CAPSTONE PROJECT-THE HARTFORD

Problem Statement:

The travel industry has witnessed rapid digital transformation; however, travel insurance services remain fragmented, complex, and inefficient. Customers often face difficulties in comparing policies, understanding coverage details, submitting claims, and tracking claim status. Traditional insurance systems rely heavily on manual processing, paper-based documentation, and delayed verification workflows, leading to poor customer experience and operational inefficiencies.

Additionally, existing online insurance platforms typically provide generic insurance management features without intelligent risk profiling, automated premium calculation, real-time claim tracking, or fraud detection mechanisms specific to travel-related scenarios such as trip cancellations, medical emergencies abroad, baggage loss, or flight delays.

Abstract:

This project aims to design and implement a Travel Insurance Policy Management System using ASP.NET Core Web API as the backend and Angular as the frontend. The system follows a layered architecture pattern consisting of Controllers, Services, Repositories, DTOs, and EF Core models. The application is secured using JWT-based authentication and role-based authorization, ensuring that only authorized users can access protected resources.

The system includes four roles: Admin, Agent, Customer, and Claims Officer. Customers can self-register and purchase travel insurance policies. Agents and Claims Officers are created exclusively by the Admin to maintain organizational control and security. The Admin is responsible for configuring travel insurance plans and dynamic premium calculation rules, which are stored in the database and applied during policy creation.

The application implements a configurable premium engine that calculates travel insurance premiums based on travel duration, traveler age, destination risk factor, and coverage type. Premium rules are dynamically managed by the Admin, ensuring flexibility without code modification. The system also supports policy lifecycle management, claims processing workflows, invoice generation, payment tracking, and analytical dashboards using aggregation queries and CTEs.

The backend exposes RESTful APIs secured with JWT tokens, and the frontend uses Angular reactive forms, route guards, and HTTP interceptors to ensure secure and efficient communication. The application will be deployed to Azure with CI/CD integration and includes

unit testing using xUnit to validate business logic and controllers. this is okay but also below this for every control what are the features include and if there is anything to describe within the functionalitiy do it.

Role based features:

Admin-

User&Role Management:

1. Create Agent accounts
2. Create Claims Officer accounts
3. Activate / Deactivate users
4. View user

Insurance Plan Management:

1. Create Travel Insurance Plan (e.g., Global Travel Shield)
2. Define coverage types (Basic, Standard, Premium)
3. Set maximum claim coverage amount
4. Activate / Deactivate plan

Premium Rule Configuration (Dynamic Pricing Engine):

1. Configure base price
2. Configure age-based multipliers
3. Configure destination risk multipliers
4. Configure per-day travel rate
5. Configure coverage multipliers
6. Update rules without changing code

Reporting & Analytics:

1. View policies by coverage type
2. View claims by status
3. View monthly revenue (using CTE)
4. View agent performance report
5. View claim settlement ratio

Customer-

Registration&Authentication:

1. Self-registration
2. Secure login
3. Update profile
4. Change password

Policy Purchase:

1. Enter travel details (destination, dates, age)
2. Select coverage type
3. Request premium calculation
4. Purchase policy
5. View active policies
6. Renew policy

Claims Submission:

1. Raise claim

2. Select claim type (Medical, Baggage, Cancellation, Delay)

3. Upload documents

4. Track claim status

5. View claim history

Agent-

Policy Creation:

1. Create policy for customer
2. Calculate premium
3. Submit application
4. View assigned customers

Commission Tracking:

1. View policies sold
2. View total commission earned
3. View monthly performance

Claim Officer-

Claim Review:

1. View assigned claims
2. Download uploaded documents
3. Add review remarks
4. Approve / Reject claim
5. Mark as settled