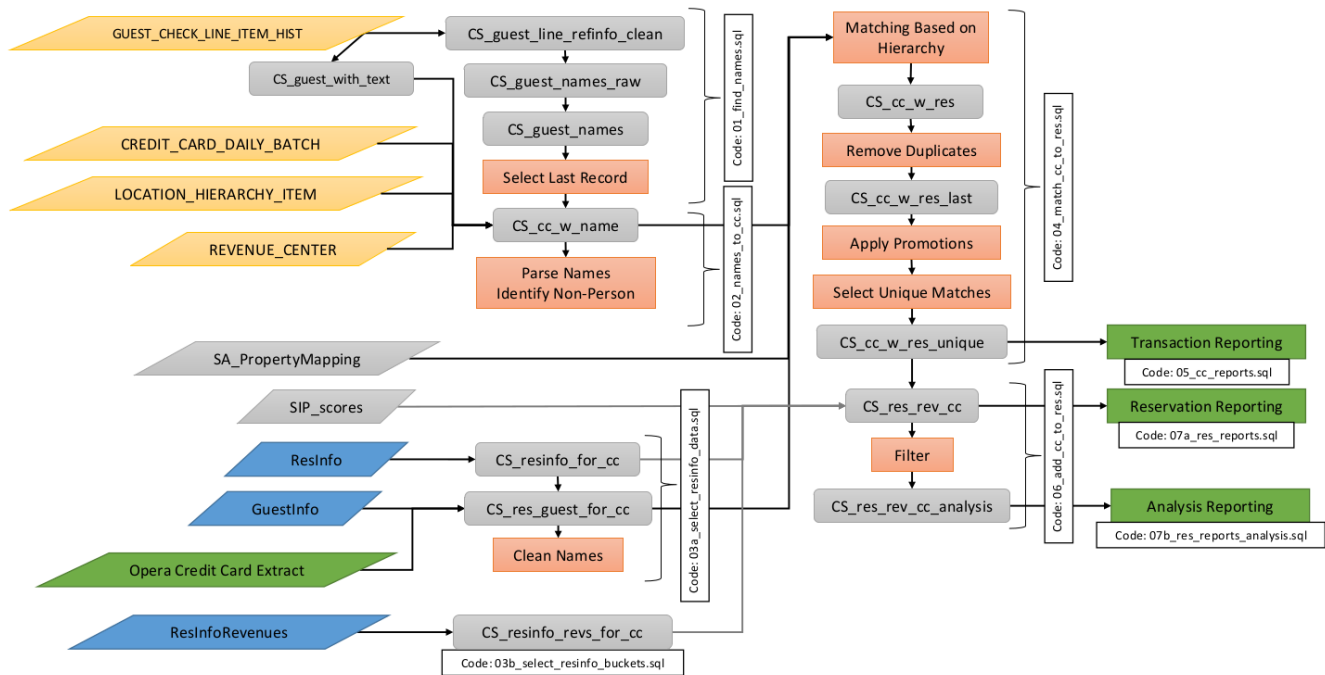


Matching Credit Card Transactions to Reservations

Process Diagram



Abbreviations Key

ResInfo – Reservation Information

GuestInfo – Guest Information

ResInfoRevenues – Revenues (Room Charges)

cc – Credit Card

w – with

res – Reservations

rev – Revenue (Room Charges)

Matching Criteria Hierarchy

Level	Criteria	Match Type
All	Same resort Credit card transaction date is within reservation dates After 1 st match level, the transaction has not already been matched	
1	Last 4 digits of credit card Last name First name	Same person
2	Last 4 digits of credit card Last name First name (3 characters only)	Same person with nickname
3	Last 4 digits of credit card Last name	Same person or family member
4	Last name First name	Same person*
5	Last name First name (3 characters only)	Same person with nickname*
6	Last name	Family member*

* These levels suffer from the [Birthday Problem](#), which may occur where two separate people share a name and reservation dates. As a result, these matches may not identify the same person and include one-to-many matches. Only unique matches are used in the analyses.

Process Description

0. Define two dictionaries – one for names and another for common words, two transaction category mapping tables, a parameter table with the date range, a function for removing extra spaces from text, and two indexes on the credit card transaction tables.
1. Identify records with names within the credit card text records using various rules about how the names are formatted. For example, some names are separated by a comma with the last name first and others are separated by spaces. This step also identifies and removes non-name dictionary words, business names, gift cards, and prepaid cards.
2. Obtain reservations and room charges
 - a. Reservations are collected from ResInfo, with names sourced from GuestInfo
 - b. Credit card numbers are collected from the Opera extract
 - c. Names are processed to clean up special characters
 - d. Room charges are collected from ResInfoRevenues
3. Match the credit card transactions to reservations based on a hierarchy of matching criteria (see table above), starting by matching hotel and dates (with the transaction date within reservation period), then including last name, first name, and the last four digits of credit card numbers in various combinations.
 - a. Each set of matching criteria is repeated with 2 days added to the departure date to account for any lag in processing the credit card transaction.
 - b. Matches found in the top three levels are used to promote the same matches in the bottom three levels, and the remaining records are deleted.
4. Credit card transactions are aggregated by matched reservation, as well as any transactions charged to the room. Both types are combined as a new measure of total ancillary spend. An analysis table was created for correlations, ANOVAs, and other analyses, filtering out bad data (e.g., negative credit card transactions, excessively long stays).