Project Design Phase-I - Solution Fit Template

Project Title: Developing a flight delay model using Machine Learning

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<table>
<tr><td rowspan="1">Define CS, fit into CC</td><td>1. CUSTOMER SEGMENT(S) — CS

- Normal flight users
- Business professionals having meetings
- People boarding a lay-over flight
- Logistics incharge at airport
Airport catering manager</td><td>6. CUSTOMER CONSTRAINTS — CC

- Refund/Partial Refund
- Not knowing the exact time of delay
- Unavailability of alternate flights or accommodation</td><td>5. AVAILABLE SOLUTIONS — AS

- May take alternate flights
- Ask for an alternate flight/schedule
- Wait for the delayed schedule
- Enjoy airline benefits
- Report airline
- Cancel the flight
- Search for specific reasons for delay</td><td rowspan="1">Explore AS, differentiate</td></tr>
<tr><td>Focus on J&P, tap into BE, understand RC</td><td>2. JOBS-TO-BE-DONE / PROBLEMS — J&P

- To know if a flight is delayed
- To make alternate arrangements to reach the destination in case the flight is delayed
- To know other things that can be done when the flight is delayed</td><td>9. PROBLEM ROOT CAUSE — RC

- Unavailability of means to estimate delays occurring in airplanes
- Large scale economic loss for both airlines and the customers
- Degradation in airline's reputation when many flights are delayed</td><td>7. BEHAVIOUR — BE

- Use the app deployed to know the approximate delay
- Find alternate travel options
- Find hotel accommodations for overnight delays
- Fill ratings and feedbacks to help other users</td><td>Focus on J&P, tap into BE, understand RC</td></tr>
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3. TRIGGERS `TR`

- Cancellation of flights
- Extreme boredom
- Guilt of wasting time
- Thought of missing important meetings
- Missing layover flight
- Uncertainty in deciding if the flight is delayed when they start late for the airport

10. YOUR SOLUTION `SL`

- The aim is to develop an application that predicts flight delays using a supervised machine learning model (a decision tree classifier) with the data of flights and delays so far and estimate the time of delay taking spatial dependencies of flights into account.

8. CHANNELS of BEHAVIOUR `CH`

8.1 ONLINE

- Check if a particular flight will be delayed and the estimated time of arrival
- Giving ratings and feedbacks for various flights so as to improve the app's performance in predicting further delays
- Check for other specific reasons for delay

4. EMOTIONS: BEFORE / AFTER `EM`

Before:
- Worried
    - About missing important events
    - About missing layover flights
    - If the flight is gonna be canceled

- Frustrated
    - About the unexpected delay/cancellation
    - Not knowing the news of delay beforehand
    - About the weather
- Bored
    - Don't know how to make use of time

After:
- Gets to enjoy the airline benefits
- Stay relaxed after getting a proper update from the airline
- Relieved if an alternate solution can be found

8.2 OFFLINE

- Finding alternate travel routes in the airport
- Hotels near the airport can be visit for overnight stays during delays