PROCESSAND
VALUE DRIVEN ANALYTICS

We help you
succeed with Process Mining

Processand SQL Challenge

Task 1

Write a function or procedure (in T-SQL or any other language), with the following specifications:

- Input Parameters (to be provided by the user): MANDT, EBELN, D_DATE
- Output Parameters: TOTAL_NETWR.

The function should calculate the net order value of all items belonging to the purchase order on the given date (D_DATE).

A purchase order is identified by the primary key MANDT, EBELN.

The **current** total net order value for any purchase order can be calculated as the sum of all net order values (EKPO.NETWR) of the respective items.

Obstacles

- Not all purchase order items are necessarily being generated at the time of the creation of the purchase order, e.g. a purchase order can be created with two items and several weeks later a third item can be added.

- Prices of the order items are subject to change, i.e. the current price of the order (EKPO.NETWR) might not be the price on the date given by the user

The Data

- All tables needed for the task and their foreign key relations can be found on the following slides. Please note that not all of them are relevant to the task.

- Further information regarding the tables can be found on https://www.leanx.eu/en/sap/table/search and many other sites.

The Data

EBAN
Purchase Requisition Items

- What (material, quantity, ...) has been requested?
- Contains one row for each purchase requisition item.

Primary key:
- Client (MANDT)
- PR Number (BANFN)
- PR Item Number (BNFPO)

Important fields:
- PR Type (BSART)
- PR Category (BSTYP)
- Deletion Indicator (LOEKZ)
- Purch. Group (EKGRP)
- Material Number (MATNR)
- PR Quantity (MENGE)
- Price in PR (PREIS)

Timestamps:
- Requisition Date (BADAT)

EKPO
Purchasing Document Item

- Which purchase order items have been created?
- Contains one row for each purchase order item.

Primary key:
- Client (MANDT)
- PO Number (EBELN)
- PO Item Number (EBELP)

Important fields:
- Company Code (BUKRS)
- Plant (WERKS)
- Deletion Indicator (LOEKZ)
- Material Number (MATNR)
- Quantity (MENGE)
- Net Price (NETPR)
- Net Order Value (NETWR)
- PR Number (BANFN)
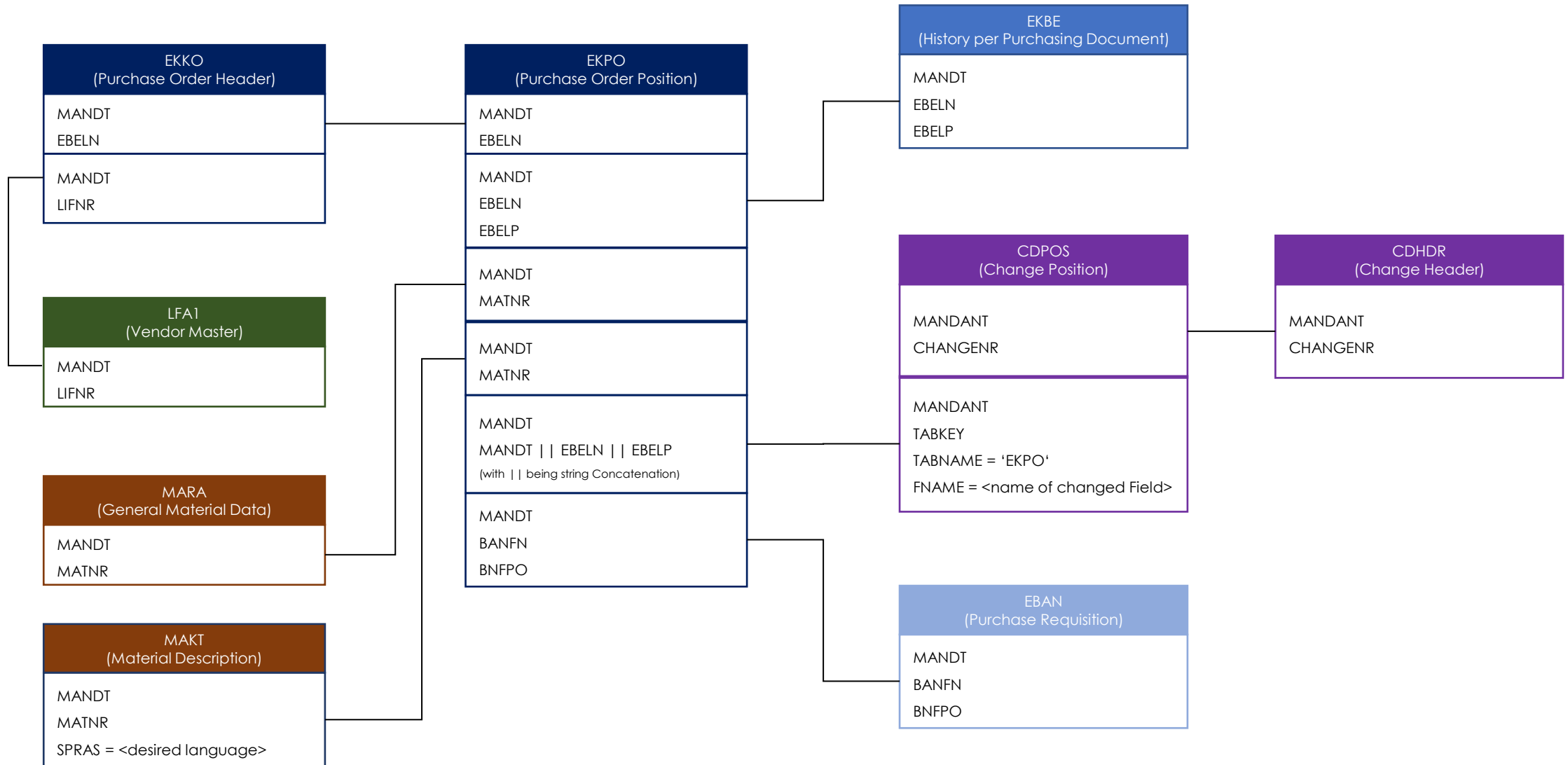- PR Item Number (BNFPO)

EKKO
Purchasing Document Header

- Which purchase orders have been created?
- Contains one row for each purchase order.

Primary key:
- Client (MANDT)
- PO Number (EBELN)

Important fields:
- Company Code (BUKRS)
- Purchasing Org. (EKORG)
- Purchasing Group (EKGRP)
- PO Category (BSTYP)
- PO Type (BSART)
- Deletion Indicator (LOEKZ)
- Vendor Number (LIFNR)
- Currency (WAERS)

Timestamps:
- Creation Date (AEDAT)

LFA 1
Vendor master (general)

- Which suppliers are being used?
- Contains one row for each vendor.

Primary key:
- Client (MANDT)
- Vendor Number (LIFNR)

Important fields:
- Country Key (LAND1)
- City (ORT01)
- Name (NAME1)

The Data

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- Tables CDHDR / CDPOS have a special role, as they record changes to "real" documents
- CDPOS links to the changed document, while CDHDR contains general information for the change such as time of change and username

- **Example 1:** Change of the Value (Field: EKPO.NETWR)
  - Primary key of changed document:
    → MANDT = '100', EBELN = '1003789564', EBELP = '000010'
  - Performed Change: Value changed from 10.00 € to 11.00 €
  - Excerpt of resulting CDPOS entry:
    - TABNAME = 'EKPO'
    - FNAME = 'NETWR'
    - TABKEY = '1001003789564000010'
    - VALUE_OLD = '10.00'
    - VALUE_NEW = '11.00'
- **Example 2:** Creation of a new Purchase Order Item (EKPO)
  - Primary key of newly inserted document
    → MANDT = '100', EBELN = '1003789563', EBELP = '000020'
  - Excerpt of resulting CDPOS entry:
    - TABNAME = 'EKPO'
    - TABKEY = '1001003789563000020'
    - FNAME = 'KEY'
    - CHNGIND = 'I'

- More information can be found on the internet (see previous slides)

The Data

EKKO
(Purchase Order Header)

| MANDT |
| EBELN |

| MANDT |
| LIFNR |

EKPO
(Purchase Order Position)

| MANDT |
| EBELN |

| MANDT |
| EBELN |
| EBELP |

| MANDT |
| MATNR |

| MANDT |
| MATNR |

| MANDT |
| MANDT || EBELN || EBELP |
| (with || being string Concatenation) |

| MANDT |
| BANFN |
| BNFPO |

EKBE
(History per Purchasing Document)

| MANDT |
| EBELN |
| EBELP |

CDPOS
(Change Position)

| MANDANT |
| CHANGENR |

| MANDANT |
| TABKEY |
| TABNAME = 'EKPO' |
| FNAME = <name of changed Field> |

CDHDR
(Change Header)

| MANDANT |
| CHANGENR |

LFA1
(Vendor Master)

| MANDT |
| LIFNR |

MARA
(General Material Data)

| MANDT |
| MATNR |

MAKT
(Material Description)

| MANDT |
| MATNR |
| SPRAS = <desired language> |

EBAN
(Purchase Requisition)

| MANDT |
| BANFN |
| BNFPO |

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Process& GmbH | Lindwurmstraße 23 | 80337 München

www.processand.com   info@processand.com