**Course Work Documentation: Tea Shop Data Warehouse**

1. **OLTP Database Context**

OLTP (Online Transaction Processing) in this project is represented by staging tables (e.g., stg\_orders, stg\_products, stg\_customers) containing raw data from OLTP sources. These tables store:

* customer orders (stg\_orders)
* product details (stg\_products)
* customer and supplier data
* warehouse information

These are raw data that have not yet been processed by the ETL pipeline.

1. **OLAP Database Context**

OLAP (Online Analytical Processing) is represented by a separate database DWH\_teashop, where a Snowflake schema is implemented with fact and dimension tables:

* fact\_sales, fact\_restocking
* dim\_product, dim\_customer, dim\_time
* bridge\_product\_category

This layer answers analytical questions such as:

* What are the total sales per year?
* Which product categories are the most profitable?
* Which customers have the highest average order value?

1. **Schemas / Tables / Keys / Relationships**

* Fact Tables:
  + fact\_sales(productid, customerid, date, total\_sales)
  + fact\_restocking(productid, supplierid, date, quantity)
* Dimensions:
  + dim\_product(productid, category, name)
  + dim\_customer(customerid, name)
  + dim\_time(date, year, month)
* Foreign Key Relationships:
  + fact\_sales.productid → dim\_product.productid
  + fact\_sales.customerid → dim\_customer.customerid
  + fact\_sales.date → dim\_time.date

**4. Instructions to Run Scripts (ETL)**

1. Load CSV files into stg\_\* tables**:** COPY stg\_orders FROM '/path/to/orders.csv' DELIMITER ',' CSV HEADER;
2. Run the ETL transformation script after loading the staging data, including:

* column mapping
* handling SCD Type 2
* calculating aggregations

**5. Power BI Report Description**

Visual Components:

* Line Chart: total total\_sales by year
* Pie Chart: sales distribution by category
* Stacked Column Chart: total\_sales by category and year

These charts help answer:

* which years had peak sales;
* which products contribute most to revenue;
* overall DWH dynamics and performance.