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April 12th, 2021 3:30pm

Communication

Renpin - I suggest Renpin leading all email communications with Sam

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HD Leadership

- Michael Carpenter Director Finance
- Jordan Stauss Sam's Boss Data Science Manager
- Tiffany Washington Coordinator
- Samuel Thomas (Sam) Project Lead and will be our point of contact

Discussion Topics

- Next meeting 4/13 10am (Milan added Krish to the invite)
- Discuss topics of interests to explore and finalize topic by 4/20
- Areas of interests for HD? What is on your mind given the two options?

Decisions / Motions

 Students have full range to explore anything and everything (from Michael Carpenter ~ we have full HD Support)

Action Items

- NDA Completed
- Data from Sam (TBD)

Asks for Tuesday with Sam 4/13

Wish list projects?

- Sam, what are your wish list projects?
- What do stores currently complain about, any low hanging fruit?
- What are Michael's shrink priorities for 2021?

Current Reporting HD is Using

- Can we have copies of your current shrink reports? PDF's and live excel reporting?
- Questions about dataset:how big is the dataset? Feature categories? Scope
 of the dataset(years, locations)? How clean is the dataset? Is there any
 geographical and socioeconomic data available?
- Any models or systems that are currently using by HD to do the work (ie: any IoT implementations?). Problems with the current using models?
- Can we attend the next regional or national Shrink meeting, can we also interview one of your shrink Directors?

Current Challenges HD is Facing

- What are your highest shrink departments? Theft, Administrative, Damage, Employee Theft?
- How is replenishment handled if something is stolen, how soon will it be replenished?
- Why is inventory only done 1x per year (aside from the cost of 30-50k)

Randoms

 Was the last project with NU & HD added value? Did you put those recommendations into action? Anything you would have like that the team would have done differently? Communication, reporting, etc....

Asks for Tuesday with Sam 4/13

Shrink Forecast Data

Data Provided

- Store level data
- Annual inventory shrink and sales
- Select weekly main shrink indicatory
 - Various net and negative on-hand adjustments
 - Empty packages
- Alternative option send the whole basket

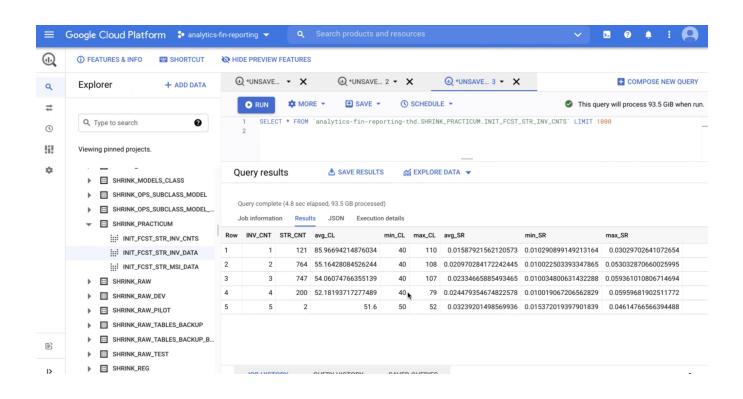
Details

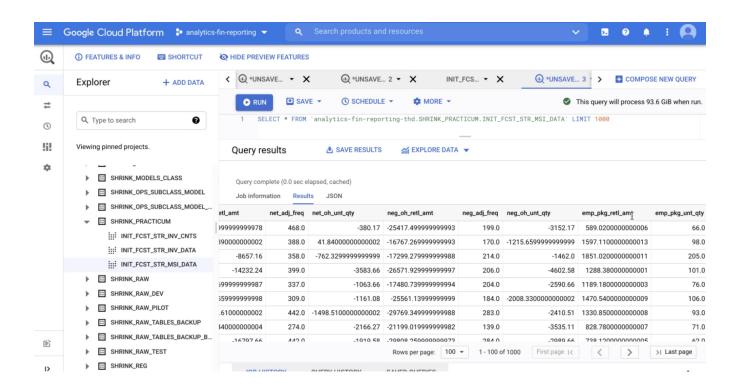
- X stores
 - 2018 X
 - 2019 X
 - 2020 X
 - 2021 X (may consider as holdout sample)
- Shrink rate cutoffs
 - 1% to 6%
- Weeks on inventory
 - X min
 - X max
- Must have X inventories present
- Volume representation

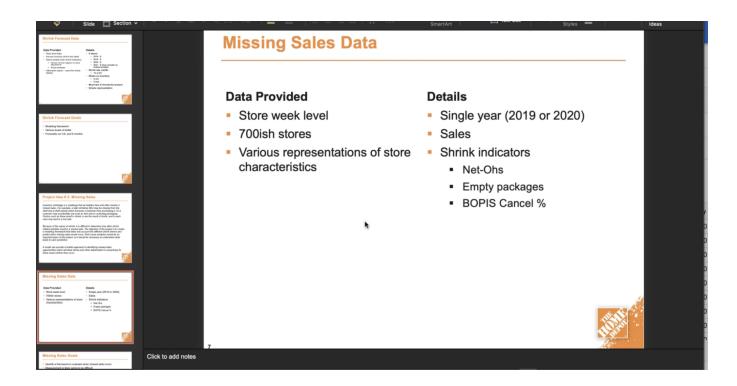


Current model:

Rolling data of 52 weeks and take a regression - Lasso (variable selection)







Forecast at Store level and Missing Sales at channel level...