

Airline Management System

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Description: We are creating a system that will be able to handle various components and operations of an airline. This system will allow the airline to manage both staff and customers throughout the entire flight process. This includes passengers, staff, flights, scheduling, bookings, etc. It will also manage the amount of money made and lost as well as operational efficiency and real-time updates.

Main Components:

Airline

Main Entry Point: This class will provide an overview of flight availability and staff operations.

- Each aircraft will have a unique identifier. Also, aircrafts will inherit the CRUD tasks (create, read, update, and delete) that can only be accessed by admin.
- Along with the unique identifier the aircraft will have the number of seats available and amount of staff needed to operate.
- Information on staff operating each aircraft will be available to the admin with the ability to create, read, update, and delete either staff or operations.
- Information on passengers on each aircraft will be available as well.

Staff

Next Level of Access: This class will allow staff to view and update operations involving passengers and flight schedule. Will inherit the capabilities of passengers with the ability to do more.

- Assigned a staff ID number containing their name and work number allowing them to deal with staff affairs.
- This information will be stored in a .txt file.
- This ID number will allow admin to search for them through the system and create, read, update, or delete their information as well as passenger information.
- The ID number will allow the staff to access passenger information and update flight schedules based on route, weather, staff availability, and aircraft availability.

Passenger

Bottom Level of Access: This class will be responsible for allowing passengers to access flight details and their own information.

- Given a passenger ID number containing their name and email allowing them to deal with passenger affairs.
- This information will be stored in a .txt file.
- Viewing of flight availability and pricing.
- Purchasing of tickets.
- Updating their own information (email or phone number) contained in ID.
- Create a flight report that will be used to improve future flights.

Booking

Reservations: This class will be responsible for keeping track of reservation details and its connected flight. Will inherit capabilities from the classes “Passenger” and “Flight.”

- A reservation record. It will represent the connection between a Passenger and a Flight.
- Represents ticket status/reservation details.
- Create/cancel reservations, track booking status.

Flight

Flight Details: This class will include the details of the individual flight and everyone involved.

Will be associated with the class “Airline.”

- Admin will have the ability to create, update, or delete flight routes as well as flight time.
- Staff and passenger information for individual flights can be viewed by admin.
- Admin will also be able to allocate and remove staff/passengers from flights.
- The unique identifier for the aircraft will also be able to be viewed by the admin.

This will be used to allocate aircrafts for efficiency.

Scheduling

Time: This class will be responsible for tracking when flights will begin and how long flights will be. Will be associated with the class “Flight.”

- Admin and staff will be able to create, update, and delete flight schedules.
- Schedules are based on the route from the “Flight” class.
- The schedule will be able to be viewed by all users of the system.

Extra Components:

ID

Identifier: This class will allow the identification of anyone who enters the system and assign appropriate permissions to each individual. Will inherit capabilities from “Admin,” “Staff,” and “Passenger.”

- Upon entering the system you will be asked if you are a passenger, staff member, or admin.
- Passengers will be asked to enter their passenger ID. A passenger ID will only allow you to view pricing, view flight availability, view flight schedule, edit your own information, and purchase tickets.
- Staff will be asked to enter their staff ID received from creating a staff account. A staff ID will allow the viewing and editing of passenger information (name and email), number of passengers, number of bags (carry on/checked), and flight schedule.
- Admin will be asked to enter their admin ID received from creating an admin account. An admin ID will allow access to the entirety of the system with the ability to create, read, update, or delete staff, passengers, aircrafts as necessary.

Tickets

Pricing: This class will be responsible for tracking the amount of tickets bought and cancellations of flights by passengers.

- Admin and staff will be able to view and update the amount of tickets sold for individual flights.
- Admin and staff will also handle cancellations by passengers here.

Admin

Highest Level Access: This class will allow admin to login, access and edit information about aircraft availability, staff availability and information, key operations. Will inherit the abilities of staff members while being able to do more.

- Each admin will be assigned an ID number which will allow them to be searched in the system and will contain their name, availability, and contact information (work number).

- This information will be stored in a .txt file.
- Handling of staff, operations, and passengers.
- Ability to create and delete staff members.
- Can also view and edit passengers as needed.

Revenue Management

Cost Management: This class will be responsible for revenue, setting prices, and dynamic pricing. This class will inherit the capabilities of the class “Tickets.”

- Create, read, and update revenue per passenger and per day based on the amount of tickets bought.
- It will be able to update prices based upon demand and time until departure.

Analytics and Reporting

Updates and Improvements: This class will be responsible for analyzing customer satisfaction through customer reports and using these analytics to optimize both efficiency and satisfaction.

Will inherit the classes “Admin” and “Passengers” while being associated with the class “Staff.”

- After the completion of the flight process customers will be asked a series of yes or no questions.
- Did we get you to your destination in a timely manner? Depending upon the answer, improvements in flight scheduling and routes may be warranted.
- Were our staff respectful and helpful? Staff will be notified of the majority of the answers and be addressed appropriately.
- Would you fly with us again? Staff will be notified of the majority of the answers and be addressed appropriately.