## Business case for hackathon

**Business background:**

NextGen automotives is a leader manufacturer of automotive tyres. Their annual revenue crosses $5 Bn USD with a +ve growth rate of 8-9% annually. They manufacture tyres for OEMs across passenger and commercial vehicles ( typical customers include Volkswagen , Hyundai, Daimler truck etc.).

Their customers are spread across EU, Americas, ASEAN regions primarily. Due to the growing market demands, they introduce 10new SKUs per quarter per each category. Naturally, they also rationalize the SKUs that are no longer in demand by the OEMs.

**Problem statement:**

* Build an XGBoost model to forecast the demand for next 12 weeks for each part.
* The dataset only has historical actual sales , as of now. But you are expected to create additional features that would help XGBoost model predict better
  + Refer to the sheet 2 in the dataset where you can find additional features that can be created from the raw data , which in turn can be used as features for forecasting
* Using the formulae mentioned in the sheet 2, create additional features as columns and pass them to XGBoost model as inputs for forecasting
* Build an XGBoost model in Phython to forecast the future 12 weeks
  + Refer to the XGBoost package documentation in Python here : <https://xgboost.readthedocs.io/en/stable/python/>
* Make safe assumptions while setting up the hyper parameters. You are free to use additional packages like “Optuna” to fine tune the hyper parameters
* As a submission, please create an excel sheet with part level forecast accuracy . Submissions with highest average accuracy per part will be chosen as winners of the hackathon.