## Business Problem:

A FMCG company has entered into the instant noodles business two years back. Their higher management has notices that there is a miss match in the demand and supply. Where the demand is high, supply is pretty low and where the demand is low, supply is pretty high. In both the ways it is an inventory cost loss to the company; hence, the higher management wants to optimize the supply quantity in each and every warehouse in entire country.

**Goal & Objective**: The objective of this exercise is to build a model, using historical data that will determine an optimum weight of the product to be shipped each time to the warehouse.

Also try to analysis the demand pattern in different pockets of the country so management can drive the advertisement campaign particular in those pockets.

This is the first phase of the agreement; hence, company has shared very limited information. Once you are able to showcase a tangible impact with this much of information then company will open the 360 degree data lake for your consulting company to build a more robust model.

**File:** Data.csv
**Target variable**: product_wg_ton
**Data dictionary:**

| Variable | Business Definition |
|---|---|
| Ware_house_ID | Product warehouse ID |
| WH_Manager_ID | Employee ID of warehouse manager |
| Location_type | Location of warehouse like in city or village |
| WH_capacity_size | Storage capacity size of the warehouse |
| zone | Zone of the warehouse |
| WH_regional_zone | Regional zone of the warehouse under each zone |
| num_refill_req_l3m | Number of times refilling has been done in last 3 months |
| transport_issue_l1y | Any transport issue like accident or goods stolen reported in last one year |
| Competitor_in_mkt | Number of instant noodles competitor in the market |
| retail_shop_num | Number of retails shop who sell the product under the warehouse area |
| wh_owner_type | Company is owning the warehouse or they have get the warehouse on rent |
| distributor_num | Number of distributer works in between warehouse and retail shops |
| flood_impacted | Warehouse is in the Flood impacted area indicator |
| flood_proof | Warehouse is flood proof indicators. Like storage is at some height not directly on the ground |
| electric_supply | Warehouse have electric back up like generator, so they can run the warehouse in load shedding |
| dist_from_hub | Distance between warehouse to the production hub in Kms |
| workers_num | Number of workers working in the warehouse |
| wh_est_year | Warehouse established year |
| storage_issue_reported_l3m | Warehouse reported storage issue to corporate office in last 3 months. Like rat, fungus because of moisture etc. |
| temp_reg_mach | Warehouse have temperature regulating machine indicator |

| | |
|---|---|
| approved_wh_govt_certificate | What kind of standard certificate has been issued to the warehouse from government regulatory body |
| wh_breakdown_l3m | Number of time warehouse face a breakdown in last 3 months. Like strike from worker, flood, or electrical failure |
| govt_check_l3m | Number of time government Officers have been visited the warehouse to check the quality and expire of stored food in last 3 months |
| product_wg_ton | Product has been shipped in last 3 months. Weight is in tons |