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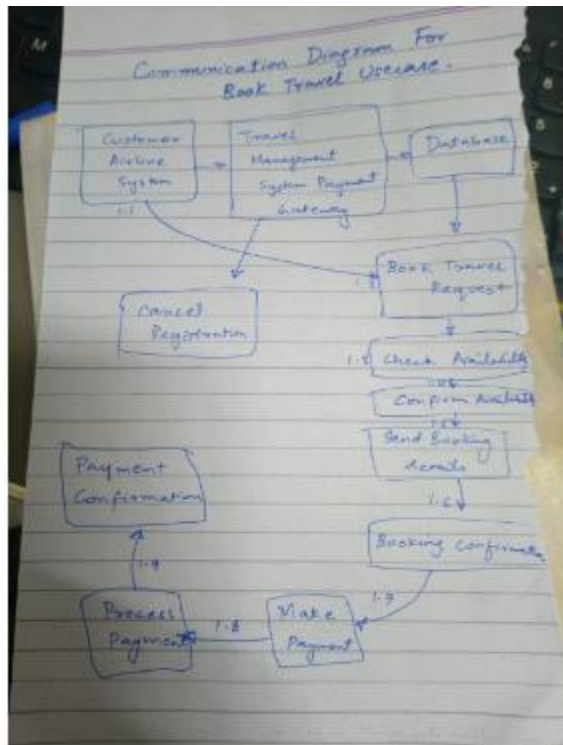**https://github.com/sarina-amjad/SP25-Lab-Midterm.git**

1.USECASE DIAGRAM:

COMMUNICATION DIAGRAM:

PRINCIPLES AND PATTERNS:

1. Information Expert

Booking class tracks booking details (dates, travelers, itinerary).

Payment class manages payment information and processing.

2. Creator

BookingSystem or **TravelAgent** creates new **Booking** objects.

3. Low Coupling

Booking doesn't directly call payment logic; instead, it uses
a **PaymentService** interface.
Traveler is kept separate from **Booking** except for references.

4. Controller

BookingController receives user requests for booking and delegates actions to other classes.

5. High Cohesion

Booking only handles booking data.
Payment only deals with payments.
Traveler only manages traveler info.

6. Polymorphism

PaymentMethod has subclasses: **CreditCardPayment**, **InvoicePayment**, etc., for different payment types.

7. Pure Fabrication

BookingValidator is created to validate booking data, keeping **Booking** class focused.

8. Indirection

PaymentGateway acts as a middleman between **Booking** and external payment systems.

9. Protected Variations

PaymentService interface is used so that changes in payment providers don't affect the **Booking** logic.

Example Assignments

BookingController: Handles user requests for booking.
Booking: Manages booking data.
PaymentService: Handles all payment operations.
PaymentGateway: Connects to external payment systems.
BookingValidator: Validates booking information.

Traveler: Manages traveler details.

Code:

Travel Booking System

Book Your Travel

Destination:

Traveler Name:

Booking Details
Booking successful! ID: 34030f80-41d8-472a-b558-
Destination: islamabad
Traveler: serina

Book Travel

2:42 PM