# Airline reservation system

Environment, Air



# Introduction

# Overview

The Project aim to design and implement a working model of an Airline Reservation System. The project will be built and tested on an Oracle database and uses JAVA as the programming language. JDBC will be use as the interface between the database and JAVA.

The primary goal of this project is to help passengers make flight reservation. The system will be able to find all the flights available fulfilling a passenger's needs and able to search all flights with a given origin and destination. The system will displayed the arrival and departure times, the flight number and passenger will decide flight reservation based on the displayed information

The secondary goal is to provide a means for the airline operators to manager the flights. The operator will be able to put up lists of passengers with over-weight bags for Business and Economy class passengers

External Interface Requirements

User Interfaces:

The Web will be used as an interface with the users

Hardware Interfaces

No special hardware is required for this product

Software Interfaces:

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Java

JDBC

Apache Tomcat servlets

Oracle 8I SQL server

USE CASE Model

A user may obtain available seating information for flight between specified locations, for a given date.

A user may make a reservation for any available seat(s).

A user may cancel an existing reservation.

A user may than purchase the ticket.

The system functionality is described in more detail using UML

Static Model

In the model the concept of reservation has been simplified by requiring that all reservations be part of a group reservation, even if a group reservation is for a group of just one.

Figure 2. Normalized Information model of a flight seat reservation system annotated to convey meaning easily

Figure 3. Formalised dependency derived from figure 2. The X denotes inconsistent dependencies. and "1" the terminal object. This figure represents both theory and model.

Figure 4. modifies figure 3 by leaving out the detail of the terminal object. It adds in objects to support flights with multiple segments. A basic flight segment (flight\_seg) is a leg of a flight that is the component of the flight between adjacent airports of the flight path.

The flight\_seg\* object is an expression of all contiguous flight path combinations of flight segments, including basic flight segments and segments that include other segments.

A static model of information is given in figure 2. The dependencies in this model are re-oriented in figure 3 to show the dependencies more clearly.

The dependencies to airport are inconsistent because airport is playing two roles (departure airport and arrival airport). The terminal object is specified by the property that every object must have a unique arrow to it. The terminal object can be interpreted as representing global properties of the system such as the airline company that has the reservation system.

Business Option

Why ARS is Needed

With Airline Reservation System implemented, the airlines may be subjected to many benefits, the benefits are as listed below: –

Increase in Sales of Tickets

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#### Airline reservation system – Paper Example

With Airline Reservation System, I can track our passengers purchasing preferences and with this I can promote special flight packages to our existing passengers. Passengers' reservations patterns can also be used to determine the marketable flight and then try to provide more flights and services to fulfill the high demand. Besides, ARS is also capable in increasing passenger loyalty and satisfaction by providing good reservation and services.

### Reduce in Time and Cost

Traditional paper reservation records have many drawbacks: they can be incomplete, torn, worn, misplaced, or lost. They also require a lot of storage space in addition to requiring extensive administrative time from user. With the implementation of ARS, it will prevent data lost with back-up function and decrease in cost and time. It can increase the speed of searching, processing and making reservation. Thus, it gives satisfactory to passengers. From the data stored in the system, it is capable to generate daily/monthly sales report automatically. Users do not have to waste their time to generate the report manually.

### More Organized Information

Flight ticket reservation method has better organization of information for better retrieval with ARS. All other relevant data can be managed and wellorganized using the system. Data will be stored in the database accordingly. Thus, user can make a clear view on any data as they wish without any problem. Technical Option

Below are the list of features the system should or most have:-

Add/Delete Airline Manager Information

Add/ Delete Ticketing Staff Information

Add/ Delete Flight Information

Add/Delete Passenger Information

Make Reservation

View/Query/Cancel Reservation

View/Query on Flight Information

View/Query on Passenger Information

View/Query on Airline Manager Information

View/Query on Ticketing Staff Information

Report on Flight, Passenger, Airline Manager and Ticketing Staff

Existing Systems

I have managed to do a research on the existing automated ARS used in Malaysia Airlines. The airlines reservation system used in Malaysia Airlines is known as KOMMAS. KOMMAS is a DOS-base system that use by MAS for ticket reservation. This system has 25 years history. It had been upgrade for 4 times in these 25 years to add more features in it. Now, they still are using this system to do reservation for customers. All brunch of MAS in overseas are using the same system to do reservation too. The system can check on the departure time and day to specific place. Not only flights that offer by MAS but also flights offered by other airline systems in Malaysia and overseas.

For reservation, the reservation person will key in the record and book the tickets. Once booked, the system will check whether the flights or seats is confirm. This system has link to the capacity of the aircraft. For example, this system tells the number of seats occupied and empty seats for each class. If the seats had full, a note will pop up say that seats are full and confirm can not be made. By this function, the reservation person can tells the more accurately about which seats are available to customers.

The reservation person will then confirm with customers. Once confirm, the customers will go to the ticketing counter to take the ticket and pay the money. The reservation person will key in the reference number to the system. The information of customers will pop up if he had made the reservation.

The deadline for customers to take the tickets is 2 weeks before departure time. If the customers didn't take the ticket and pay the money before these two weeks, the system will automatically erase the reservation. This is to enable others to do reservation. There is no deposit required in this process. For customers that want to change their flights departure time or date, the reservation person just need to key in the customer's reference number and change the details. Customers also can cancel the flights if they couldn't make it. The information of customers will keep by the system for 6 months. After 6 months, the system will automatically delete the passenger information.

This system also allows customers to make some special requirement. For example, some people may have elegy to certain food, the reservation person will key in this special requirement for food into the system, so that special meal will be provided to this person. Customers also can choose seat that they prefer. In the other words, this system is customers friendly. Booking is done by reservation department. But ticketing department also can access it and make reservation for customers. Ticketing and reservation department are link to each other, they can access the same database. KOMMAS have a specific code for the user of this system. For persons who make reservation and ticketing, they have the highest accessibility to use the system. For managing level, they just can access the system and check the report of flights and customer's reservation information. For administration level of this system, they can customize the flights and departure time.

System down was happened before. When the system is down, all the ticketing reservation will do manually. The system also has backup the information of all flights and customers' information. This is to prevent the damage of database due to virus or physical damage. So, there is no reason that they will lose their data. However, this system has its weaknesses. It can not generate report according to the requirement of user. Also, this system has no basic intelligent. User will only get the report after one or two weeks. Due to this system is DOS base, the interface of this system may not attractive. Also, it is not user friendly enough for the user. User will need to memorize all the codes to make reservation, to view reports, to check on flight and etc. Information that shown out from the system is messy. For the beginner user of this system, they will face the difficulties to understand the information shown. For the security part, user do not have own password to get into the system. They get into the system just by using the access code that they had given.

#### Project Plan

#### Gantt Chart

The first session of this project is to develop the system's prototype and interim report. I have divided the first session of tasks into six different parts from Project initiation and planning until presentation. The first task is Project initiation and planning which start on 12 Oct. 2007.

Due to the deadline's I will be expected to spend not more than two weeks to complete the first task. Than the next task is to work on Literature Review in this task I will be researching existing reference for the system and project, I will try to make contact with if possible visit a Local Airline office.

The Second session of this project will starts after the submission of interim report and prototype. I will start to prepare the final report; I have divided those tasks mainly on seven different parts from Review on preview project work until presentation.

On Thu 06/12/07, I planned to start a very crucial task, which is Analysis and Design. First I will have a analyze the requirement for this project and then I starts to design Entity Relational Diagram and Data Flow Diagram. It will consume most of the time in this task followed by drawing context diagram. The Analysis and Design is expected to finish on Tue 25/12/07. The final task before presentation is development prototype and Report, a prototype will be developed and it will consume most of the time while finalizing report will be the minor part in this task.

The first task that I need to do is review on preview project work, which start on Thu, 24/01/08 I will analyze what problem are to be solved and what improvement to be made and design a new project plan. The first task will be expected to spend eight days to complete.

The next task will be to update plan and requirement. After completing the review session, I will have the final update for the plan and project requirement. This plan should meet requirement in development a successful database CASE tool. This is expected to take five days to complete.

And than, System Design is next which is Database and Software Architecture. I will construct a database to the system for the purpose of enhancement; I will design on screen and repair the data model, which is expected to finish in eight days. The next task is Prototype & Review of major modules in this task I will continue to work on the prototype which I have done during the interim report before staring the initial system coding, It is expected to finish Tue, 25/03/08

. After the implementation phase, I will go through the testing phase by constructing a Test Plan and Test Data. I will create an acceptance test and begin system debugging if problem occurs. And this is expected to finish Thu, 17/04/08

The following task is Final Report and Testing Evaluation. In this testing phase, I will continue on the final report, system testing and system evaluation. I will concentrate on the Final Report as well as System Completion towards the end of project development. I need to prepare a well-written and high-quality final report.

The final task is the presentation of the project. A good preparation on this presentation phase will insure a good representation of the project.

# Project Milestones I

In the milestones table, it's mainly divided into four major phases, which the first phase completed by 1 November 2007 while the second phases are expected to be completed by 15 November 2007 including the review & presentation. And the final phases will be sub-divided into six tasks and the completion date for each task is stated as the table below No. Tasks Milestone/Date Completed 1 Project Initiation and Planning Wed 24/10/072 Literature Review (Research)Wed 05/12/073 Analysis and DesignTue 25/12/074 Prototype and ReportWed 23/01/085. Review on Preview Project Work Mon 18/02/08 6. System Design ( Database & Software Architechit) Fri 07/03/087. Prototype & Review of major Modules Tue 25/03/088. Test Plan & Test Data Thu 17/04/08 9. Final Draft & Testing EvaluationMon 05/05/0810. Presentation Thu 15/05/08

Table 1. 1: Project Milestones

# Reference

Johnson, M. S. J., R. Rosebrugh and R. J. Wood, 1997. *Entity relationship models and sketches,* submitted to Mathematical Structures in Computer Science, July, 1997, 18pp.