BITP 3113
OBJECT ORIENTED PROGRAMMING

PROJECT:
ERRANDS RUNNING SYSTEM – PHASE 1

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Identify the entity/domain classes for your project.

Model

Class	Fields	Methods
User *(abstract)*	- id: int, - name: String - email: String - password: String	- login(): boolean, - logout(): void
Customer	requestHistory: List<Errand>	- submitRequest(errand: Errand): void, - viewStatus(errandId: int): String
Runner	- schedule: Schedule, - performanceStats: PerformanceStats, - assignedErrands: List<Errand>	- markCompleted(errandId: int): void, - updateAvailability(): void
Errand	- id: int, - type: String, - description: String, - pickupAddress: String, - dropoffAddress: String, - status: String, - assignedRunner: Runner	- assignRunner(runner: Runner): void, - updateStatus(newStatus: String): void
Quote	- id: int, - amount: float, - createdAt: datetime	generate(): float
Payment	- paymentId: int, - method: String, - status: String	process(amount: float): boolean
Schedule	availableSlots: List<TimeSlot>	isAvailable(time: datetime): boolean
TimeSlot	- startTime: datetime, - endTime: datetime	*(none)*
PerformanceStats	- completed: int, - rating: float	updateRating(newRating: float): void

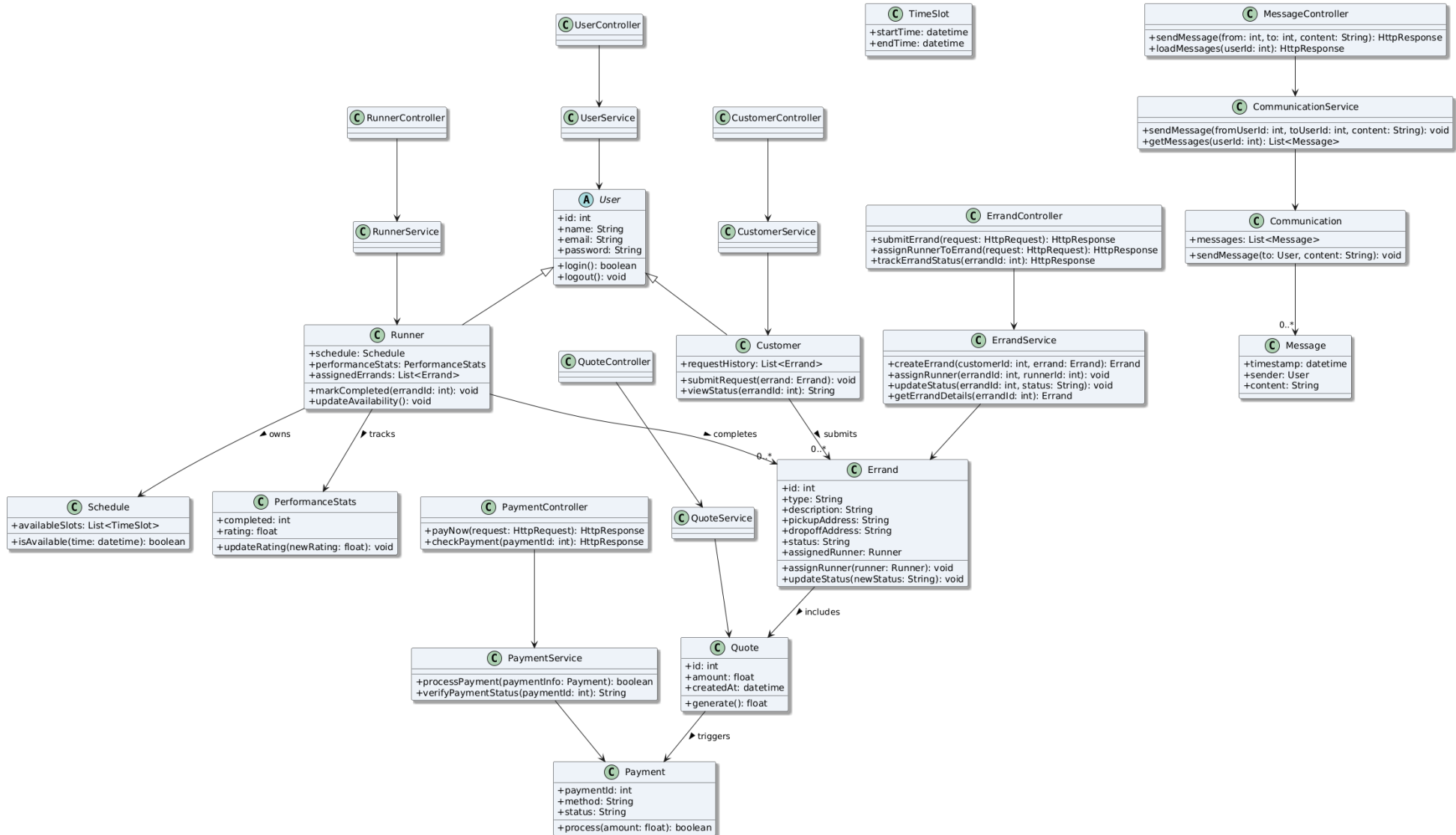| Communication	• messages: List<Message>	• sendMessage(to: User, content: String): void
Message	• timestamp: datetime, • sender: User, • content: String	• *(none)*

View

Page / Component	UI Elements / Fields	Purpose
LoginPage	Email input, Password input, Login button	User authentication
CustomerDashboard	Request History Table, Submit New Errand Button, Errand Status Display	Customer manages and views errands
ErrandRequestForm	Pickup Address, Drop-off Address, Description, Submit button	Form to request a new errand
RunnerDashboard	Assigned Errands List, Mark Complete Button, Availability Toggle	Runner views and updates assigned errands
AvailabilityForm	Time Slot Selector, Submit Availability Button	Runner updates availability
QuoteDisplay	Quote Amount, Details of Services, Accept Quote Button	Displays cost quote to customer
PaymentPage	Payment Method, Card Info, Submit Payment Button	Process payment
ChatInterface	Message Box, Send Button, Message History	Messaging between runner and customer

Controller

Controller Class	Methods
UserController	• **login(),** • **logout(),** • **register()**
CustomerController	• **submitErrand(),** • **viewHistory()**
RunnerController	• **viewAssignedErrands(),** • **markCompleted()**
ErrandController	• **createErrand(),** • **updateStatus(),** • **assignRunner()**
QuoteController	• **getQuote(),** • **viewQuoteDetails()**
PaymentController	• **makePayment(),** • **getPaymentStatus()**
MessageController	• **sendMessage(),** • **viewMessages()**

UML Class Diagram

Errand Runner Management System - MVC UML Class Diagram (Key Details)

UserController

TimeSlot
+startTime: datetime
+endTime: datetime

MessageController
+sendMessage(from: int, to: int, content: String): HttpResponse
+loadMessages(userId: int): HttpResponse

RunnerController

UserService

CustomerController

CommunicationService
+sendMessage(fromUserId: int, toUserId: int, content: String): void
+getMessages(userId: int): List<Message>

RunnerService

A User
+id: int
+name: String
+email: String
+password: String
+login(): boolean
+logout(): void

CustomerService

ErrandController
+submitErrand(request: HttpRequest): HttpResponse
+assignRunnerToErrand(request: HttpRequest): HttpResponse
+trackErrandStatus(errandId: int): HttpResponse

Communication
+messages: List<Message>
+sendMessage(to: User, content: String): void

Runner
+schedule: Schedule
+performanceStats: PerformanceStats
+assignedErrands: List<Errand>
+markCompleted(errandId: int): void
+updateAvailability(): void

QuoteController

Customer
+requestHistory: List<Errand>
+submitRequest(errand: Errand): void
+viewStatus(errandId: int): String

ErrandService
+createErrand(customerId: int, errand: Errand): Errand
+assignRunner(errandId: int, runnerId: int): void
+updateStatus(errandId: int, status: String): void
+getErrandDetails(errandId: int): Errand

Message
+timestamp: datetime
+sender: User
+content: String

owns   tracks   completes   submits   0..*

0..*   0..*

Schedule
+availableSlots: List<TimeSlot>
+isAvailable(time: datetime): boolean

PerformanceStats
+completed: int
+rating: float
+updateRating(newRating: float): void

PaymentController
+payNow(request: HttpRequest): HttpResponse
+checkPayment(paymentId: int): HttpResponse

QuoteService

Errand
+id: int
+type: String
+description: String
+pickupAddress: String
+dropoffAddress: String
+status: String
+assignedRunner: Runner
+assignRunner(runner: Runner): void
+updateStatus(newStatus: String): void

includes

PaymentService
+processPayment(paymentInfo: Payment): boolean
+verifyPaymentStatus(paymentId: int): String

Quote
+id: int
+amount: float
+createdAt: datetime
+generate(): float

triggers

Payment
+paymentId: int
+method: String
+status: String
+process(amount: float): boolean

Login Page

Create New Account

Already Registered? **Login**

NAME

Lorem Ipsum

EMAIL

Lorem Ipsum@greatsite.com

PASSWORD

******

sign up

Login

Sign in to continue

EMAIL

Lorem Ipsum@greatsite.com

PASSWORD

******

sign up

Customer Dashboard

View request History

Errand status tracking
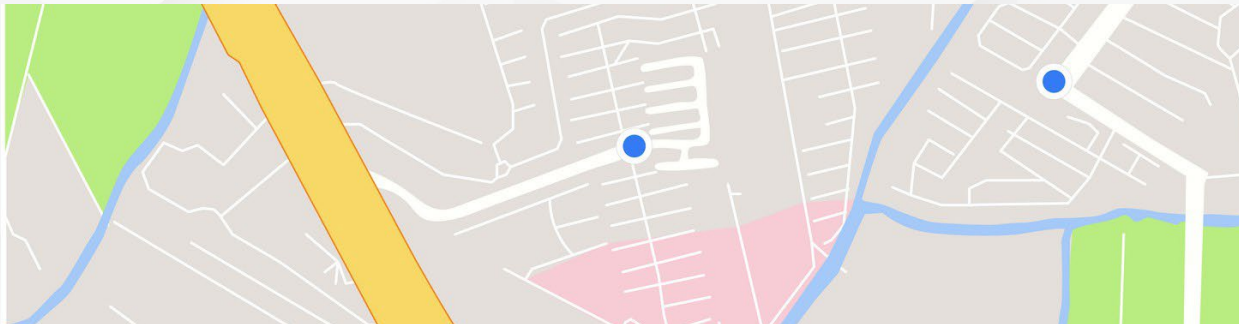(viewStatus)

List of active/
completed errands

SIGN UP FOR FREE

Phone Number

Join as merchant

or

TRACK YOUR PARCEL

Tracking id

TRACK

Latest activity / ongoing delivery

DELIVERY

Submit New Errand Page

Get the **best delivery rates** with our shipping calculator !

From Postcode

To poscode

Weight

KG

Calculate

Submit New Delivery details:
Fields for:
- Type
- Description
- Pickup & Drop-off addresses

- Estimated Quote/Amount shown
- TAC
- Button to submit request
- Trigger for payment page

Payment Page

Just **one more step** before we can successfully complete the process !

Bank 1

Bank 2

- **Payment method selection**
- **TAC**
- **Key in detailed online banking / card**

- **Sumarize order deliveryAmount to pay**
- **"Confirm & Pay" button**
- **Confirmation message**

- Order complete notification
- Summarize info customer order delivery
- Estimate day
- Generate Tracking Number

Runner Dashboard

Schedule Page

- **All List of assigned errands**

- **Show performance: completed count & average rating**

- **Mark errand as completed**

- **View/update availability**

- **Message Customer Display**

Runner Schedule Page

- **Manage available time slots**

- **Calendar/time selector**

- **Save/update availability**

Communication / Messages

- Inbox-style message view
- Chat or message view with sender and content
- Send message to another user (via sendMessage)