CSE326

Toll Management System

Topic: Class Diagram & ER Diagram

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Introduction

Project Idea: Toll Management System

Architecture used: Model View Controller (MVC)

Diagram Convention: Unified Modelling Language (UML)

Diagrams Generated:

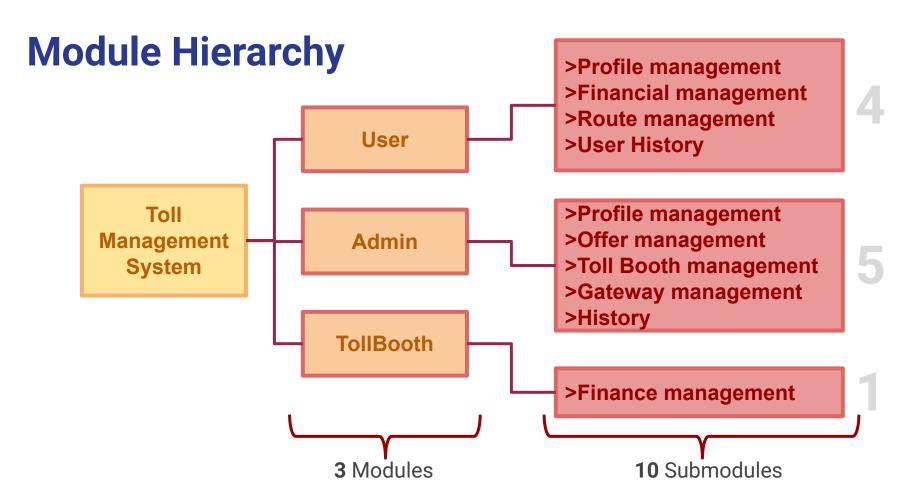
- Class Diagram
- Entity Relationship (ER) Diagram

Model

View

Controller

Used Throughout



1. User Module

1.1 Profile Management

User: Profile Management

User profile management sub module has the following tasks:

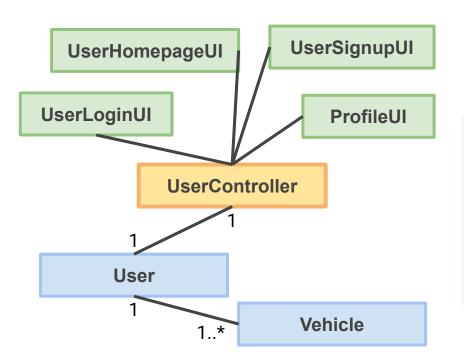
- Log in
- Sign Up
- Profile Info View

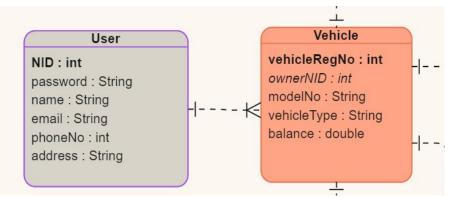
- Profile Info Edit
- Homepage navigation

Model	View	Controller
User Vehicle	UserLoginUI UserSignupUI UserHomepageUI ProfileUI	UserController

User: Profile Management

High Level View



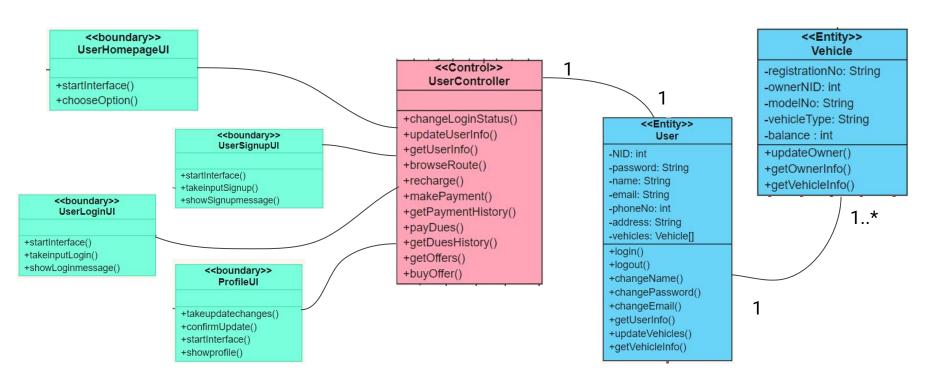


Class Diagram: high level

ER Diagram

User: Profile Management

Implementation View



1. User Module

1.2 Financial Management

User: Financial Management

User financial management sub module has the following tasks:

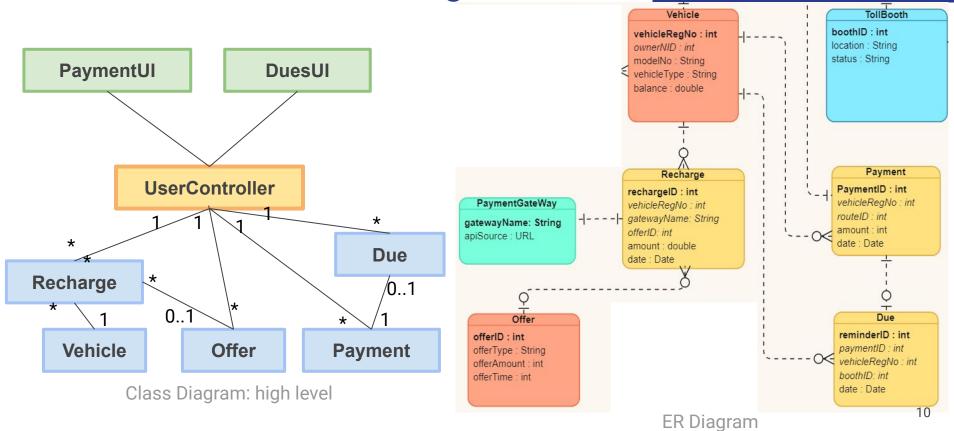
- Recharge User wallet
- Pay for selected toll booths
- Recharging using various gateways

- View list of dues
- Pay pending dues

Model	View	Controller
Recharge Due Payment Offer Vehicle PaymentGateway	PaymentUI DuesUI OffersUI	UserController

User: Financial Management

High Level View



User: Financial Management **Implementation View** <<Entity>> <<entity>> Recharge Vehicle -rechargeID: int -registrationNo: String -amount:double -ownerNID: int <<body><<body><
 <<Control>> -gateway: Gateway **PaymentUI** -modelNo: String -date:Date UserController * -vehicleType: String -vehicle: Vehicle -balance : int +doRecharge() +takeselectedToll() +changeLoginStatus() +selectGateway() +updateOwner() +showTollway() +getrechargeHistory() +getOwnerInfo() +updateUserInfo() <<entity>> +confirmPayment() +getVehicleInfo() +getUserInfo() Offer +startInterface() +browseRoute() -offerID: int -offerType:String +recharge() -offerAmount:double +makePayment() <<entity>> <<body><<body> -offerTime:int +getPaymentHistory() **Payment** DuesUI +showOffers() +payDues() -paymentID: int +makeofferRecharge() <<entity>> +getDuesHistory() -amount:double Due +showDuelist() -vehicle: Vehicle +getOffers() -reminderID: int -routeID: int +confirmPayment() +buvOffer() -date:Date -vehicle: Vehicle +startInterface() -attribute -tollBooth: TollBooth +makePayment() -payment: Payment +cancelPayment() -date : Date +updatePayment() +validpassNotify() 0..1 +getpaymentHIstory() +invalidpassNotify() Class Diagram: Detailed +updateTollList() 11 +calculateDue()

1. User Module

1.3 Route Management

User: Route Management

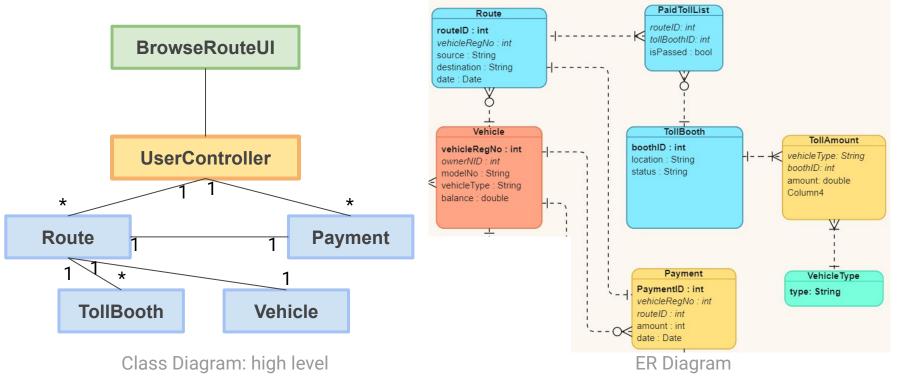
User route management sub module has the following tasks:

- Browse routes in map
- See available toll booths
- Selectively or generally select tollbooths for payment

Model	View	Controller
Route TollBooth Payment Vehicle	BrowseRouteUI	UserController

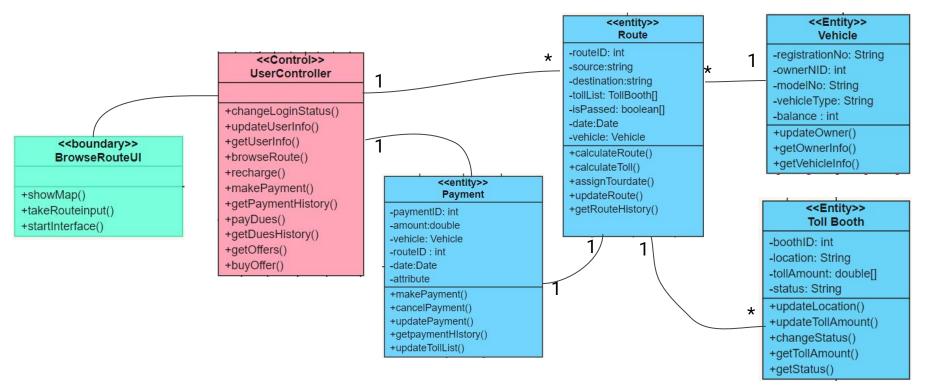
User: Route Management

High Level View



User: Route Management

Implementation View



1. User Module

1.4 User History

User: User History

User History sub module has the following tasks:

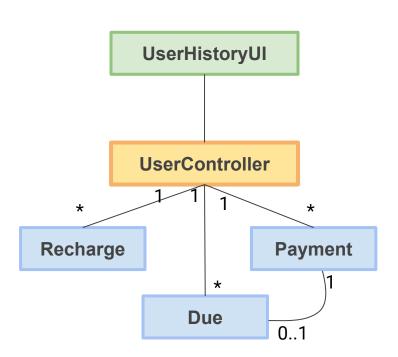
- View Recharge History
- View dues history

- View Transaction History
- View statistics

Model	View	Controller
Recharge Due Payment	UserHistoryUI	UserController

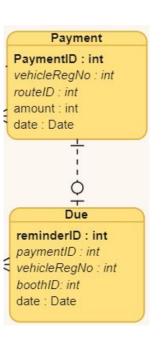
User: User History

High Level View



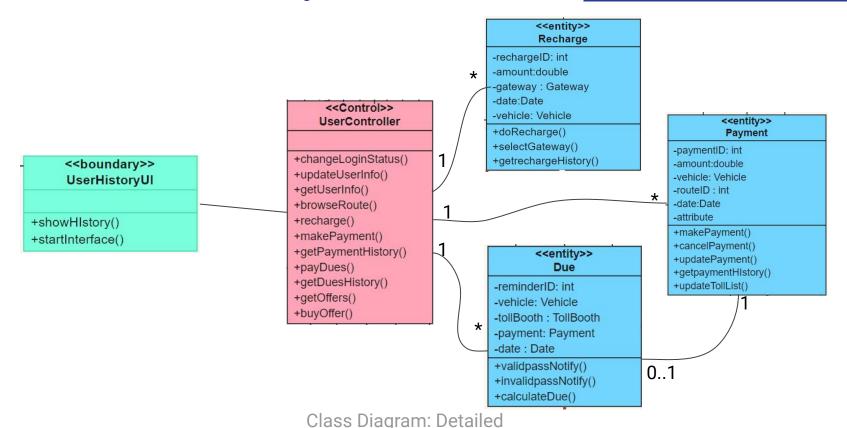
Class Diagram: high level





User: User History

Implementation View



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2. Admin Module

2.1 Profile Management

Admin: profile management

Admin profile management sub module has the following tasks:

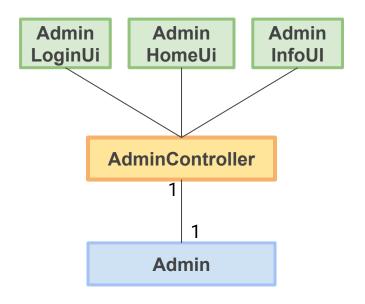
- Log in
- Sign Up
- Profile Info View

- Profile Info Edit
- Homepage navigation

Model	View	Controller
Admin	AdminLoginUi AdminHomeUi AdminInfoUI	Admin Controller

Admin: profile management

High Level View



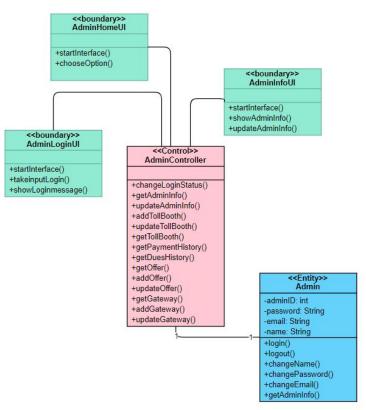
Admin

adminID: int password: String email: String name: String

Class Diagram: high level

Admin: profile management

Implementation View



Class Diagram: Detailed

2. Admin Module

2.2 Offer Management

Admin: offer management

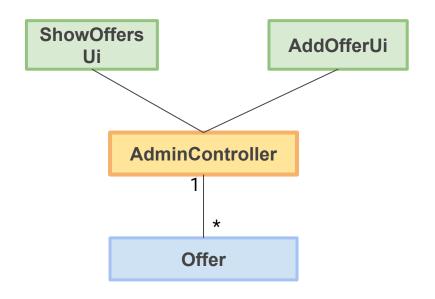
Admin offer management sub module has the following tasks:

- Add new Offer
- Update existing Offer
- Show Offer view

Model	View	Controller
Admin	AddOfferUi offersShowUi	Admin Controller

Admin: offer management

High Level View



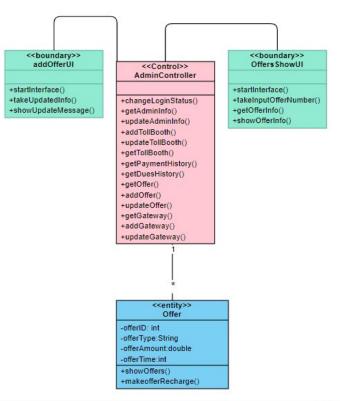
Admin
adminID: int
password: String
email: String
name: String

Offer

offerID: int
offerType: String
offerAmount: int
offerTime: int

Admin: offer management

Implementation View



2. Admin Module

2.3 Toll Booth Management

Admin: toll booth management

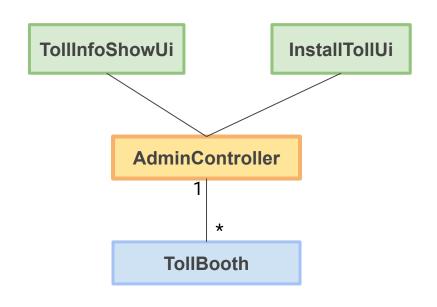
Admin toll booth management sub module has the following tasks:

- Install new toll booth
- Update existing toll booth
- Show toll booth info view

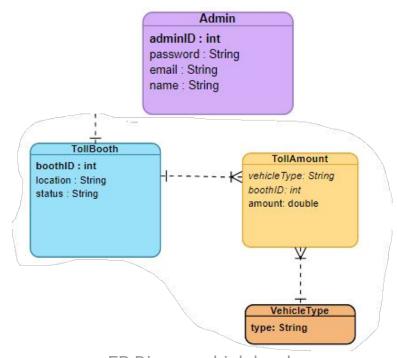
Model	View	Controller
TollBooth	TollInfoShowUi InstallTollUi	Admin Controller

Admin: toll booth management

High Level View



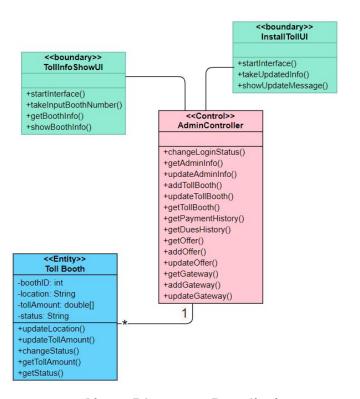
Class Diagram: high level



ER Diagram: high level

Admin: toll booth management

Implementation View



2. Admin Module

2.4 Gateway Management

Admin: gateway management

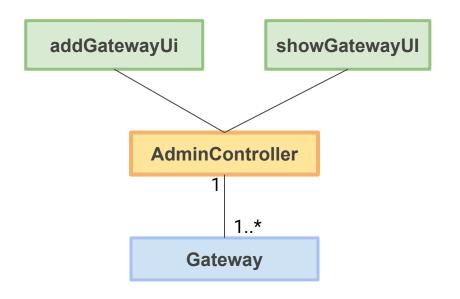
Admin gateway management sub module has the following tasks:

- Add a new gateway
- Update gateway
- Get gateway info view

Model	View	Controller
Gateway	addGatewayUi showGatewayUi	Admin Controller

Admin: gateway management

High Level View

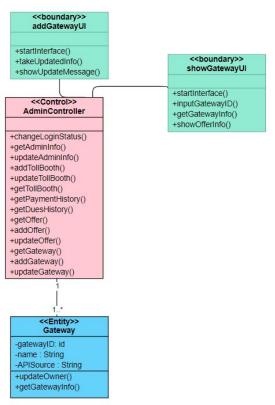


Admin
adminID: int
password: String
email: String
name: String

PaymentGateWay gatewayName: String apiSource : URL

Admin: gateway management

Implementation View



2. Admin Module

2.5 Financial Management

Admin: financial management

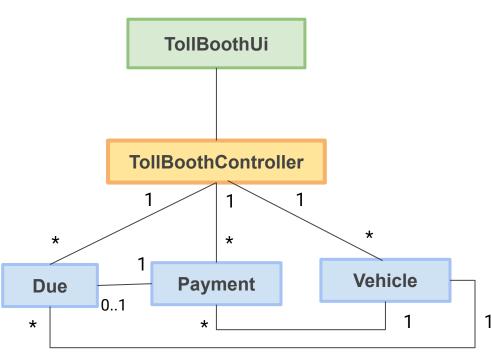
Admin financial management sub module has the following tasks:

- See Payment history
- See Dues history
- See payment or due history for chosen vehicle number

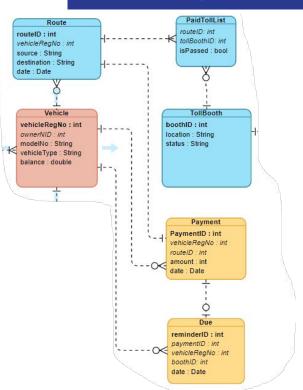
Model	View	Controller
Payment Due Vehicle	showPaymentsUi showDuesUi	Admin Controller

Admin: financial management

High Level View



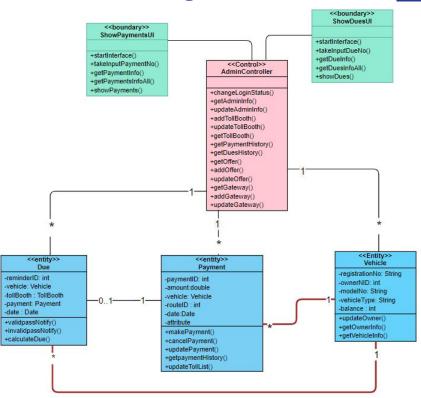
Class Diagram: high level



ER Diagram: high level

Admin: financial management

Implementation View



3. Toll scanning Module

3.1 Cash Management

Toll Booth: cash management

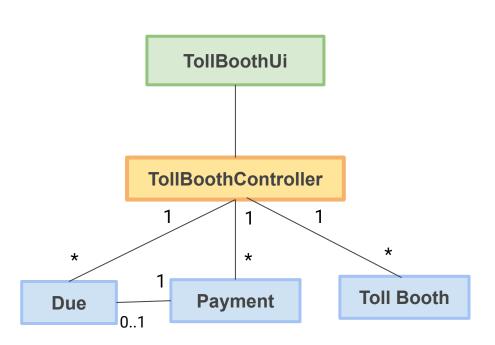
Admin cash management sub module has the following tasks:

- Check payment for a scanned vehicle
- Create due for a unpaid passed vehicle

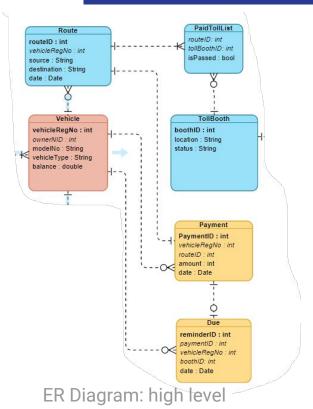
Model	View	Controller
Due Payment TollBooth	TollBoothUi	TollBooth Controller

Toll Booth: cash management

High Level View

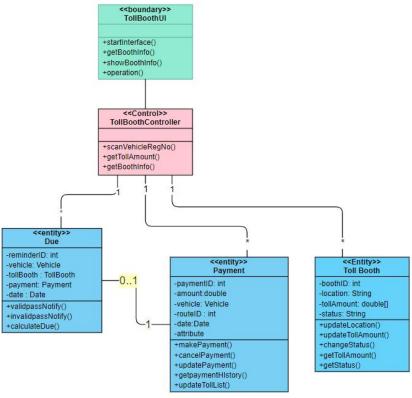


Class Diagram: high level



Toll Booth: cash management

Implementation View

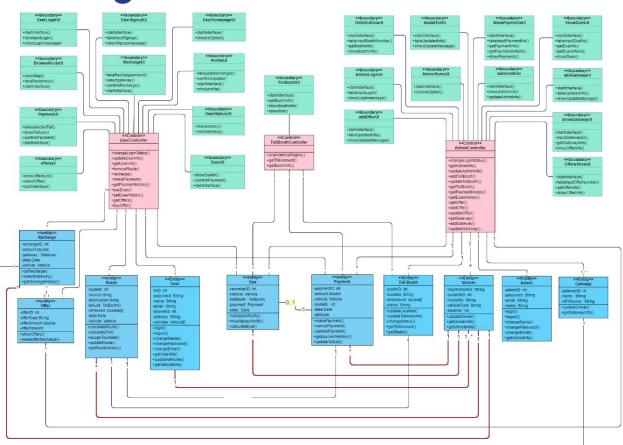


Class Diagram: Detailed

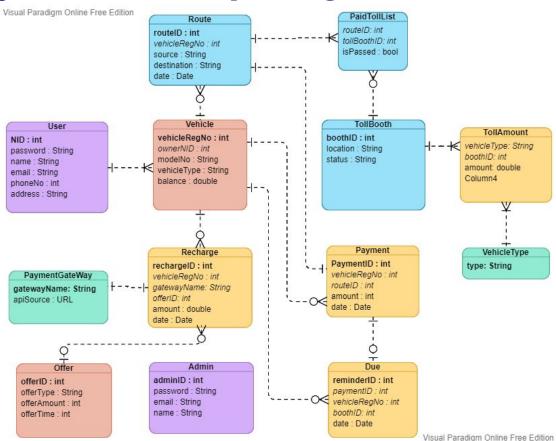
Final UML Diagrams

Class Diagram & Entity Relationship Diagram

Full Class Diagram



Full Entity Relationship Diagram



Thank You