### Research with solid fill11.3 Hands-on Case Study:

Case Study- Restaurant Recommendation

*Download Source Data Set from GitHub link* : <https://github.com/Smartbrain2024/Mastering_AI_2.git>

**Chapters/Chp\_11/11.3/Hands\_on/rating\_final.csv**

|  |
| --- |
| **Description** |
| Every user identiﬁed with a unique id |
| Every restaurant identiﬁed with a unique id |
| Rating given to a restaurant by a user (0 to 2) |

**Context:**

Modern consumers are overwhelmed with dining choices. With all the information and services available at a consumer’s ﬁngertips, it takes a lot for restaurants to stand out. Recommendation systems offer an effective way for restaurants to come to the attention of consumers. Such systems allow consumers to explore the abundance of choices at hand while still catering to their interests. As a result, they can enhance a consumer’s satisfaction and loyalty.

**Problem Statement:**

The data contains mobile phone reviews and ratings provided by customers. The data contains attributes such as title of the review, body of the review (actual review), the length of the review, ratings given by the customers, etc.

The objective of this case study is to build a Restaurant recommendation system based on the user ratings for different restaurants and information available on the restaurants and the users, to recommend a list of relevant restaurants for the customers.

**Attribute Information – User Ratings Data**

**Approach:**

1. Understand the business context, problem statement and the attributes of the datasets:

* User Ratings Data

1. Design a Hybrid Recommendation System (RS) Model using the user ratings and features (customer & restaurant) data to predict the following:

* Restaurant ratings for each user and evaluate the accuracy of prediction using RMSE & MAE.
* Get top Restaurant Recommendations for each User basis above ratings.
* Observe the Restaurants that are like each other.

Objective: To Build an AI Recommendation Model for Predicting Restaurant Rating

Data Source: Sample Restaurant Data set

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Prepare KNIME: Install 2 Extensions

#1 “Big data Extension for KNIME”

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#2 “Apache Spark”

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Step1:

* Open a New KNIME Workflow
* Pull csv Reader clicks on configure to Navigate it to Data set.
* Execute and Analyze the Data

Step 2: Configure Create Local Big Data Environment

Set the number of threads to 2.

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Step3: Configure Cell Splitter

Reason: Since Spark handle Integer well, the user id had Alpha numeric value, hence, to split the “U” from Userid we use Cell Splitter component.

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Step 4: Rename the New column name to UserId.

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Step 5:

Connect into Table to Spark

A diagram of a sparking system

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Step 6: Spark Partitioning to 70:30

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Step 7: Spark Collaborative Filtering Learning(MLIB)

A diagram of a sparking learner

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Step 8: Spark Numeric scorer

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Step 9: Results

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Step 10: Tune the Configuration to get better Accuracy.

Change the Rank and re execute to get better predictions.

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