**TOPIC: Dimensional Modeling and Schemas**

   1. Design a star schema for a university database, including a fact table for student enrollments and dimension tables for students, courses, and time. Implement the schema using a database of your choice.

   2. Write SQL queries to retrieve data from the star schema, including aggregations and joins between the fact table and dimension tables.

**Star schema for a university database**

Courses(Dim)

Time\_id

Am\_pm\_indicator

Enrollment\_id

Student\_id

Course\_id

Time\_id

Enrollment\_date

Student\_enrollments(Fact)

Time(Dim)

Course\_id

Course\_name

Course\_duration

Course\_fees

Course\_details

Students(Dim)

Student\_id

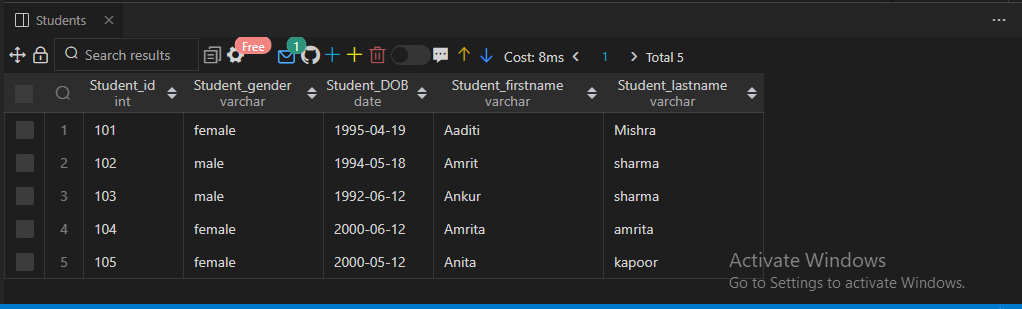
Student\_gender

Student\_DOB

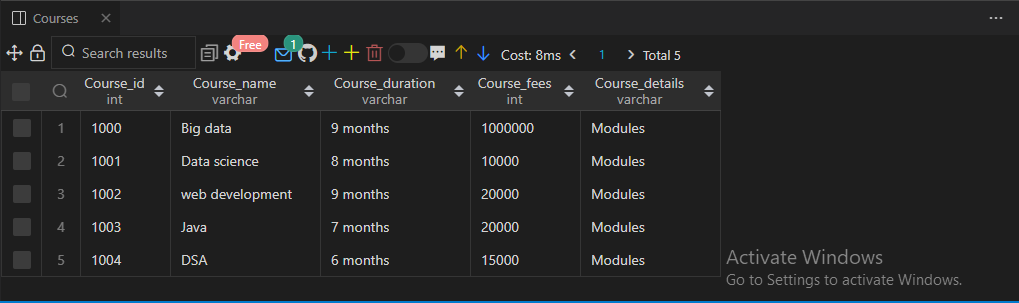
Student\_firstname

Student\_lastname

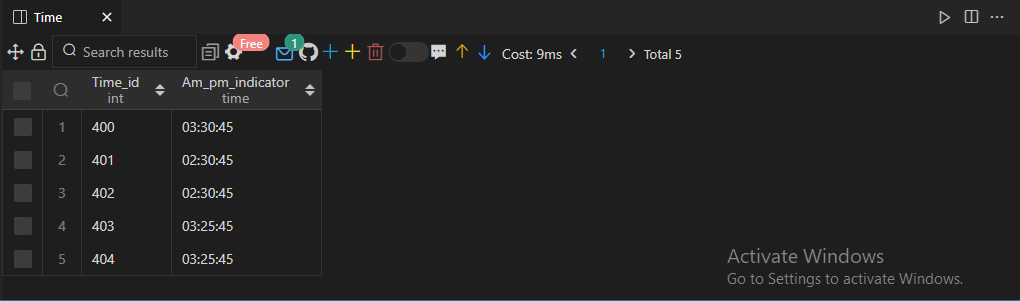
Output of Students(Dim)



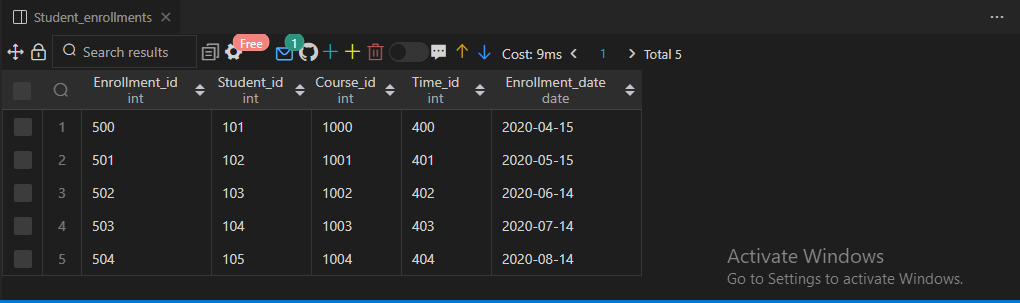
Output of Courses(Dim)



Output of Time(Dim)



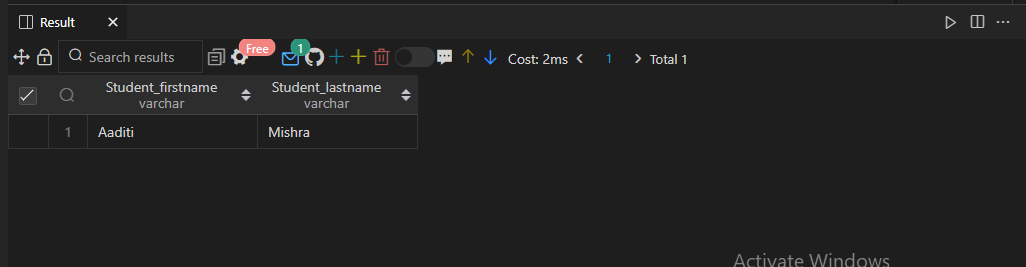
Output of Student\_enrollment(Fact)



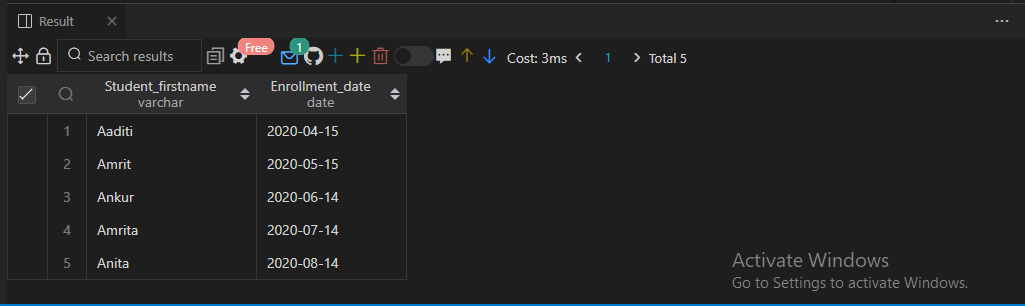
2. Write SQL queries to retrieve data from the star schema, including aggregations and joins between the fact table and dimension tables.

Solutions:- SQL Queries

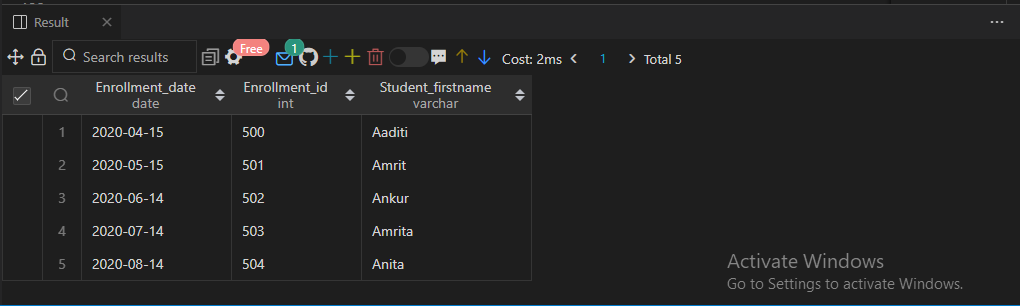
1. Output



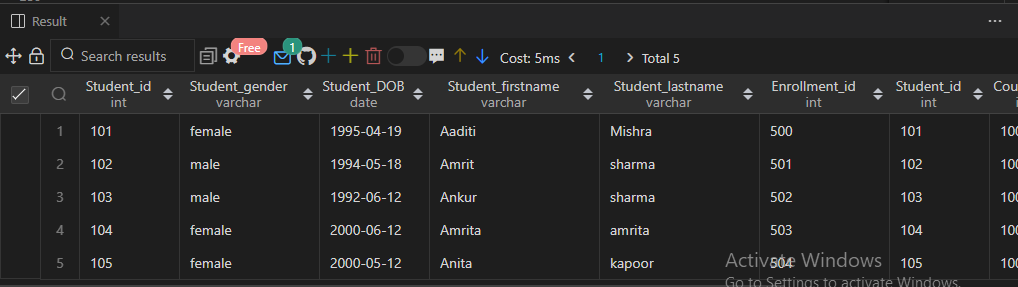
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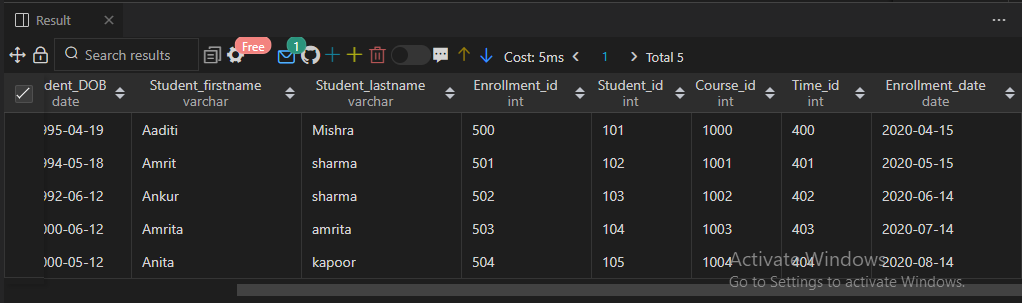


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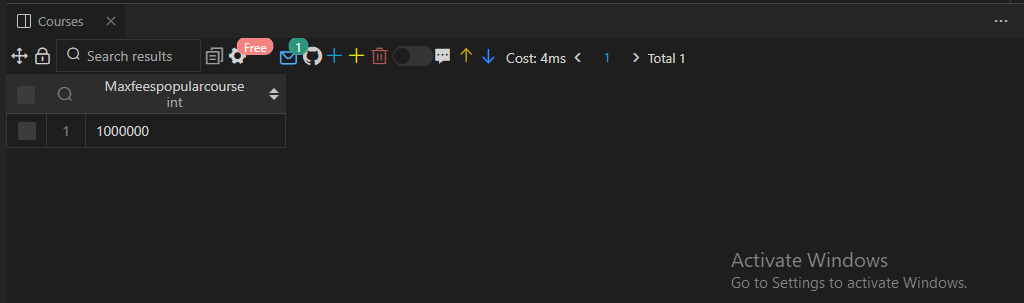


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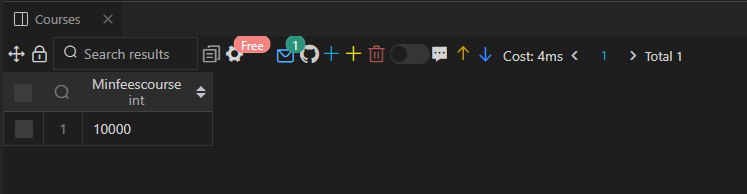




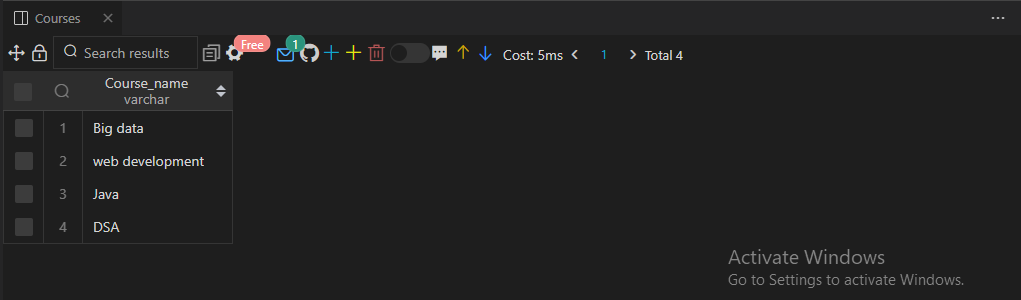
1. Output



1. Output



1. Output



**TOPIC: Data Warehousing Fundamentals**

   1. Design a data warehouse schema for a retail company that includes dimension tables for products, customers, and time. Implement the schema using a relational database management system (RDBMS) of your choice.

   2. Create a fact table that captures sales data, including product ID, customer ID, date, and sales amount. Populate the fact table with sample data.

   3. Write SQL queries to retrieve sales data from the data warehouse, including aggregations and filtering based on different dimensions.

Star schema for a retail company

Customers(Dim)

Products(Dim)

Customer\_ID

Customer\_payment\_method

purchased\_item\_name

Purchased\_item\_Quantity

Product\_ID

Product\_Price

Product\_manufacture\_date

Product\_expiry\_date

Sales\_data(Fact)

Sales\_ID

Product\_ID

Customer\_ID

Time\_ID

date

Sales\_amount

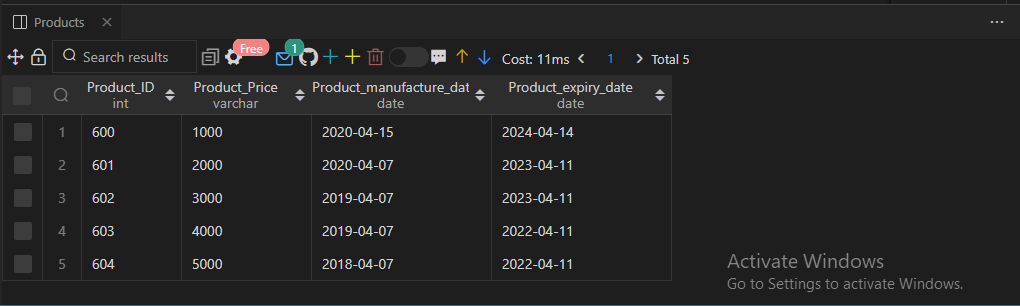
Time\_ID

Opening\_time

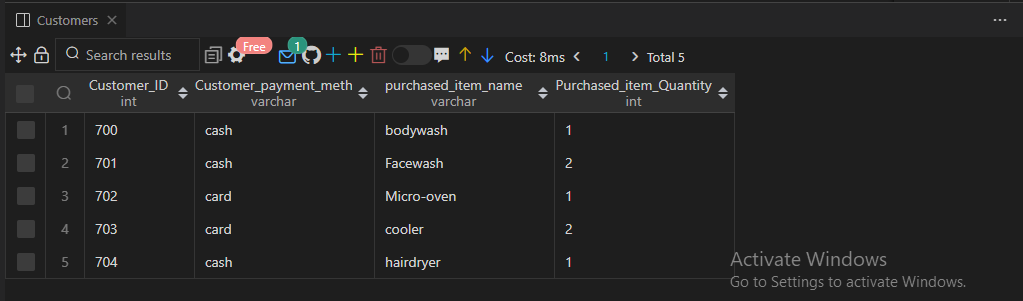
Closing\_time

Time(Dim)

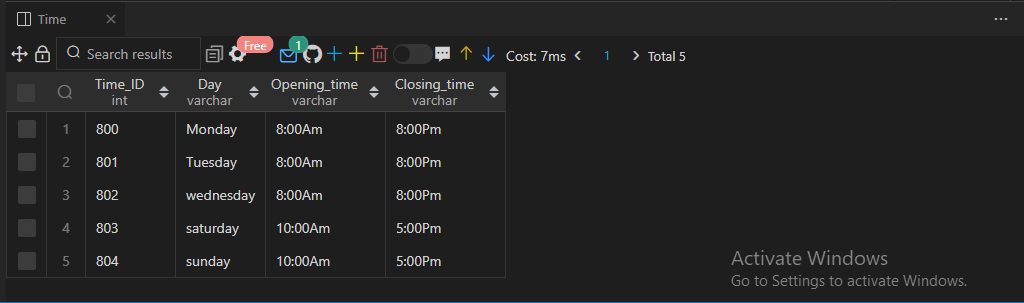
**Output of table Products(Dim)**



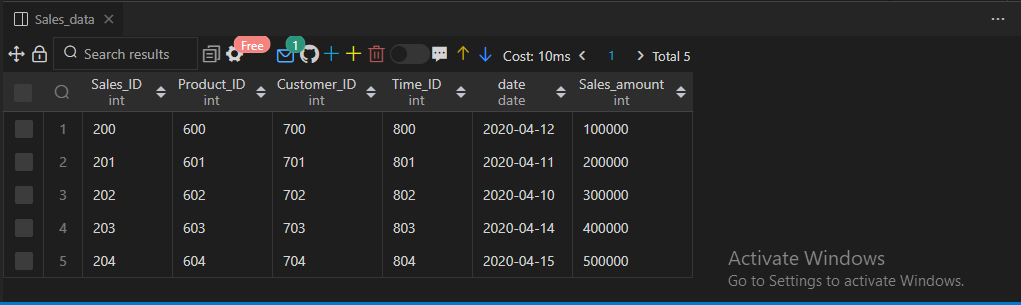
**Output of table Customers**



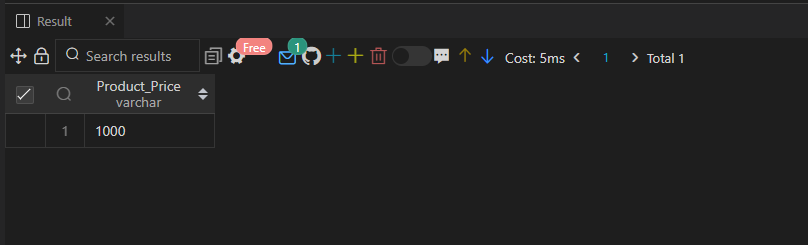
Output of table Time

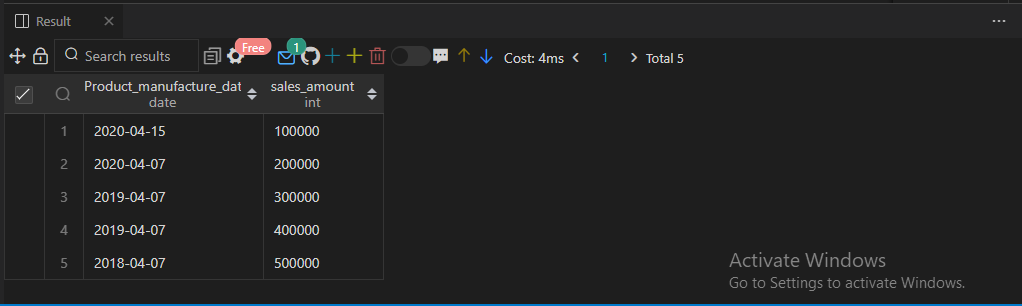


Output of table Sales\_data

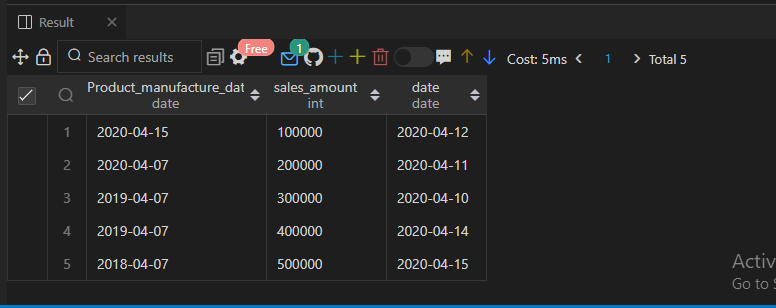


   3. Write SQL queries to retrieve sales data from the data warehouse, including aggregations and filtering based on different dimensions.

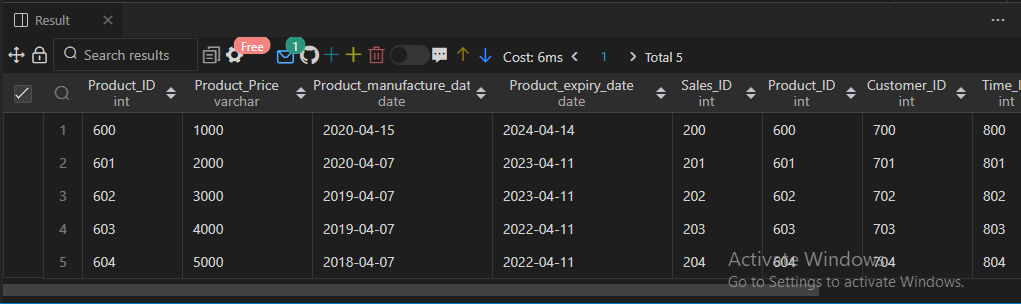
1. Output

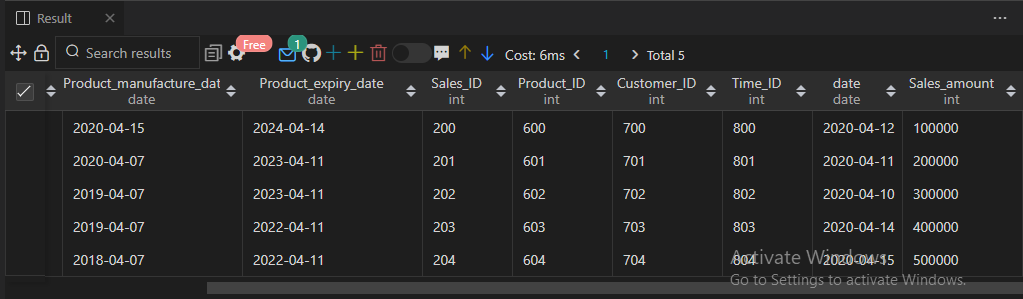


C)

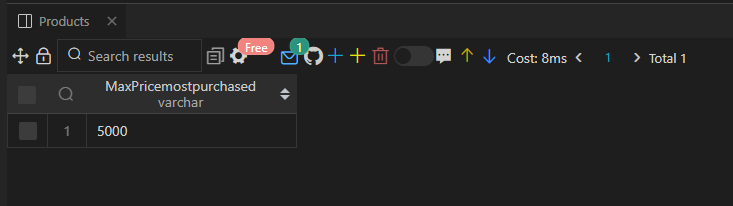


D)

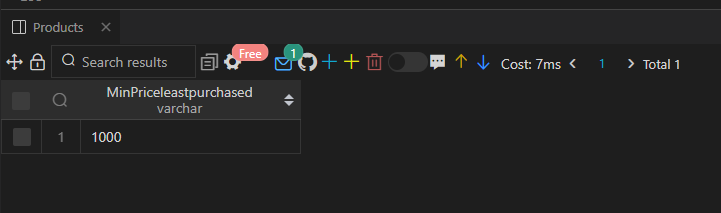




E)



F)



G)

