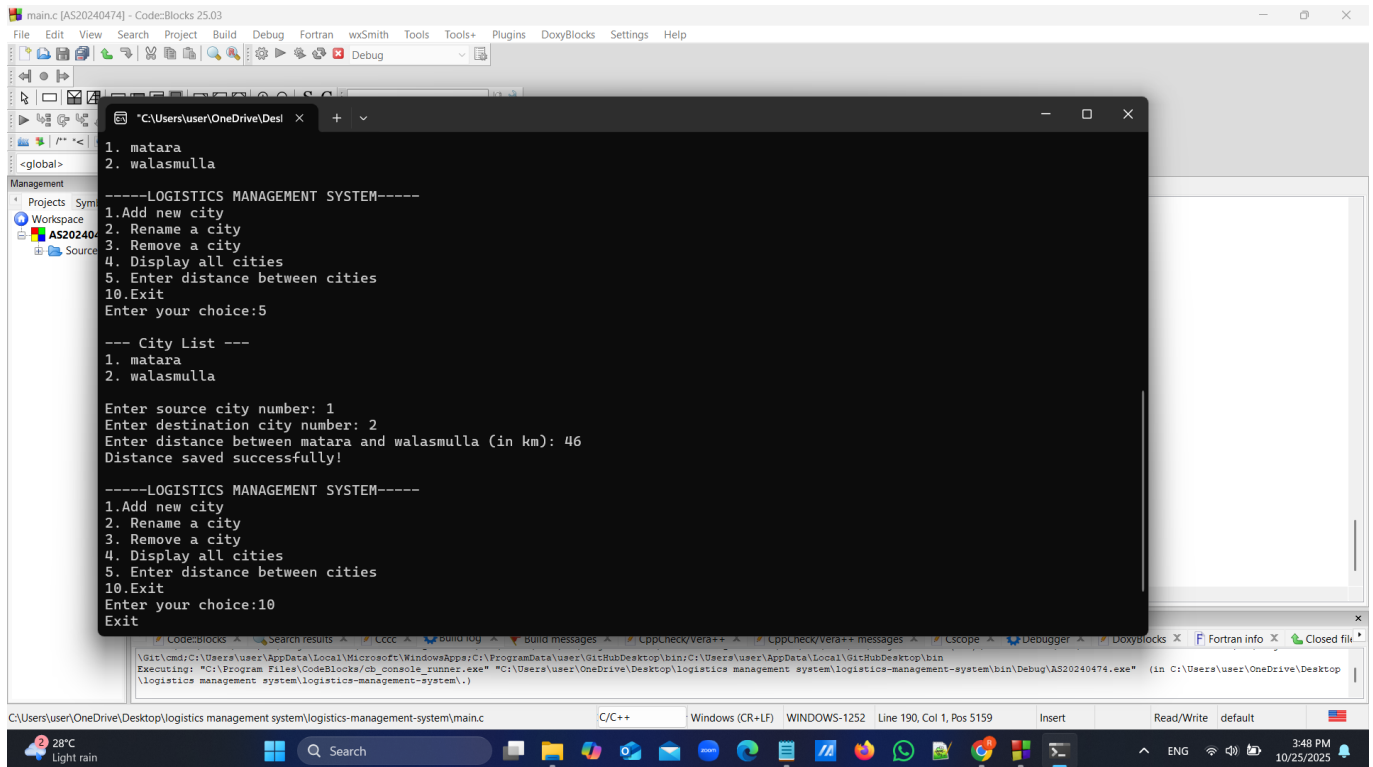
```
main.c [AS20240474] - Code::Blocks 25.03
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help
C:\Users\user\OneDrive\Desktop\logistics management system\logistics-management-system\main.c
C/C++ Windows (CR+LF) WINDOWS-1252 Line 50, Col 15, Pos 1411 Insert Read/Write default
28°C Rain showers 2:41 PM 10/25/2023

-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
2. Rename a city
3. Remove a city
4. Display all cities
10.Exit
Enter your choice:3
Enter the city number to remove: 2
City removed successfully!

-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
2. Rename a city
3. Remove a city
4. Display all cities
10.Exit
Enter your choice:4
List of Cities:
1. tangalle

-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
2. Rename a city
3. Remove a city
4. Display all cities
10.Exit
Enter your choice:10
Exit
Process returned 0 (0x0) execution time : 71.993 s
```

After adding the input distance function:



```
main.c [AS20240474] - Code::Blocks 25.03
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help
C:\Users\user\OneDrive\Desktop\logistics management system\logistics-management-system\main.c
C/C++ Windows (CR+LF) WINDOWS-1252 Line 190, Col 1, Pos 5159 Insert Read/Write default
28°C Light rain 3:48 PM 10/25/2025

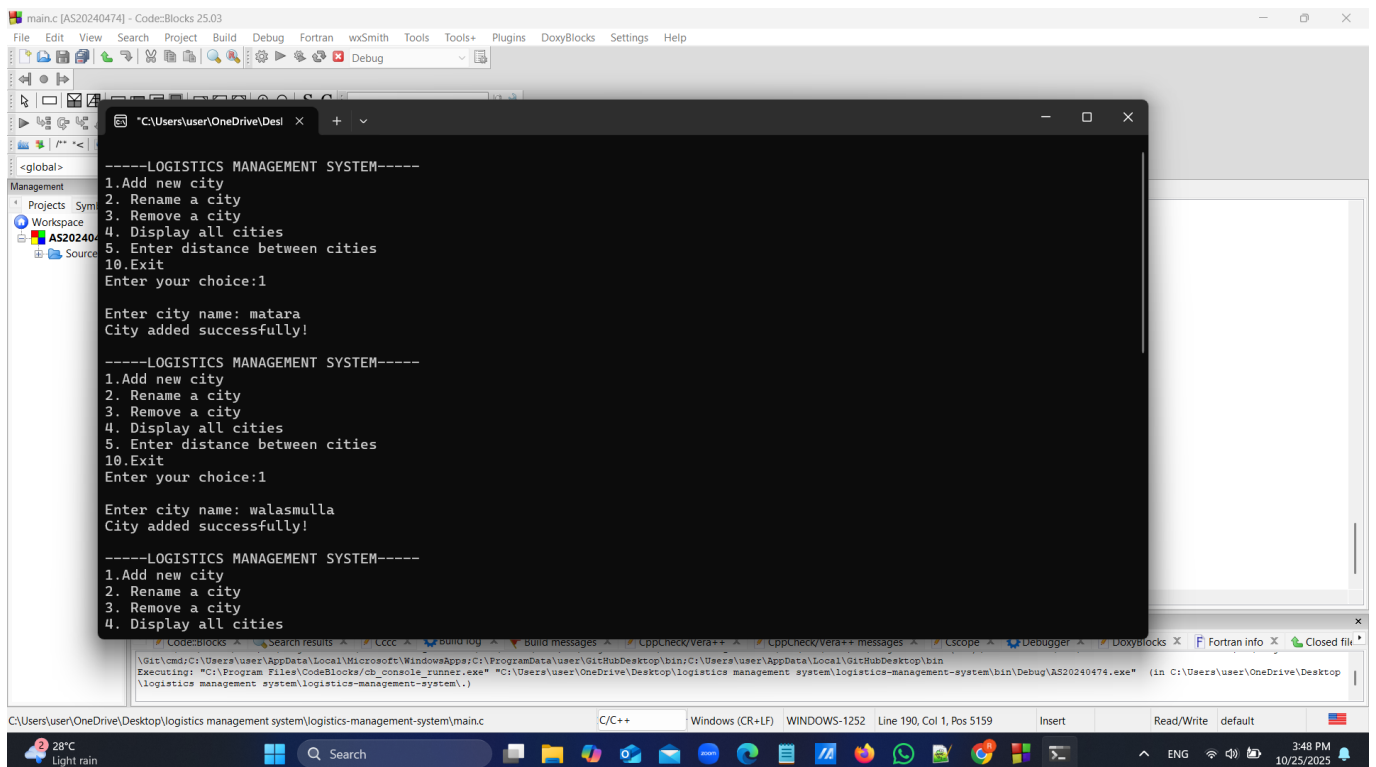
1. matara
2. walasmulla

-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
2. Rename a city
3. Remove a city
4. Display all cities
5. Enter distance between cities
10.Exit
Enter your choice:5

--- City List ---
1. matara
2. walasmulla

Enter source city number: 1
Enter destination city number: 2
Enter distance between matara and walasmulla (in km): 46
Distance saved successfully!

-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
2. Rename a city
3. Remove a city
4. Display all cities
5. Enter distance between cities
10.Exit
Enter your choice:10
Exit
```



```
main.c [AS20240474] - Code::Blocks 25.03
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help
C:\Users\user\OneDrive\Desktop\logistics management system\logistics-management-system\main.c
C/C++ Windows (CR+LF) WINDOWS-1252 Line 190, Col 1, Pos 5159 Insert Read/Write default
28°C Light rain 3:48 PM 10/25/2025

-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
2. Rename a city
3. Remove a city
4. Display all cities
5. Enter distance between cities
10.Exit
Enter your choice:1

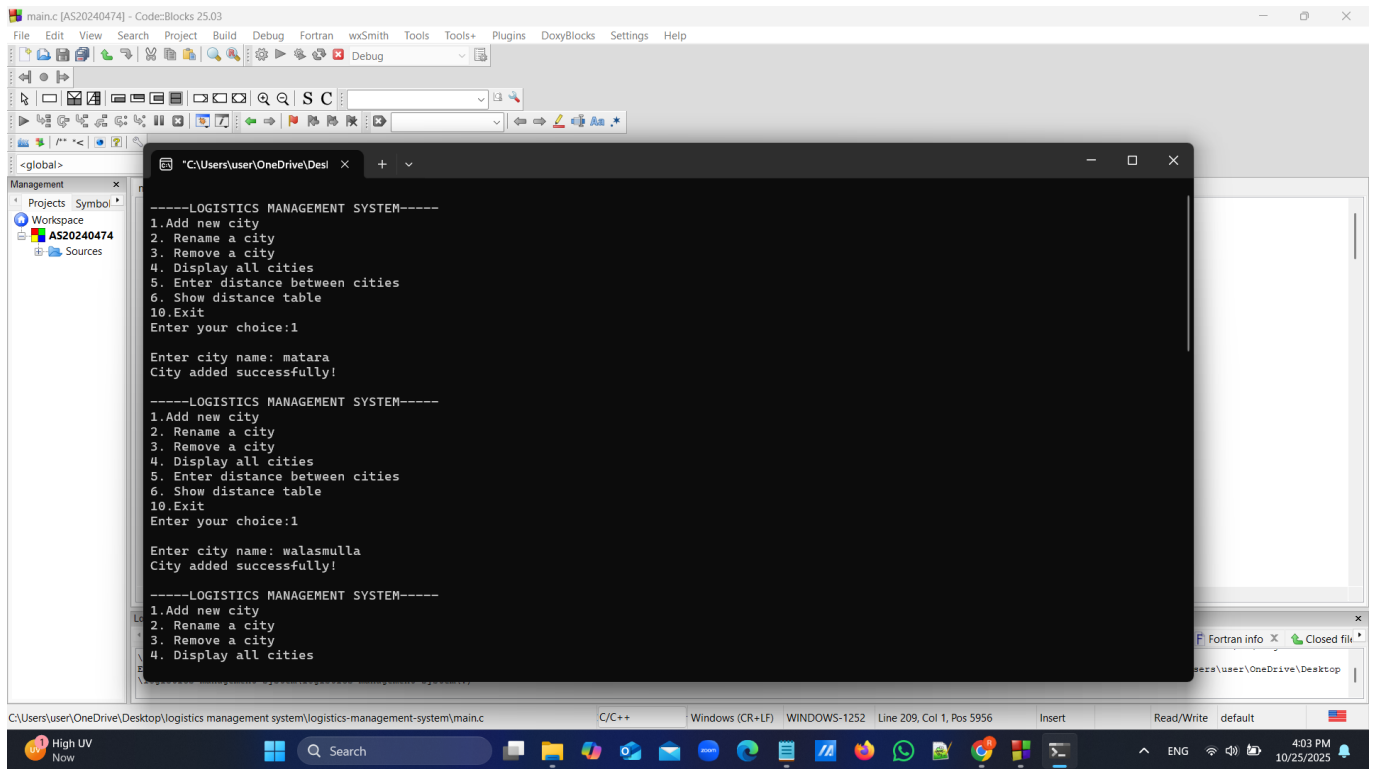
Enter city name: matara
City added successfully!

-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
2. Rename a city
3. Remove a city
4. Display all cities
5. Enter distance between cities
10.Exit
Enter your choice:1

Enter city name: walasmulla
City added successfully!

-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
2. Rename a city
3. Remove a city
4. Display all cities
```


After adding the show distance table function:



```
main.c [AS20240474] - Code::Blocks 25.03
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help

<global>
Management
  Projects Symbol
  Workspace
  AS20240474
  Sources

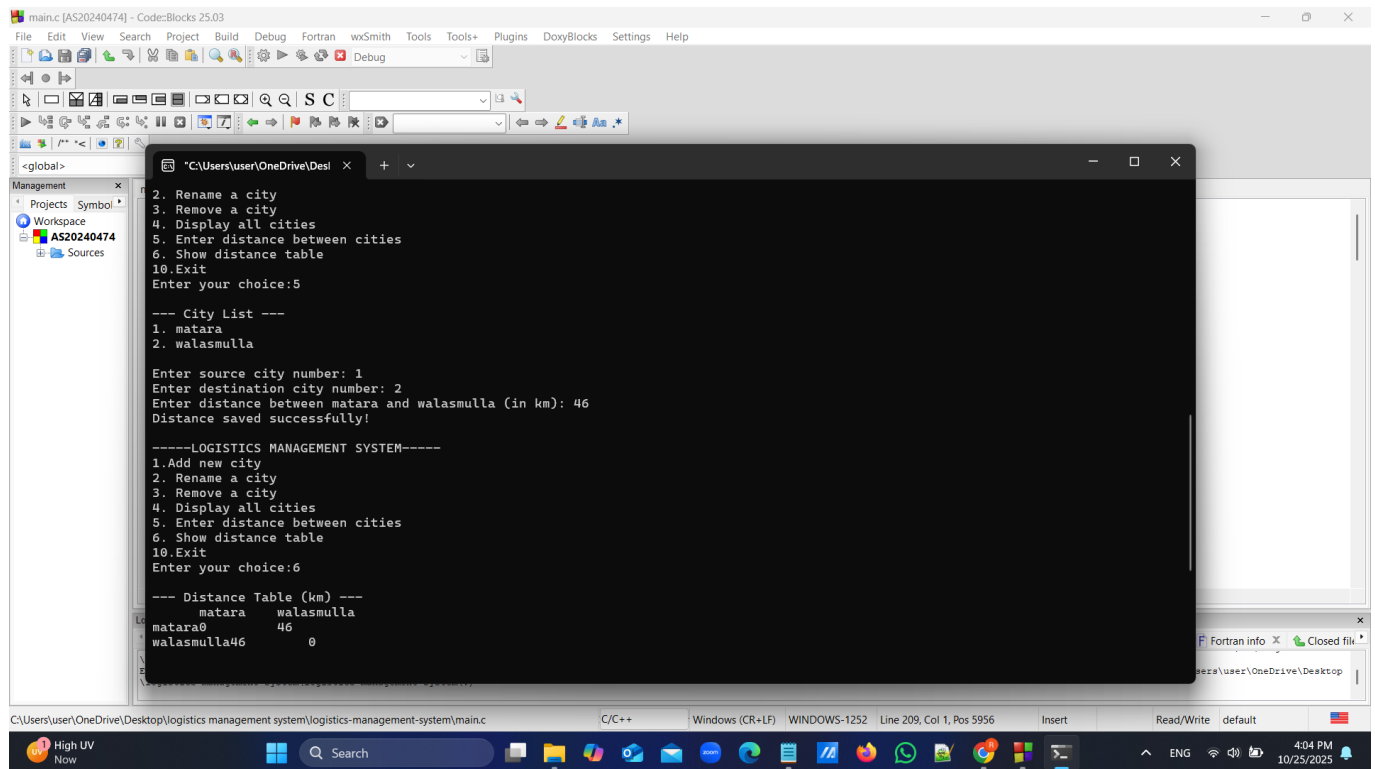
-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
2. Rename a city
3. Remove a city
4. Display all cities
5. Enter distance between cities
6. Show distance table
10.Exit
Enter your choice:1

Enter city name: matara
City added successfully!

-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
2. Rename a city
3. Remove a city
4. Display all cities
5. Enter distance between cities
6. Show distance table
10.Exit
Enter your choice:1

Enter city name: walasmulla
City added successfully!

-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
2. Rename a city
3. Remove a city
4. Display all cities
```



```
main.c [AS20240474] - Code::Blocks 25.03
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help

<global>
Management
  Projects Symbol
  Workspace
  AS20240474
  Sources

2. Rename a city
3. Remove a city
4. Display all cities
5. Enter distance between cities
6. Show distance table
10.Exit
Enter your choice:5

--- City List ---
1. matara
2. walasmulla

Enter source city number: 1
Enter destination city number: 2
Enter distance between matara and walasmulla (in km): 46
Distance saved successfully!

-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
2. Rename a city
3. Remove a city
4. Display all cities
5. Enter distance between cities
6. Show distance table
10.Exit
Enter your choice:6

--- Distance Table (km) ---
      matara    walasmulla
matara0         46
walasmulla46     0
```

After adding the show vehicles function:

```
main.c [AS20240474] - Code::Blocks 25.03
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help
-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
2. Rename a city
3. Remove a city
4. Display all cities
5. Enter distance between cities
6. Show distance table
7. Show vehicles
10.Exit
Enter your choice:7

--- Vehicle List ---
No   Type      Capacity(kg)  Rate/km(LKR)  Speed(km/h)  Efficiency(km/L)
-----
1    Van        1000         30.00         60.00         12.00
2    Truck      5000         40.00         50.00         6.00
3    Lorry      10000        80.00         45.00         4.00

-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
2. Rename a city
3. Remove a city
4. Display all cities
5. Enter distance between cities
6. Show distance table
7. Show vehicles
10.Exit
Enter your choice:10
Exit
```

Windows (CR+LF) WINDOWS-1252 Line 27, Col 5, Pos 1020 Insert Read/Write default

MUN - BRI In 6 hours 4:29 PM 10/25/2025

After adding the handle delivery function:

```
"C:\Users\user\OneDrive\Desi X + v
--- City List ---
1. matara
2. galle

Enter source city number: 1
Enter destination city number: 2
Enter distance between matara and galle (in km): 62
Distance saved successfully!

-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
2. Rename a city
3. Remove a city
4. Display all cities
5. Enter distance between cities
6. Show distance table
7. Show vehicles
8. Handle Delivery
10.Exit
Enter your choice:6

--- Distance Table (km) ---
matara galle
matara0 62
galle 62 0

-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
2. Rename a city
3. Remove a city
4. Display all cities
5. Enter distance between cities
6. Show distance table
7. Show vehicles
8. Handle Delivery
10.Exit
Enter your choice:7

--- Vehicle List ---
No Type Capacity(kg) Rate/km(LKR) Speed(km/h) Efficiency(km/L)
-----
1 Van 1000 30.00 60.00 12.00
2 Truck 5000 40.00 50.00 6.00
3 Lorry 10000 80.00 45.00 4.00

28°C
Mostly cloudy
Search
7:06 PM
10/25/2025
```

```
"C:\Users\user\OneDrive\Desi X + v
-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
2. Rename a city
3. Remove a city
4. Display all cities
5. Enter distance between cities
6. Show distance table
7. Show vehicles
8. Handle Delivery
10.Exit
Enter your choice:8
1. matara
2. galle
Enter source city number: 1
Enter destination city number: 2

Available Vehicles:
1. Van (Capacity: 1000 kg, Rate: 30 LKR/km)
2. Truck (Capacity: 5000 kg, Rate: 40 LKR/km)
3. Lorry (Capacity: 10000 kg, Rate: 80 LKR/km)
Select vehicle type: 3
Enter package weight (kg): 25

=====
DELIVERY COST ESTIMATION
=====
From: matara
To: galle
Distance: 62 km
Vehicle: Lorry
Weight: 25 kg

-----
Base Cost: 4972.40 LKR
Fuel Used: 15.50 L
Fuel Cost: 4805.00 LKR
Operational Cost: 9777.40 LKR
Profit: 1243.10 LKR
Customer Charge: 11020.50 LKR
Estimated Time: 1.38 hours
=====

-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
2. Rename a city
```

After adding the show report function:

```
"C:\Users\User\OneDrive\Desi X + v
--- City List ---
1. matara
2. panadura

Enter source city number: 1
Enter destination city number: 2
Enter distance between matara and panadura (in km): 45
Distance saved successfully!

-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
2. Rename a city
3. Remove a city
4. Display all cities
5. Enter distance between cities
6. Show distance table
7. Show vehicles
8. Handle Delivery
9. Show Reports
10.Exit
Enter your choice:6

--- Distance Table (km) ---
matara    panadura
matara0    45
panadura45 0

-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
2. Rename a city
3. Remove a city
4. Display all cities
5. Enter distance between cities
6. Show distance table
7. Show vehicles
8. Handle Delivery
9. Show Reports
10.Exit
Enter your choice:7

--- Vehicle List ---
No  Type      Capacity(kg)  Rate/km(LKR)  Speed(km/h)  Efficiency(km/L)
1   Van       1000         30.00         60.00         12.00
2   Truck     5000         40.00         50.00         6.00
3   Lorry     10000        80.00         45.00         4.00

-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
2. Rename a city
```

```
"C:\Users\User\OneDrive\Desi X + v
Enter your choice:8
1. matara
2. panadura
Enter source city number: 1
Enter destination city number: 2

Available Vehicles:
1. Van (Capacity: 1000 kg, Rate: 30 LKR/km)
2. Truck (Capacity: 5000 kg, Rate: 40 LKR/km)
3. Lorry (Capacity: 10000 kg, Rate: 80 LKR/km)
Select vehicle type: 3
Enter package weight (kg): 47

=====
DELIVERY COST ESTIMATION
=====
From: matara
To: panadura
Distance: 45 km
Vehicle: Lorry
Weight: 47 kg
=====
Base Cost: 3616.92 LKR
Fuel Used: 11.25 L
Fuel Cost: 3487.50 LKR
Operational Cost: 7104.42 LKR
Profit: 904.23 LKR
Customer Charge: 8008.65 LKR
Estimated Time: 1.00 hours
=====

-----LOGISTICS MANAGEMENT SYSTEM-----
1.Add new city
2. Rename a city
3. Remove a city
4. Display all cities
5. Enter distance between cities
6. Show distance table
7. Show vehicles
8. Handle Delivery
9. Show Reports
10.Exit
Enter your choice:9

===== REPORTS =====
Total Deliveries Completed: 1
Total Distance Covered: 45.00 km
Average Delivery Time: 1.00 hours
Total Revenue: 8008.65 LKR
Total Profit: 904.23 LKR
```

Conclusion

The Logistics Management System project successfully demonstrates the application of fundamental programming concepts such as arrays, functions, loops, and conditionals in C. Through this project, a complete menu-driven system was developed to manage cities, vehicles, and delivery operations efficiently. The program can calculate delivery costs, fuel usage, and travel time while maintaining accurate delivery records and performance reports. Additionally, the inclusion of a least-cost route finding algorithm enhances the system's practicality and decision-making capability. Overall, this project helped strengthen problem-solving skills, logical thinking, and the understanding of modular programming in real-world applications.

References

- **Lecture Materials**
- indeed, Available at: <https://uk.indeed.com/career-advice/career-development/logistics-management-systems> Accessed date: 21th of October 2025