# 10.CairoRide

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| **Overview** | CairoRide is a console-based application designed to simulate a metro transit system, enabling users to manage their travel plans and fare subscriptions. This application provides a simplified representation of a real-world metro system, allowing users to purchase and manage subscriptions, monitor their travel history, and check-in/check-out at metro stations. CairoRide focuses on subscription handling, fare computation, and ride tracking through a text-based interface. |
| **Description** | • Users can create an account to manage their metro travel and subscription details. Each user account stores information about active plans, ride logs, and balance status.<br>• **Subscription Types:**<br>o Users can choose from three different subscription plans: Scholar Pass, General Pass, and Smart Wallet.<br>• **Metro Distance-Based Pricing:**<br>o Zone 1 → 8 LE for 1 to 9 stations.<br>o Zone 2 → 10 LE for 10 to 16 stations.<br>o Zone 3 → 15 LE for 17 to 23 stations.<br>o Zone 4 → 20 LE for more than 23 stations.<br>• **Subscription Details:**<br>o **Scholar Pass:**<br>▪ Fixed payment every three months for 180 trips with limited station access.<br>▪ 3-Month Plan: 150, 200, 250 & 300 LE (Zones 1, 2, 3 & 4).<br>o General Pass:<br>▪ Fixed payment for 60 trips per month or 730 trips per year for limited stations.<br>▪ 1-Month Plan: 310, 365, 425 & 600 LE (Zones 1, 2, 3 & 4).<br>▪ 1-Year Plan: 3500, 4000, 4500 & 5000 LE (Zones 1, 2, 3 & 4).<br>o Smart Wallet:<br>▪ Users can add funds in multiples of 10 LE at any time.<br>▪ The card balance cannot exceed 400 LE.<br>▪ No time restrictions, and fares are deducted per ride based on metro zones. |

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| **Deliverables** | **Array of Structures should be used:**<br>The system will be implemented using an Array of Structures for efficient data management.<br>1. **User Struct:** |

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| | Attributes: Role (Admin or Commuter), User ID, Name, Password, Subscription Type, Balance.<br>2. **Subscription Struct:**<br>Attributes: Plan Type, Activation Date, Expiry Date, Remaining Trips.<br>3. **Ride Struct:**<br>Attributes: Ride ID, User ID, Entry Station, Exit Station, Ride Date, Ride Fare.<br><br>**User Functions:**<br>1. Create Account: Register a new commuter profile.<br>2. Sign In/Out: Secure login and logout functionalities.<br>3. Buy Travel Plan: Purchase a subscription plan of choice.<br>4. Manage Plan: View, renew, or upgrade subscription details.<br>5. Start/End Trip: Simulate metro rides by checking in and out at stations, deducting the appropriate fare.<br>6. Ride History: Review travel logs, including dates, stations, and fare details.<br>7. Update Profile: Modify user information such as name, password, or contact details.<br><br>**Admin Functions:**<br>1. User Control Panel: View, modify, or remove commuter accounts.<br>2. Subscription Management: Add, modify, or discontinue subscription plans.<br>3. System Ride Logs: Access detailed ride histories for all users.<br>4. Station Management: Add, edit, or remove metro station data.<br>5. Fare Adjustments: Modify metro fare rates based on policy changes. |
| **Bonus** | ● Implement a Graphical User Interface (GUI) for an enhanced user experience.<br>● Modify the system to support zone-based subscriptions instead of distance-based ones. |

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| | ● Generate detailed reports and analytical insights based on travel trends, time intervals, or metro zones.<br>● Introduce additional functionalities (subject to supervisor approval). |