Analytics HUB

Pre-defined topics for Capstone@Lidl

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Predefined topics - #1

Summary

- **Requesting org. unit: VTO (Central Sales Dept.)**
- **Topic: sales prediction in quantites (kg/pcs)**
- **Reason: for the performance planning of the stores it could be a huge support to give estimations for the predicted sales quantites and therefore enhance the quality of personal planning**
- **Level: medium**
- **Solution type: prediction**

Details

- **„Stückleistung”: quantity sales prediction / turnover prediction**
  - for the next 2 weeks
  - on daily basis
  - store-level (for ordering areas and in sum)
- **Available data:**
  - Receipt data (long term history)
  - Item main data incl. ordeing areas (tbd.), store main data
- **Expected output:**
  - dashboard (incl. automatic update) with csv download for further use

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Predefined topics - #2

Summary

- **Requesting org. unit: VTO (Central Sales Dept.)**
- **Topic: open cashier number time**
- **Reason: to enhance the quality of personnal planning in the stores, there is a need to predict the number of open cashier within the day**
- **Level: medium**
- **Solution type: intraday prediction**

Details

- **„Kassenbesetzung”: predict the amount of open cashiers within the days**
  - for the next 2 weeks
  - on daily / hourly basis
  - store-level
- **Available data:**
  - Receipt data (long term history)
  - Store main data
- **Expected output:**
  - dashboard (incl. automatic update) with csv download for further use

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Predefined topics - #3

Summary

- **Requesting org. unit: VTO (Central Sales Dept.)**
- **Topic: estimate the appropiate time for gather the empty boxes and unloading the incoming goods**
- **Reason: to enhance the quality of personnal planning in the stores, there is a need to give them proposal for such activities**
- **Level: medium**
- **Solution type: intraday prediction**

Details

- **„Verräumungsplan - Entpackungsplan”: predict the time intervals (hours) when there should be enough empty paper cases to collect and low customer number to do the unloading**
  - for the next 2 weeks
  - on daily / hourly basis
  - store-level
- **Available data:**
  - Receipt data (long term history)
  - Store main data
- **Expected output:**
  - dashboard (incl. automatic update) with csv download for further use

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Predefined topics - #4

Summary

- **Requesting org. unit: QS (Quality Assurance)**
- **Topic: estimate and follow up the sold quantity (in t) of salt and sugar and to provide a tool to mark the most problematic items (which recipe can be ev. changed)**
- **Reason: Lidl initiated to lower the sales of sugar and salt content (for own brand items) up to 20% till 2025**
- **Level: medium**
- **Solution type: dashboarding + prediction**

Details

- **QA: follow up sold salt- and sugarcontent (in t) for the business year and ev. predict the run-out till the end of business year**
  - till the end of business year (end of February)
  - in sum
  - global (country level)
- **Available data:**
  - Receipt data (long term history)
  - Store main data, item main data, external file with salt and sugar content
- **Expected output:**
  - Dashboard (incl. automatic update) with option for import main data file

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Predefined topics - #5

Summary

- **Requesting org. unit: CSR (CSR Procurement)**
- **Topic: estimate and follow up the sold quantity (in t) of plastic packaging material for locally contracted items**
- **Reason: Lidl initiated to lower the sales plastic packaging material up to 20% till 2025**
- **Level: medium**
- **Solution type: dashboarding + prediction**

Details

- **QA: follow up sold qunatity of plastic packaging material (in t) and ev. predict the run-out till the end of business year**
  - till the end of business year (end of February)
  - in sum
  - global (country level)
- **Available data:**
  - Receipt data (long term history)
  - Store main data, item main data, external file with salt and sugar content
- **Expected output:**
  - Dashboard (incl. automatic update) with option for import main data file

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Predefined topics - #6

Summary

- **Requesting org. unit: ZD + Procurement**
- **Topic: estimate the competitors most important KPIs on monthly level based on cunsumer research data**
- **Reason: market progress estimation**
- **Level: medium**
- **Solution type: prediction**

Details

- **Estimating the available KPIs of the competitors based on market resarch data**
  - till the end of business year (end of February)
  - monthly basis
  - global (country level)
- **Available data:**
  - Monthly market researches (tbc.)
- **Expected output:**
  - Dashboard with option for import main data file

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Predefined topics - #7

Summary

- **Requesting org. unit: Logistics**
- **Topic: estimate the optimal removal rythmus of the K3 (animal source product waste) removal from the stores based upon waste quantity predictions**
- **Reason: actual delivery rythm is not optimal, before/after holidays there is a need for optimization**
- **Level: medium**
- **Solution type: optimization (+ prediction)**

Details

- **Calculating the optimal removal rythmus of the K3 removal from the stores**
  - For the next 2 month (tbd. with the business dept.)
  - Monthly basis
  - Store-level
- **Available data:**
  - Waste recording data, receipt data, item main data
- **Expected output:**
  - Dashboard

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Predefined topics - #8

Summary

- **Requesting org. unit: Administration**
- **Topic: optimize the money change ordered by the stores**
- **Reason: most of the stores order too much or less amount than necessary. In both cases handling the problem causes extra cost for the organization.**
- **Level: medium**
- **Solution type: optimization (+ prediction)**

Details

- **Optimizing the change ordering of the stores (quantity)**
  - For the next 2 weeks (tbd. with the business)
  - Store-level
- **Available data:**
  - Receipt data
  - Several cash information as an external import file
- **Expected output:**
  - Dashboard, csv download

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Predefined topics - #9

Summary

- **Requesting org. unit: Procurement**
- **Topic: long term sales forecast**
- **Reason: lot of food item have to be ordered 12 month in advance. The actual calculation is experience based calculation.**
- **Level: medium**
- **Solution type: prediction**

Details

- **Long term sales prediction incl. sales price expectations**
  - For the next 12 month (tbd. with the business)
  - Global (country level)
  - Item level
- **Available data:**
  - Receipt data
  - Item main data
- **Expected output:**
  - csv download (eventuell dashboard)

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Predefined topics - #10

Summary

- **Requesting org. unit: Procurement**
- **Topic: customer analysis based on receipt data**
- **Reason: procurement would like to know more about customers buying selected products**
- **Level: medium**
- **Solution type: analysis + dashboarding**

Details

- **Analysis of customer behavior: which items are bought together with higher priced items (example: describe those customers basket who are buying expensive wines)**
  - Global (country level)
- **Available data:**
  - Receipt data
  - Item main data, store main data
- **Expected output:**
  - dashboard

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Predefined topics - #10

Summary

- **Requesting org. unit: Disposition**
- **Topic: control tool for the „fixedquantity” items to follow the already ordered quantities compared to the original fixed quantity**
- **Reason: actual control mechanism is not automated and could include prediction for the annual sums**
- **Level: medium**
- **Solution type: dashboarding (+ prediction)**

Details

- **Control tool which gives information about the already made long-term orders (reservation) of the „fixedqantity” items, shows the already made deliveries in sum and gives an estimation for the potentialy sold qunatities in the whole period**
  - Global (country level)
- **Available data:**
  - Receipt data, Item main data, store main data
  - Deliveries as an import file
  - reserved quantites
- **Expected output:**
  - dashboard

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Predefined topics - #11

Summary

- **Requesting org. unit: Disposition**
- **Topic: forecasting the sales quantities of campaign items + control tool**
- **Reason: actual allocation is manual calculated and rest of scope does not have actual system covarage**
- **Level: medium**
- **Solution type: dashboarding (+ prediction)**

- **Expected output:**
  - Dashboard+csv download option

Details

- **Control tool for food marketing campaign items which**
  - gives estimation about sales curve and cannibalization effects on other items
  - optimizes the first allocation in the stores
  - identifies items which delivered qunatity is not enough for the first day demand (prediction based on intraday sales data) Global (country level)
- **Available data:**
  - Receipt data, item main data, store main data, campaign data
  - intraday sales as an import file

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Predefined topics - #12

Summary

- **Requesting org. unit: Central Services**
- **Topic: research topic – finding methods and features for forecasting store turnover and customer number on a long term (2-3 years)**
- **the sales quantities of campaign items + control tool**
- **Reason: for startegical planning there is often a need for long term predictions**
- **Level: medium**
- **Solution type: dashboarding (+ prediction)**

Details

- **Long term turnover / customer number forecast**
  - For the next 2-3 years
  - Store-level
- **Available data:**
  - Receipt data, store main data
  - Several external data (e.g. geographical data)
- **Expected output:**
  - Dashboard+csv download option

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Predefined topics - #13

Summary

- **Requesting org. unit: Central Services**
- **Topic: cost forecast and analysis – there is a continous replacement of the BakeOff ovens for new ones. The model mix (every type has different cost structure) makes hard to predict the monthly sum of the total replacement / repair costs.**
- **Reason: to have control on the repair costs a more advanced calculation is necessary**
- **Level: medium**
- **Solution type: analysis (+ prediction)**

Details

- **Cost mix prediction based on cost characteristics of the different models**
  - For the next 2-3 month (tbd. with business)
  - In sum
- **Available data:**
  - Repair data, model information, etc. as external files
- **Expected output:**
  - Dashboard + csv download option

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Predefined topics - #14

Summary

- **Requesting org. unit: Central Services**
- **Topic: cost forecast and analysis – there is a continous replacement of the forklift devices for new ones. The model mix (every type has different cost structure, different repair characteristics) makes hard to predict the monthly sum of the total replacement / repair costs.**
- **Reason: to have control on the repair costs a more advanced calculation is necessary**
- **Level: medium**
- **Solution type: analysis (+ prediction)**

Details

- **Cost mix prediction based on cost characteristics of the different models**
  - For the next 2-3 month (tbd. with business)
  - In sum
- **Available data:**
  - Repair data, model information, etc. as external files
- **Expected output:**
  - Dashboard + csv download option

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Predefined topics - #15

Summary

- **Requesting org. unit: Central Services**
- **Topic: cost forecast and analysis – there is a continous replacement of the car park for new ones and the car fleet is expanding. The model mix (every car type has different consumption structure) makes hard to predict the monthly total fuel consumption of the fleet.**
- **Reason: to have control on the fuel costs costs a more advanced calculation is necessary**
- **Level: medium**
- **Solution type: analysis (+ prediction)**

Details

- **Fuel cost prediction based on fuel consumption characteristics of the different models**
  - For the next 2-3 month (tbd. with business)
  - In sum
- **Available data:**
  - Car type data, model information, etc. as external files
- **Expected output:**
  - Dashboard + csv download option

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Predefined topics - #16

Summary

- **Requesting org. unit: Central Services**
- **Topic: creating a tool which calculates the cannibalization effect of nearby stores in the past based on different features**
- **Reason: by opening new stores the effect of cannibalization have to be considered**
- **Level: medium**
- **Solution type: analysis**

Details

- **Cannibalization has to be measured in a statistaical way to be able to integrate in the calulations by new stores**
  - Turnover and customer cannibalization
- **Available data:**
  - Receipt data, georgaphical information, main store data
- **Expected output:**
  - Dashboard + csv download option

Predefined topics - #17

Summary

- **Requesting org. unit: Central Services**
- **Topic: research topic - deflation detection (finding a method to determine the reason for a missing item - no demand or insufficient quantity in the store?)**
- **Reason: internal development**
- **Level: difficoult**
- **Solution type: analysis (+ prediction)**

Details

- **Deflation detection**
  - Method which can be implemented in later use
- **Available data:**
  - Receipt data
  - Delivery / stock information as external datasource
- **Expected output:**
  - Method (notebooks)