TFB1033 : OBJECT ORIENTED PROGRAMMING

MAY.2024

TITTLE : PLUTO AIRLINE BOOKING SYSTEM

Universiti Teknologi PETRONAS, Malaysia

PREPARED BY :

NO.	NAME	STUDENT ID	PROGRAM
1	KASHIKA PILLAI A/P KALAI SELVAM	22006368	IT
2	PUVANDRAAN WILSON	22002099	IT
3	JEEVANATHAN A/L ARUMUGAM	22005408	IT
4	MUHAMMAD HARIZ HAZIQ BIN MOHD SHAHRUDDIN	22006459	IT
5	AMINUDDIN RAZIF BIN ARMAN	22007578	IT
6	IZZAMER BIN BAHARUDDIN	22005742	IT

DESCRIPTION

An airline booking system is a sophisticated software solution that streamlines the entire process of flight reservations, ticket sales, and schedule management for airlines. It allows customers to search for flights, compare prices, and book tickets through various digital channels. The system manages seat inventory, optimises pricing, and integrates with payment gateways for secure transactions. Additionally, it supports customer relationship management by storing passenger profiles and preferences, and offers real-time updates on flight schedules and aircraft availability. This essential tool enhances operational efficiency, customer satisfaction, and overall airline profitability.

APPLICATION

An airline booking system is an essential component of the aviation industry, enabling a seamless and efficient process for reservations, ticket purchases, flight management, and related tasks.

1. **Reservation Management:**
   - Seat Reservations: Manages seat assignments and availability in real-time.
   - Cancellations and Modifications: Handles booking changes, cancellations, and rebookings efficiently.
2. **Ticket Sales:**
   - Flight Search and Comparison: Allows customers to search for flights, compare prices, and choose the best options.
   - Online and Offline Sales Channels: Supports ticket sales through airline websites, travel agencies, and mobile apps.
3. **Flight Management:**
   - Schedule Monitoring: Tracks flight schedules, delays, and cancellations.
   - Aircraft Availability: Manages aircraft allocation and turnaround times to ensure efficient fleet utilisation.
4. **Inventory Management:**
   - Seat Availability Optimization: Uses demand forecasting and dynamic pricing strategies to optimise seat inventory and maximise revenue.
5. **Customer Relationship Management (CRM):**
   - Profile and Preferences Management: Stores customer profiles, preferences, and travel history to offer personalised services.
   - Loyalty Programs: Integrates frequent flyer programs to reward and retain customers.

6. **Payment Processing:**
    - Secure Transactions: Incorporates payment gateways like PayPal, Stripe, and credit card processors to handle transactions securely.
    - Currency and Payment Options: Supports multiple currencies and payment methods for global accessibility.
7. **Integration with Other Systems:**
    - Airport Systems: Connects with airport management systems for real-time updates on gate assignments and baggage handling.
    - Third-Party Services: Integrates with hotel booking, car rentals, and other ancillary services to offer comprehensive travel solutions.

MARKET POTENTIAL

The market potential for airline booking systems is substantial

1. **Global Travel Industry:**
   - Growing Demand: The global travel industry continues to expand, with increasing disposable incomes, rising tourism, and more frequent business travel.
   - Passenger Growth: Forecasts predict a significant increase in air travel passengers over the next decade, boosting the demand for advanced booking systems.
2. **Digital Transformation:**
   - Shift to Digital Channels: There is a growing preference for digital booking channels, necessitating user-friendly, mobile-compatible, and personalized booking systems.
   - Innovative Technologies: Integration of AI, machine learning, and blockchain technologies is enhancing the functionality and security of booking systems.
3. **Emerging Markets:**
   - Expanding Middle-Class Populations: Emerging economies, particularly in Asia-Pacific and Africa, are experiencing a surge in air travel demand.
   - Infrastructure Development: Improvements in aviation infrastructure in these regions are supporting market growth.
4. **Airline Efficiency:**
   - Operational Improvements: Airlines are seeking solutions to enhance efficiency, reduce operational costs, and improve customer satisfaction.
   - Advanced Features: Features like dynamic pricing, predictive analytics, and automated processes are crucial for modern airline operations.
5. **COVID-19 Recovery:**
   - Post-Pandemic Travel Boom: As travel restrictions ease and consumer confidence returns, there is a significant rebound in travel demand.
   - Safety and Convenience: Booking systems facilitate contactless transactions and real-time health information, contributing to safer travel experiences.
6. **Airline Partnerships:**
   - Collaborative Solutions: Airlines are partnering with technology providers to develop innovative booking solutions, driving market expansion.
   - Product Development: These partnerships foster continuous improvement and the introduction of new features.

7. **Market Consolidation:**
    - <u>Mergers and Acquisitions:</u> The market is seeing consolidation as larger players acquire smaller companies to expand their capabilities and market share.
    - <u>Enhanced Offerings:</u> Consolidation leads to more comprehensive and integrated booking solutions.