**Data Management and Business Process Modeling**

**Project on**

**Star Air Flight Booking Process**

**University of Connecticut**

**MS in Business Analytics and Project Management**

**Introduction:**

'Star Air' company is headquartered in Bengaluru, Karnataka, India which began its operations in January 2019 and currently offers flights inside Karnataka as well as in adjacent states as Andhra Pradesh, Gujarat, Madhya Pradesh, Rajasthan, Uttar Pradesh, and Maharashtra. Star Air is a new airline with a strong plan to connect the disconnected locations and aims to increase regional connectivity within India. Passengers on the target routes are currently suffering several transit layovers delays thus, with direct connections, the airline give a very reliable, safe, and comfortable travel experience.

**Business Description:**

This project examines the study of a business process at the ‘Star Air’. For booking the flight tickets, the passengers visit the ‘Star Air’ website where they will search for the flight options and fare for the desired location as per travel date. After reviewing the fare and duration information, the passenger will proceed further to book the flight. Passengers will now update their personal information, such as name, email address, contact information, address, phone number, and proceed to the payment page. Once the transaction is completed, the flight ticket is booked, and the passenger gets the ticket confirmation.

**Business Problem:**

In this project, the problem is in Star Air's existing ticket booking system and determined that there were three major factors that contributed to a decrease in bookings by passengers.

Currently, the reservation system does not allow passengers to select a preferred seat. If a passenger wants to book a window seat, they will have to do so ahead of time to avoid last-minute rushes. Nonetheless, this airline does not offer the convenience of booking a seat in advance. The result was that customers had to wait to be assigned seats at the check-in counter before they were allowed to board the plane. Second, passengers are not given the option of completing their booking using a third-party wallet system. It is an issue when a passenger prefers to make a flight reservation payment using their wallet method rather than a debit or credit card. Payments cannot be completed using wallet methods, such as PayPal, UPI, and so on. Moreover, passengers are not notified if their flight has been canceled or delayed. There is a real-time notification system developed to alert passengers if their flights are delayed or canceled.

As a result of such issues, the company must deal with the fallout from passengers and is at a loss since they have to refund the money to them due to a greater number of flight cancellations. Due to its inability to maintain an up-to-date booking system, Star Air is losing customers and earning a negative reputation. This project developed a system for improving flight booking that is convenient for passengers to solve problems. With the improved flight ticket system, airlines can better meet the needs of their customers, from the time of first reservation to task completion.

**Business Needs:**

After adding four new processes and one new actor to modify the current business process. The first new feature is the seat preference process, which requires passengers to update the mandatory seat preferences before proceeding to the payment process.

Next, add the ‘Card’ or ‘wallet’ process. When passengers arrive at the payment page for booking confirmation, they will be presented with two payment options: debit/credit card payment or wallet payment. Once the payment is completed, the booking will be finalized, and the customer receives a booking confirmation notification.

Further, also introduced a new actor called 'Notification,' which includes a process called 'Flight Delayed/Canceled notification,' in which passengers will be notified through text or email if their flight is cancelled or delayed before departure.

**Old Business Process:**

Graphical user interface, application

Description automatically generated

The business process includes four entities, as seen in the above screenshot: passenger, flight, flight reservation, and payment. The process starts when a passenger first goes to the Star Air website and searches for a trip by entering their itinerary requirements, such as the date of travel and flight route in the given input window. When the passenger updates their criteria, flight actor receives the information and generates available flight data based on their preferences. If the requested seat is available, the passenger will be given the opportunity to continue booking. If the seat is not available, the passenger will be returned to the beginning of the process, where they must look for flights with a different travel date.

If the passenger finds an available seat, they will move to the flight reservation actor to complete their personal information such as First Name, Last Name, Phone Number, Date of Birth, Email, and so on. Passengers will be directed to the payment process once all the details have been filled in. To finish the payment procedure, the customer must enter their card information and complete the payment to confirm the booking. The booking will be confirmed after payment is received. If the payment is not received, the customer will be directed to re-enter their card information.

In this model, we can observe that the business process is lacking in terms of allowing flexibility to passengers when booking flights. To improve efficiency, updated the process flow and added a new actor.

**New Business Process:**

Graphical user interface

Description automatically generated with low confidence

After modification, as shown in the above screenshot, the business process now includes five entities: passenger, flight, flight reservation, payment, and notification. The process begins when a passenger visits the Star Air website and searches for a trip by entering their itinerary requirements, such as travel dates and flight routes, into the provided input window. When a passenger changes their preferences, the flight actor receives the information and generates available flight data based on their selections. The passenger will be offered the option to continue booking if the seat on the flight is available. If the seat is not available, the passenger will be taken back to the start of the process, where they must search for flights on a different date.

If an available seat is found, the passenger will proceed to the flight reservation actor to fill out their personal information, such as their First Name, Last Name, Phone Number, Date of Birth, Email, and so on. Implemented a new process for updating seat preferences, where passengers can mention their seat preferences and proceed to the payment process. Furthermore, changed the payment process by providing two payment options: card or wallet system. The customer will select one of the alternatives and proceed to make payment using one of the two methods, completing the payment to confirm the reservation.

Once the payment has been received by the company, the process will proceed to the newly created actor of the notification system, where the booking will be confirmed, and a notification will be sent to the customer. If the payment is not received, the customer will be directed to re-submit their payment. Created a new process for sending 'Flight delayed/canceled notification,' which must be delivered to customers if there are any changes to the flight before it departs, for increased convenience. As a result, this modified business process has closed all the faults that resulted in fewer passenger bookings or more flight cancellations.

**Entity Relationship Diagram in Visio:**

* A passenger can book one or many flight tickets.
* A flight should have zero or many flight schedules (Same flight can have different schedule for different day)
* The Flight should have all the information related to arrival, departure, to and from location and no of seat and all the airport information it is going to land.
* Flight reservation can be done for many seats and can be checked with booking status
* Once passenger can have a unique payment profile and can use different payment modes.
* Once the flight reservation has been made, payment is done by two methods either card or wallet.
* For one payment profile, the user can add multiple cards and wallets.
* Once Payment is done, Message notification is sent to the passengers.

Below is the detailed description of all the entities for Star Air Ticket booking process:

* **FLIGHT –** The table contains all the flight information.
* **AIRPORT –** The table contains airport name and address
* **FLIGHT\_SCHEDULE –** The table contains all the information related to flight schedule, departure time, gate, and flight status
* **FLIGHT\_RESERVATION\_TICKET –** The table contains all the information related to booking date and other reservation details
* **SEAT –** The table contains all the seat information, type, and their availability.
* **NOTIFICATIONS –** The table contains information for the date and message sent to passenger after booking
* **PASSENGER –** The table contains all the personal details of passengers.
* **PAYMENT –** The table contains information for payment method and status.
* **WALLETS –** The table contains all the wallet details
* **CARD -** The table contains all the card details
* **AIRPORT\_FLIGHT\_DETAILS –** This table shows association between airport and flight entities
* **RESERVED\_SEAT\_DETAILS -** This table shows association between flight\_reservation\_ticket and seat entities.

**References:**

[Home Page - Star Air](https://starair.in/)

[Star Air (India) - Wikipedia](https://en.wikipedia.org/wiki/Star_Air_%28India%29)