Meeting Minutes

Date: 2/15/2024

Time: 1:35pm

Location: Cyber Security Lab

Attendees:

- Anthony
- Corey
- Dylan
- Parker
- Will
- Zach

Agenda:

1. Algorithm discussion
2. Aircraft status
3. Profitability analysis
4. Airport class refinement
5. Database development decision
6. Functionalities update
7. Paris flight planning
8. Fuel requirement adjustment
9. Ledger entries refinement
10. Logging implementation

Meeting Proceedings:

1. Algorithm Discussion:

- It was agreed that for the algorithm's input, weighted distances are no longer necessary; flight times will be used instead.
- There's an ongoing decision regarding the importation of all four files created by the flight_times.py script.

2. Aircraft Status:

- The group acknowledged that aircraft status essentially operates as a finite state machine, with each plane consistently in a particular state.
- Discussion ensued regarding refueling practices, debating whether to refuel before each flight or wait until the aircraft is nearly empty. Consideration was given to simulating both methods to determine the optimal approach.
- Clarification was sought on the maintenance requirements of the aircraft, with consensus reached that maintenance would occur after 200 flight hours. The next profitable flight to a hub will be scheduled after 200 hours is reached.

3. Profitability Analysis:

- It was determined that profitability per aircraft for each flight is crucial for selecting the most suitable plane for specific flights. This analysis will aid in matching passengers with appropriate aircraft based on demand.

4. Airport Class Refinement:

- The group decided to revise the gates element in the airport class, suggesting that gates should function solely as a counter. A plane may depart the tarmac if the gate counter exceeds zero, with the counter incrementing upon departure and decrementing when a plane is assigned to a gate. Gate allocation within the airport class will be calculated upon application startup.

5. Database Development Decision:

- Consensus was reached to postpone database development, opting to store data in CSV files. This decision allows for focused efforts on simulation and timetable development, deferring database implementation until later stages if time permits.

6. Functionalities Update:

- Consideration was given to incorporating decrement gas level functionality into the aircraft arrive subroutine.

7. Paris Flight Planning:

- Planning for flights to Paris necessitates identification of suitable departure airports within range of a full tank of gas.

8. Fuel Requirement Adjustment:

- The previously discussed fuel + 1/3 requirement was deemed unnecessary and will be removed to optimize profitability.

9. Ledger Entries Refinement:

- Ledger entries, including fuel expenses, takeoff and landing costs, and aircraft rentals, will be generated by the application during runtime. Rental costs for a two-week simulation period will be halved for accurate accounting.

10. Logging Implementation:

- Structured logging using the Python library 'structlog' was endorsed. Logs will contain real-world time, simulation time, and code location details in JSON format for comprehensive tracking and debugging purposes.

Meeting Adjournment:

- The meeting concluded at 3:15

Prepared by: Corey Lawrence