Rakamin Academy X id/x partners

Membuat Data Warehouse dan Store Prcodure

ID/X Partners - Data Engineer

Presented by
Yoga Aprila

DKI Jakarta

yogaapril0504@gmail.com

Yoga Aprila

Rakamin Academy

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Data enthusiast with a Mathematics background. Passionate about data analysis, machine learning, and AI.

About Company

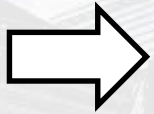
ID/X Partners (PT IDX Consulting) didirikan pada tahun 2002 dan telah melayani perusahaan di seluruh wilayah Asia dan Australia dan di berbagai industri, khususnya **layanan keuangan, telekomunikasi, manufaktur, dan ritel**. **ID/X Partners** menyediakan layanan konsultasi yang mengkhususkan diri dalam **memanfaatkan solusi data analytic and decisioning (DAD) yang dipadukan dengan manajemen risiko dan disiplin pemasaran terintegrasi untuk membantu klien mengoptimalkan profitabilitas portofolio dan proses bisnis**. Layanan konsultasi dan solusi teknologi yang komprehensif yang ditawarkan oleh mitra id/x menjadikannya sebagai one-stop service provider.

Project Overview

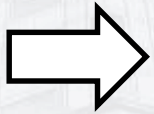
Dataset
(csv,excel,bak) file

Restore dan Import Data

Database Staging di
MS SQL Server



Proses ETL
Menggunakan Python



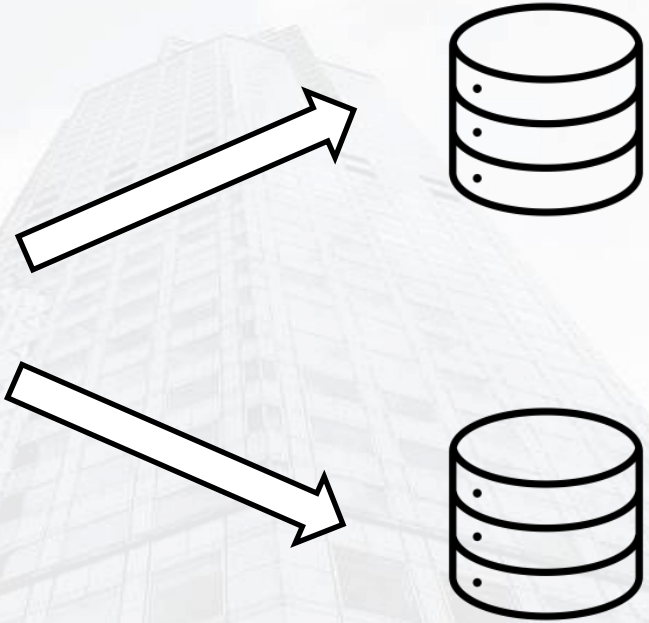
Database DWH di MS
SQL Server

Membuat Store
Procedure untuk
keperluan pelaporan
dan analisis

Project explanation video here!

1. Data Warehouse Creation

Membuat kueri untuk membuat database dengan menggunakan MS SQL Server



CREATE DATABASE DWH;

CREATE DATABASE STAGING;

2. Create ETL Job for Dimension Table

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RESTORE AND IMPORT FILE TO STAGING DATABASE

Table on Staging	Column
Account	**AccountID**,CustomerID,AccountyTpe,Balance,Dataopened,Status
Branch	**BranchID**,BranchName,BranchLocation
Customer	**CustomerID**,CustomerName,Address,City_id,age,Gender,Email
City	City_name,**city_id**,state_id
state	**State_id**,state_name,state
Transaction_db	**Transaction_id**,accountid,transaction_date,amount,transaction_type,branch_id
Transaction_excel	
Transaction_csv	

Huruf bold = Primary Key, Huruf warna merah = Foreign Key

2. Create ETL Job for Dimension Table

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CREATE DIMENSION TABLE IN DWH BATABASE

Table Name on DWH	Columns
DimAccount	**AccountID**,CustomerID,AccountyTpe ,Balance,Dataopened,Status.
DimBranch	**BranchID**,BranchName,BranchLocati on.
DimCustomer	**CustomerID**,CustomerName,Address ,Cityname,Statename,Age,Gender,E mail

Huruf bold = Primary Key
Huruf warna merah = Foreign Key

2. Create ETL Job for Dimension Table

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MAKE CONNECTION TO PYTHON

1

```
import pyodbc
import pandas as pd
from sqlalchemy import create_engine
print(pyodbc.drivers())
```

2

```
server = 'DESKTOP-OQ4U65F'
user = 'sa'
password = '12345678'


# DB Staging
conn_str_staging = (
    f"mssql+pyodbc://{user}:{password}@{server}/Staging"
    "?driver=ODBC+Driver+17+for+SQL+Server"
)

# DB DWH
conn_str_dwh = (
    f"mssql+pyodbc://{user}:{password}@{server}/DWH"
    "?driver=ODBC+Driver+17+for+SQL+Server"
)

# Buat engine
engine_staging = create_engine(conn_str_staging)
engine_dwh = create_engine(conn_str_dwh)
```

2. Create ETL Job for Dimension Table

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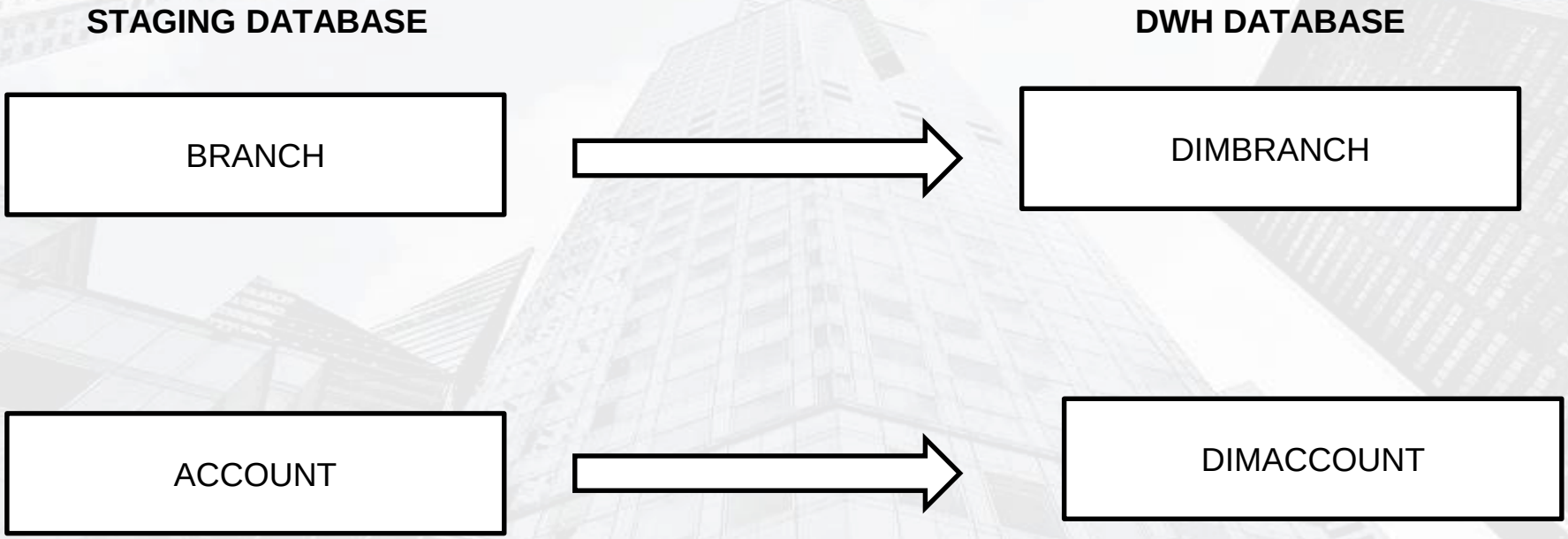
EXTRACT, TRANSFORM, AND LOAD



2. Create ETL Job for Dimension Table

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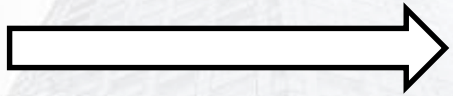
EXTRACT, TRANSFORM, AND LOAD

STAGING DATABASE

CUSTOMER
CITY
ACCOUNT



TRANSFORM

DWH DATABASE

DIMCOSTUMER

```
select
cs.customer_id,
cs.customer_name,
cs.address,cm.city_name,
cm.state_name,
cs.age,
cs.gender,
cs.email
from customer as cs
left join (select city_id,city_name,ct.state_id,state_name from city as ct
left join state as st on ct.state_id = st.state_id) as cm on cs.city_id =
cm.city_id
```

3. Create ETL Job for Fact Table

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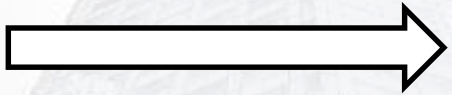
EXTRACT, TRANSFORM, AND LOAD

STAGING DATABASE

TRANSACTION DB,
TRANSACTION EXCEL,
TRANSACTION CSV



DWH DATABASE

FACTTRANSACTIONS

TRANSFORM

```
SELECT * FROM transaction_db
UNION
SELECT * FROM transaction_excel
UNION
SELECT * FROM transaction_csv;
```

4. Create Stored Procedure

KUERI

```
CREATE PROCEDURE DailyTransaction
    @start_date DATE,
    @end_date DATE
AS
BEGIN
    SET NOCOUNT ON;

    SELECT
        CAST(TransactionDate AS DATE) AS [Date],
        COUNT(*) AS TotalTransactions,
        SUM(Amount) AS TotalAmount
    FROM FactTransaction
    WHERE TransactionDate BETWEEN @start_date AND @end_date
    GROUP BY CAST(TransactionDate AS DATE)
    ORDER BY [Date];
END;

EXEC DailyTransaction
    @start_date = '2024-01-01',
    @end_date = '2024-01-31';
```

MEMBUAT STORE PROCEDURE DAILYTRANSACTION

OUTPUT

	Date	TotalTransactions	TotalAmount
1	2024-01-17	2	1100000
2	2024-01-18	4	11250000
3	2024-01-19	3	5400000
4	2024-01-20	4	4000000
5	2024-01-21	2	2000000
6	2024-01-22	10	5180000

4. Create Stored Procedure

KUERI

```
CREATE PROCEDURE BalancePerCustomer
   @name NVARCHAR(100)
AS
BEGIN
   SET NOCOUNT ON;

   SELECT
      c.CustomerName,
      a.AccountType,
      a.Balance,
      a.Balance +
      ISNULL(SUM(
         CASE
            WHEN t.TransactionType = 'Deposit' THEN t.Amount
            ELSE -t.Amount
         END
      ), 0) AS CurrentBalance
   FROM DimCustomer c
   JOIN DimAccount a ON c.CustomerID = a.CustomerID
   LEFT JOIN FactTransaction t ON a.AccountID = t.AccountID
   WHERE a.Status = 'active'
     AND c.CustomerName LIKE '%' + @name + '%'
   GROUP BY c.CustomerName, a.AccountType, a.Balance
END;
```

MEMBUAT STORE PROCEDURE BALANCE PER CUSTOMER

OUTPUT

	CustomerName	AccountType	Balance	CurrentBalance
1	Shelly Juwita	checking	25000000	14000000
2	Shelly Juwita	saving	1500000	1600000

Thank You