DELIVERABLE 1 – PRELIMINARY INVESTIGATION REPORT

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CSE230-System Analysis and Design

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A.System Request

System Request:	Airline Company Booking System
Project Sponsor:	Jane Smith, Chief Information Officer (CIO)
Business Need:	The current process for booking flights is inefficient and lacks an online platform, leading to customer dissatisfaction and lost revenue. There is a need for a streamlined, user-friendly online booking system to enhance customer experience and increase sales.
Business Requirements:	Online Booking Functionality: Allow customers to book flights online.
	Availability Display: Show available booking slots and flight schedules.
	User Preferences: Enable customers to select preferred travel dates and times.
	Payment Integration: Secure payment gateway for transactions.
	User Accounts: Allow users to create and manage their accounts.
Business Value:	Improved Customer Experience: Provides a convenient and efficient way for customers to book flights.
	Increased Revenue: Streamlines the booking process, leading to higher conversion rates.
	Competitive Advantage: Positions the airline as a modern, customer-focused company.
	Operational Efficiency: Reduces manual workload for staff by automating bookings.
Special Issues or	Integration with Existing Systems: The new system must integrate with the airline's current

System Request:	Airline Company Booking System

Constraints: reservation and payment systems.

Data Security: Ensure compliance with data protection regulations (e.g., GDPR).

Scalability: The system must handle high traffic during peak booking seasons.

Budget and Timeline: The project must be completed within a budget of $500,000 and deployed within six months.

B. SWOT Analysis

Strengths

• **User Convenience**: The online booking system enhances customer experience by offering an easy and accessible way to book flights.

• **Increased Efficiency**: Automation of the booking process reduces manual workload and minimizes human errors.

• **Revenue Growth**: Simplifying the booking process increases the likelihood of completed transactions and higher revenue.

• **Modern Image**: The implementation of advanced technology positions the airline as a forward-thinking, customer-centric company.

Weaknesses

• **Integration Complexity**: Integrating the new system with legacy reservation and payment systems may present technical challenges.

• **Security Risks**: Managing and protecting sensitive customer data, including payment information, requires stringent compliance with regulations.

• **Training Needs**: Employees will require training to operate the new system effectively, which may cause initial delays and learning curves.

• **Budget Constraints**: The project is limited to a $500,000 budget, which may restrict the development of advanced features.
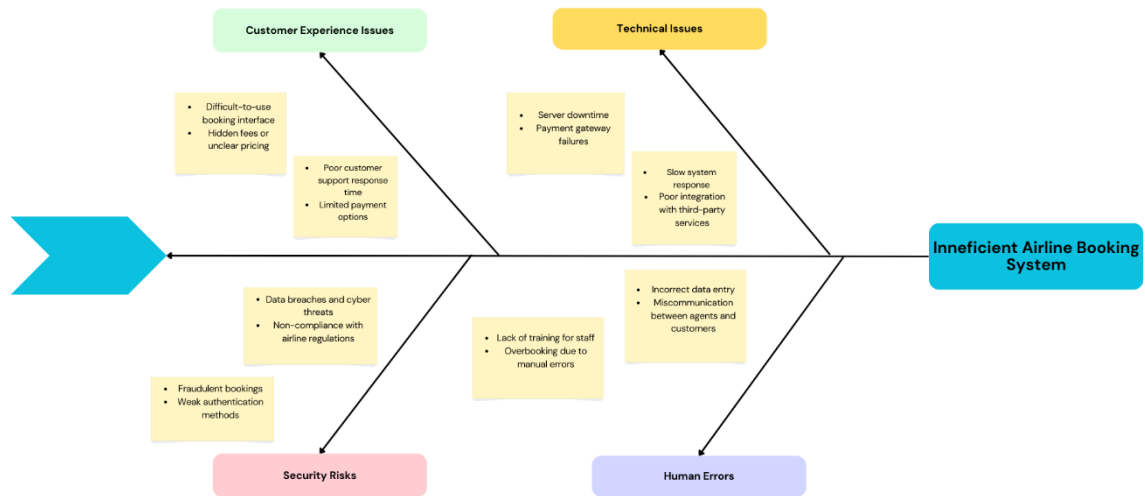
Opportunities

• **New Markets**: The online system can attract tech-savvy customers who prefer digital solutions, expanding the customer base.

• **Upselling**: Opportunities to integrate additional services such as baggage, seat upgrades, and travel insurance during the booking process.

• **Data Insights**: Access to customer data allows for advanced analytics and personalized marketing strategies to enhance customer engagement.

• **Mobile Expansion**: The system can be further extended to a mobile platform, increasing accessibility and customer interaction.

Threats

• **Cybersecurity Concerns**: Vulnerabilities in the system could lead to data breaches, compromising customer trust and legal compliance.

• **Competition**: Other airlines with more advanced or established online systems may pose a competitive threat.

• **Regulatory Compliance**: Failure to meet data protection regulations (e.g., GDPR, PCI DSS) may result in legal penalties and reputational damage.

• **System Downtime**: Technical failures or maintenance issues during peak booking seasons could lead to revenue loss and customer dissatisfaction.

C. FISHBONE DIAGRAM

Fishbone diagram — Inneficient Airline Booking System

Customer Experience Issues
- Difficult-to-use booking interface
- Hidden fees or unclear pricing
- Poor customer support response time
- Limited payment options

Technical Issues
- Server downtime
- Payment gateway failures
- Slow system response
- Poor integration with third-party services

Security Risks
- Data breaches and cyber threats
- Non-compliance with airline regulations
- Fraudulent bookings
- Weak authentication methods

Human Errors
- Lack of training for staff
- Overbooking due to manual errors
- Incorrect data entry
- Miscommunication between agents and customers

D.WBS

Project Initiation

- Figure out the project scope and what we want to achieve
- Identify the key people involved
- Check if the project is even feasible
- Put together a project charter
- Get the official go-ahead to start

Planning Phase

- Map out a project timeline with key milestones
- Assign roles and responsibilities to the team
- List out the resources we'll need

- Look into potential risks and plan for them

- Set the budget and note any constraints

- Decide how we'll communicate and report progress

System Analysis

- Gather all the business and technical requirements

- See how the new system will fit in with existing systems

- Make sure we cover security and compliance needs

- Think about user experience and accessibility

- Document all the system specs clearly

System Design

- Lay out the system architecture

- Design the database structure

- Sketch out the user interface

- Plan how payments will be integrated

- Set up security measures

- Review the design and make necessary tweaks

Development Phase

- Get the development environment ready

- Build the core booking features

- Set up payment processing

- Add user account management

- Test security features to ensure data protection

- Review and refine the code internally

Testing Phase

- Create a test plan and test cases

- Run functional and security tests

- Get real users to test the system (UAT)

- Fix any bugs or issues that come up

- Finalize testing and validate everything

Deployment Phase

- Plan how we'll roll out the system

- Deploy it on production servers

- Test everything again post-deployment

- Train employees on how to use it

- Make it live and keep an eye on performance

Maintenance & Support

- Monitor the system and make sure it's running smoothly

- Collect feedback and fix reported issues

- Release updates and security patches as needed

- Perform regular system audits

- Keep providing technical support and improvements

Half-Year Gant chart
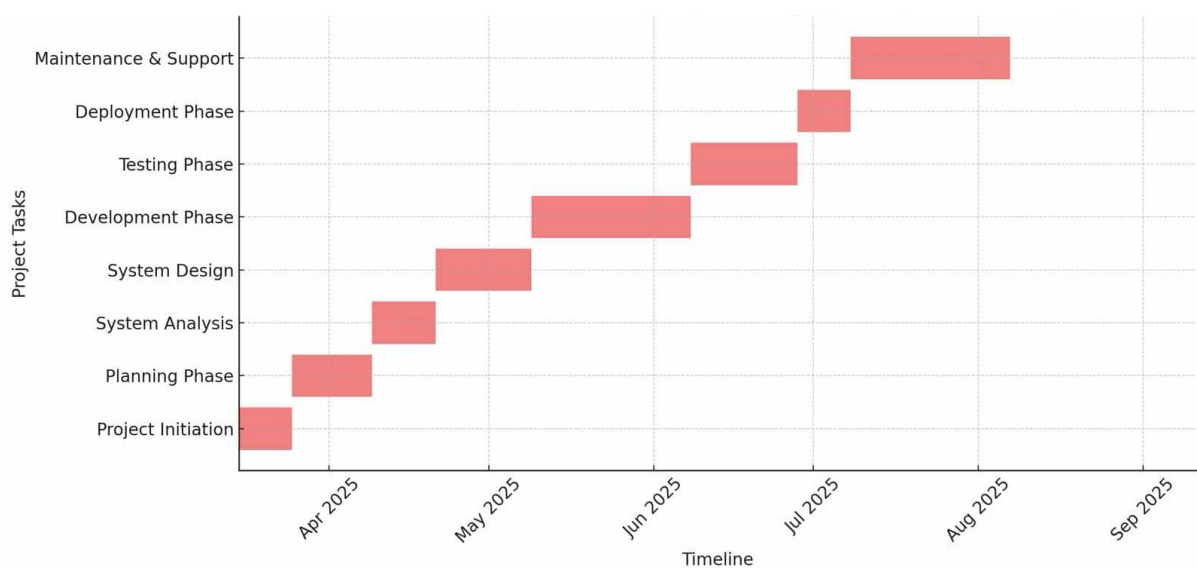
E. Risk Management

1. Data Breach

Likelihood: High

Description: The system will handle sensitive customer data, including personal information and payment details. Without robust security measures, there is a significant risk of unauthorized access or data breaches.

Impact: A data breach could lead to severe consequences, including regulatory fines (e.g., GDPR and PCI DSS non-compliance), reputational damage, and loss of customer trust. Additionally, legal actions may increase project costs and delay system rollout.

2. System Downtime During Peak Periods

Likelihood: Medium

Description: The system must handle high volumes of traffic during peak booking seasons. Inadequate scalability or poor system architecture could lead to performance degradation or system crashes.

Impact: System outages during critical booking periods can lead to lost revenue, customer dissatisfaction, and damage to the airline's reputation. Operational inefficiencies may also arise, increasing pressure on customer support teams and internal workflows.