# ATM\_Transaction-data\_analysis Using ANN

It is quite obvious that daily cash withdrawal amounts are time series. Therefore, in this typical cash demand forecast model we will present time series and regression machine learning models to troubleshoot the above use case. We will work on the demand for a single ATM (a group of ATMs can also be worked on that is treated as a single ATM) to develop a model for the given data set. We have to remember that cash withdrawals from an ATM are not only time dependent. There could be seasonality, e.g. people will have a tendency to withdraw money on Friday for the weekend or end of the month when people get their salaries or between 7–10th days of each month some people get their pension. Therefore, developing a cash demand forecasting model for an ATM network is a challenging task. Also, the chronological cash demand for every ATM fluctuates with time and is often superimposed with non-stationary behavior of users.

**Prerequisites:**

We would highly recommend that before the hack night you have some kind of toolchain and development environment already installed and ready. If you have no idea where to start with this, try a combination like:

* Python
* scikit-learn / sklearn
* Pandas
* NumPy
* Matplotlib
* Tensorflow
* Keras
* An environment to work in - something like Jupyter or Spyder

For Linux people, your package manager should be able to handle all of this. If it somehow can't, see if you can at least install Python and pip and then use pip to install the above packages.

**Objectives in this project:**

* Make a EDA report
* Visualize the distributions of various features and correlations between them
* Feature engineering to extract the correct features for the model
* Build a ANN model based on the features that you select  to predict if the total amount withdrawn using ATM.

**Dataset:**

The dataset is in the form of a csv file and the link to download is given below:

Link:[**ATM.CSV**](https://drive.google.com/file/d/1F01_6rHPMM4akKiP6fyUX8GETC0hTnAd/view?usp=sharing)

**Dataset description:**

The dataset has 2244 entries with 11 features:

1. Id: This column having all unique values.
2. atm\_name: This column holds only one entry ‘Mount road ATM’
3. weekday: This column gives the information days.
4. festival\_religion: This column having information about religion festival 'NH', 'H', 'N', 'M', 'C'.
5. working\_day: It has 2 values H- holiday W-working day.
6. holiday\_sequence: Holiday sequence 'WWW', 'WHH', 'HHW', 'HWW', 'WWH', 'HHH', 'WHW', 'HWH'.
7. trans\_date\_set: Date of the transaction made by the customer.
8. trans\_month: Month of the transaction made by the customer.
9. trans\_year: Year of the transaction made by the customer.
10. prevweek\_mean: Previous week mean value for withdrawal of amount.
11. total\_amount\_withdrawn: Total amount withdrawn by the customer (target column)

**WorkFlow:**

The workflow for the project is described in  steps given below:

* Make an Exploratory Data Analysis on the data using pandas.
* Visualize distributions and correlation of features using seaborn and pandas
* Build a ANN model for the regression task to predict the total amount withdrawn by the customer.
* Use appropriate regression metrics to evaluate your model.