**DATASCI 450**

**Class Project | Group 10**

# **Project Title**

***Walmart Recruiting: Trip Type Classification***

# **Team Member**

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# **Project Description**

Walmart uses both art and science to continually make progress on their core mission of better understanding and serving their customers. One way Walmart is able to improve customers' shopping experiences is by segmenting their store visits into different trip types.

Whether they're on a last minute run for new puppy supplies or leisurely making their way through a weekly grocery list, classifying trip types enables Walmart to create the best shopping experience for every customer.

Currently, Walmart's trip types are created from a combination of existing customer insights ("art") and purchase history data ("science"). In their third recruiting competition, Walmart is challenging Kagglers to focus on the (data) science and classify customer trips using only a transactional dataset of the items they've purchased. Improving the science behind trip type classification will help Walmart refine their segmentation process.

# **Objective and Scope**

For this competition, we are tasked with categorizing shopping trip types based on the items that customers purchased. To give a few hypothetical examples of trip types: a customer may make a small daily dinner trip, a weekly large grocery trip, a trip to buy gifts for an upcoming holiday, or a seasonal trip to buy clothes.

Walmart has categorized the trips contained in this data into 38 distinct types using a proprietary method applied to an extended set of data. We are challenged to recreate this categorization/clustering with a more limited set of features. This could provide new and more robust ways to categorize trips.

The training set (train.csv) contains a large number of customer visits with the TripType included. You must predict the TripType for each customer visit in the test set (test.csv). Each visit may only have one TripType. You will not be provided with more information than what is given in the data (e.g. what the TripTypes represent or more product information).

# **PROJECT: Part 1**

Define the objective and scope of the project. Gather and organize data for the project.

1. Conduct exploratory data analysis such as visualizing the data through graphs, tables, summary statistics, and other means to understand the data.
2. Identify any issues associated with data gap, data size, data type, data manipulation, data storage, and data retrieval for analysis. Structured or unstructured data?
3. Describe the high level analytic problem needs to be resolved: supervised learning, unsupervised learning.

## **Exploratory Data Analysis and Data Issue Identification (Questions a and b)**

### **TOTAL NUMBER OF RECORDS**



### **SUMMARY STATISTICS FOR EACH COLUMN**

|  |
| --- |
| **TripType** |
|  |

|  |  |
| --- | --- |
| **VisitNumber** | |
|  |  |

|  |  |
| --- | --- |
| **WeekDay** | |
|  |  |

|  |
| --- |
| **UPC** |
|  |

|  |
| --- |
| **ScanCount** |
|  |

|  |  |
| --- | --- |
| **Department Description** | |
|  |  |

|  |
| --- |
| **FileLineNumber** |
|  |

### **OBSERVATIONS**

We observe missing values for UPC, FileLineNumber. Which cannot be replaced. And hence we decided to drop incomplete rows. So we are left with 642925 rows of data. Since its structured data we are storing it in data frame data structure.

We are planning to undertake following potential feature engineering tasks

* Add field for weekend / workday
* Create Shopping cart category (small / medium / large )
* Categories Departments
* Identify entropy of shopping cart
* Create Shopper Profiling - we can do clustering to determine profiling
* Define Boolean value - returns / no returns
* Do Basket Analysis modelling to get additional features.

## **HIGH LEVEL ANALYTIC PROBLEM (Question C)**

As we are tasked with categorizing shopping trip types based on the items that customers purchased and we also have labeled historical data , this problem could be solved using multi-class classification techniques which is a supervised learning technique..

# **PROJECT: Part 2**

# **PROJECT: Part 3**

# **REFERENCES / ATTACHMENTS**

1. EXPLORATORY DATA ANALYSIS R SCRIPTS (TEAM) 
2. EXPLORATORY DATA ANALYSIS - OUTPUT IN PDF FORMAT (TEAM) 