Georgia State University
J. Mack Robinson
COLLEGE of BUSINESS

Database Management

Restaurant Database

Purpose

The purpose of this assignment is to gain experience designing, implementing, and using a relational database. This assignment is to be completed by your study groups.

Background

Your team is tasked to develop a database for a client that is an online ordering startup, currently covering 30 restaurants in 6 cities. Consumers can order to-go meals from participating restaurants via the client's online ordering platform. The client has a member management team and wants to capture data on its members and their orders. The database will support the member management team's routine operations (identifying and signing up new members and providing data to the marketing team for analyzing member behaviors and preferences).

Requirements

The member management team wants to keep the current member order management practices and conduct analyses to better understand the members' behaviors and preferences. Customer preferences can vary depending upon the geographical location (e.g., salads might be more popular in warmer climates or potatoes in colder locations). Besides the member management, the client also needs to keep track of marketing activities, menu offerings, and staffing requirements.

1. **(10 points) Describe the database you will need to create for your client. Your explanation should be written in terms that the client can understand. State the business rules that are important for the application.**

Ans:

We will design a thorough database to fulfill the online ordering startup's needs, covering member information, orders, marketing activities, menu offerings, and staffing. This database will empower the member management team to effectively monitor and analyze customer behavior and preferences. Key business rules will shape the database design process.

1. **Customer Information:**
    - Each customer will have a unique identifier (CustomerID) and provide essential details such as name, email, phone number (if available), physical address, and city.
    - The database ensures that customer details are accurately recorded and easily accessible for order management and analysis.
2. **Order Details:**
    - Every order will be assigned a unique identifier (OrderID) and linked to the corresponding customer who placed the order and the restaurant from which it was made.
    - Order details include the date and time of the order, total amount, and specifics of items ordered.
    - This allows for efficient tracking of orders, facilitating order processing and analysis of customer preferences and behaviors.
3. **Restaurant Information:**
    - Each restaurant participating in your online ordering platform will be assigned a unique identifier (RestaurantID) and will provide details such as name, address, and city.
    - This ensures accurate management of restaurant information and facilitates effective coordination between restaurants and customers.
4. **Menu Items:**
    - Menu items offered by each restaurant will be recorded with a unique identifier (ItemID) and linked to the respective restaurant.
    - Details such as name, price, meal type, and item type will be stored, enabling seamless menu management and customization.
    - This facilitates efficient updating of menu offerings and ensures that customers have access to up-to-date information.
5. **Marketing Activities:**
    - Marketing activities conducted by your team will be tracked, including details such as the date, description, target audience, and the restaurant associated with each activity.

   - This allows for the monitoring and analysis of marketing initiatives, helping to optimize strategies and enhance customer engagement.
6. **Employee Information:**
   - Details of employees working at each restaurant will be recorded, including a unique identifier (EmployeeID), name, date of birth (DOB), and date of joining.
   - This facilitates effective staffing management and ensures that employee information is readily available for administrative purposes.

Business Rules:

- Each customer, order, restaurant, menu item, marketing activity, and employee will have a unique identifier for efficient identification and referencing.
- Customer details such as name, email, address, and city are mandatory to ensure accurate order processing and communication.
- Orders must be linked to valid customers and restaurants to maintain data integrity and facilitate analysis.
- Menu items must be associated with a specific restaurant to ensure accurate menu management and ordering.
- Marketing activities should be linked to the relevant restaurant and include details of the target audience for effective campaign targeting.
- Employee information, including date of birth and date of joining, should be accurately recorded for administrative purposes and compliance with employment regulations.

2. (20 points) Create the conceptual model needed to support your client's database.

a. List the entities, attributes, and relationships from the sample data.
b. Draw an entity-relationship (E-R) diagram using the Crow's feet or Chen notation. Make sure you are consistent in the notation you use, and it corresponds to the notation used in class.

Ans:

a. Entities and Their Attributes:

1) Customer:
CustomerID (Primary Key), Name, Email, Phone, Address, City
2) Orders:
OrderID (Primary Key), CustomerID (Foreign Key), OrderDate, TotalAmount,
3) Restaurant:
RestaurantID (Primary Key), RestaurantName, Address, City
4) MenuItem:
ItemID (Primary Key), Name, Price, MealType, ItemType,
5) Marketing Activity:
ActivityID (Primary Key), ActivityDateDate, Description, TargetAudience
6) Employee
EmployeeID (Primary Key), Name, DOB (Date of Birth), DateOfJoining

Relationships:

- **Customer to Order:**
  A single customer can place many orders. (1, N relationship)
  Each order must be placed by one and only one customer. (1,1 relationship)
- **Order to Restaurant:**
  Each order is associated with one and only one restaurant. (1,1 relationship)
  A restaurant can receive many orders. (1, N relationship)
- **Restaurant to MenuItem**
  A restaurant offers many menu items. (1, N relationship)
  Each menu item is offered by one and only one restaurant. (1,1 relationship)
- **Restaurant to Employee**
  A restaurant employs many employees. (1, N relationship)
  Each employee works at one and only one restaurant. (1,1 relationship)
- **Marketing Activity to Restaurant**
  Each marketing activity is conducted by one restaurant. (1,1 relationship)
  A restaurant can conduct many marketing activities. (1, N relationship)

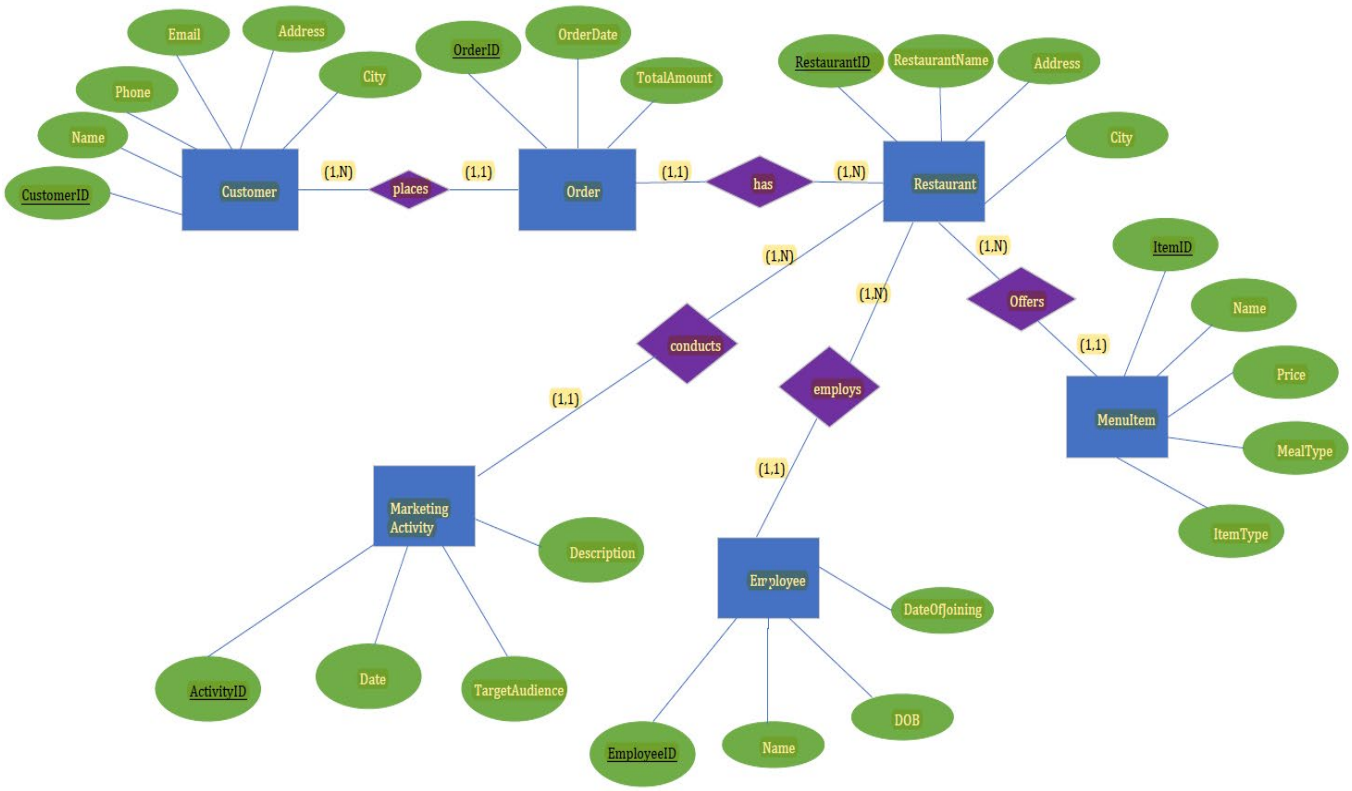


Figure 1- Entity-relationship (E-R) diagram using the Chen's notation

3. **(15 points) Transform the E-R diagram into a relational database design that includes all the keys, data types, and constraints (e.g., null, or not-null values). Show how the transformation rules are applied.**

Ans:

Customer Table:

- CustomerID (PK, int, not null): A unique identifier for each customer.
- Name (varchar, not null): The name of the customer.
- Email (varchar, not null): The email address of the customer.
- Phone (varchar, null): The phone number of the customer, which can be null if not provided.
- Address (varchar, not null): The physical address of the customer.
- City (varchar, not null): The city where the customer is located.

Order Table:

- OrderID (PK, int, not null): A unique identifier for each order.
- CustomerID (FK, int, not null): The identifier for the customer who placed the order, linked to the Customer table.
- RestaurantID (FK, int, not null): The identifier for the restaurant from which the order was placed, links to RestaurantID in the Restaurant table.
- OrderDate (datetime, not null): The date and time when the order was placed.
- TotalAmount (decimal (10,2), not null): The total monetary amount of the order.

Restaurant Table:

- RestaurantID (PK, int, not null): A unique identifier for each restaurant.
- RestaurantName (varchar, not null): The name of the restaurant.
- Address (varchar, not null): The physical address of the restaurant.
- City (varchar, not null): The city where the restaurant is located.

MenuItem Table:

- ItemID (PK, int, not null): A unique identifier for each menu item.
- RestaurantID (FK, int, not null): The identifier for the restaurant offering this item, links to RestaurantID in the Restaurant table.
- Name (varchar, not null): The name of the menu item.
- Price (decimal (10,2), not null): The price of the menu item.

- MealType (varchar, not null): The type of meal (e.g., breakfast, lunch, dinner).
- ItemType (varchar, not null): The category of the item (e.g., salad, sandwich, dessert).

Marketing Activity Table:

- ActivityID (PK, int, not null): A unique identifier for each marketing activity.
- RestaurantID (FK, int, not null): The identifier for the restaurant related to the marketing activity, links to RestaurantID in the Restaurant table.
- Date (date, not null): The date when the marketing activity takes place.
- Description (text, not null): A description of the marketing activity.
- TargetAudience (varchar, not null): The intended target audience for the marketing activity.

Employee Table

- EmployeeID (PK, int, not null): A unique identifier for each employee.
- RestaurantID (FK, int, not null): The identifier for the restaurant where the employee works, links to RestaurantID in the Restaurant table.
- Name (varchar, not null): The name of the employee.
- DOB (date, not null): The date of birth of the employee.
- DateOfJoining (date, not null): The date when the employee joined the restaurant.

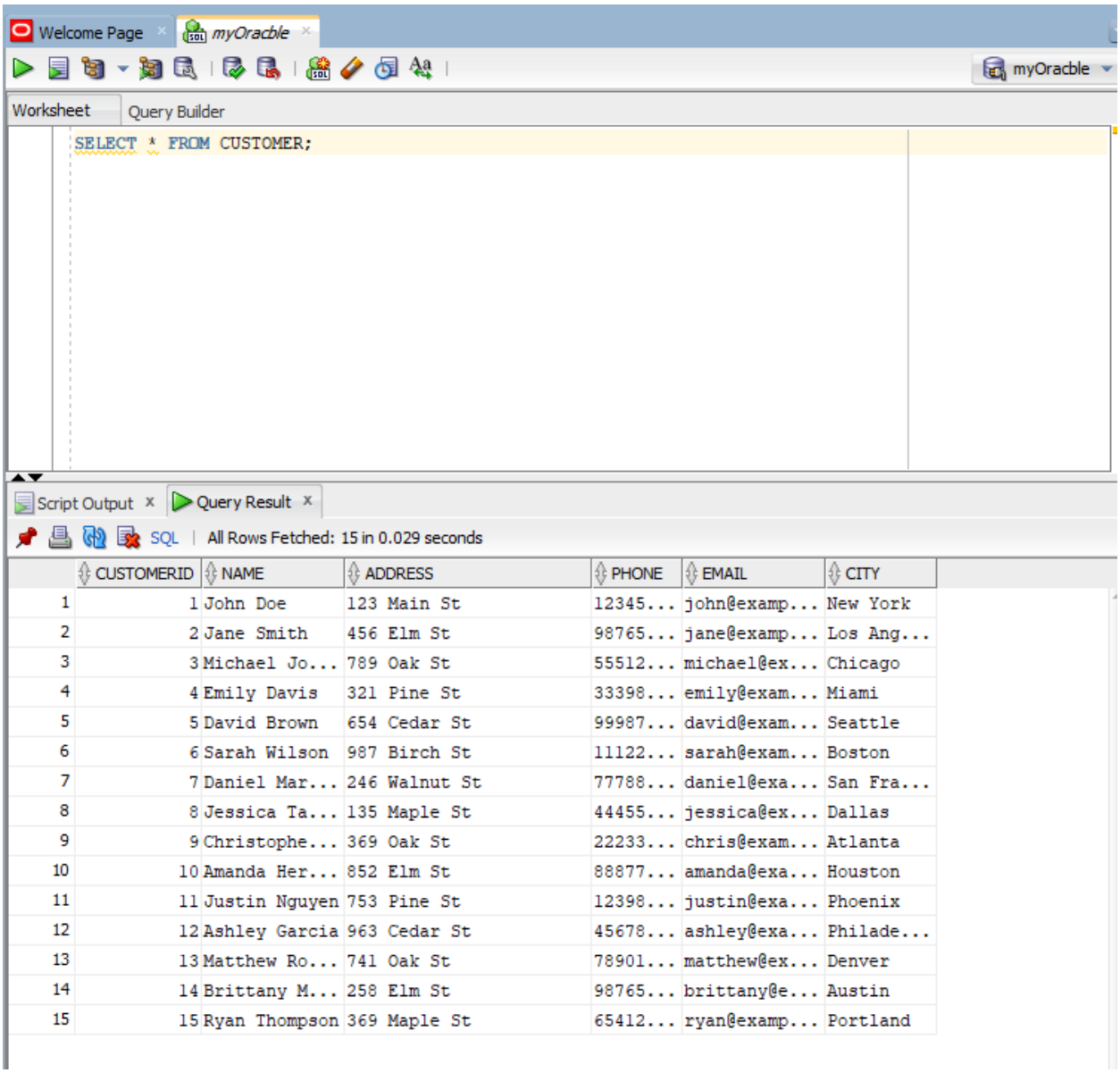
Transformation Rules:

- Entities to Tables: Each entity is transformed into a table.
- Attributes to Columns: Each attribute of an entity becomes a column in the corresponding table.
- Primary Keys: Each primary key attribute is designated as the primary key in its table.
- Foreign Keys: Where there is a relationship between two entities, the primary key of one becomes a foreign key in the table of the related entity.
- Data Types: Each attribute is assigned a data type that is suitable for the kind of data it will store (e.g., integers for identifiers, varchars for names, datetime for dates, etc.).
- Constraints: `not null` constraints are added to ensure that mandatory fields are filled in. Optional fields may be left as `null` if they can be omitted.

4. (10 points) Implement the database. Use Oracle, which is provided by GSU (Georgia State University). You will need to create the (dummy) data for the database, e.g., 10-15 entries for each relation. Show the data that you input to your database by using the Select *, command.

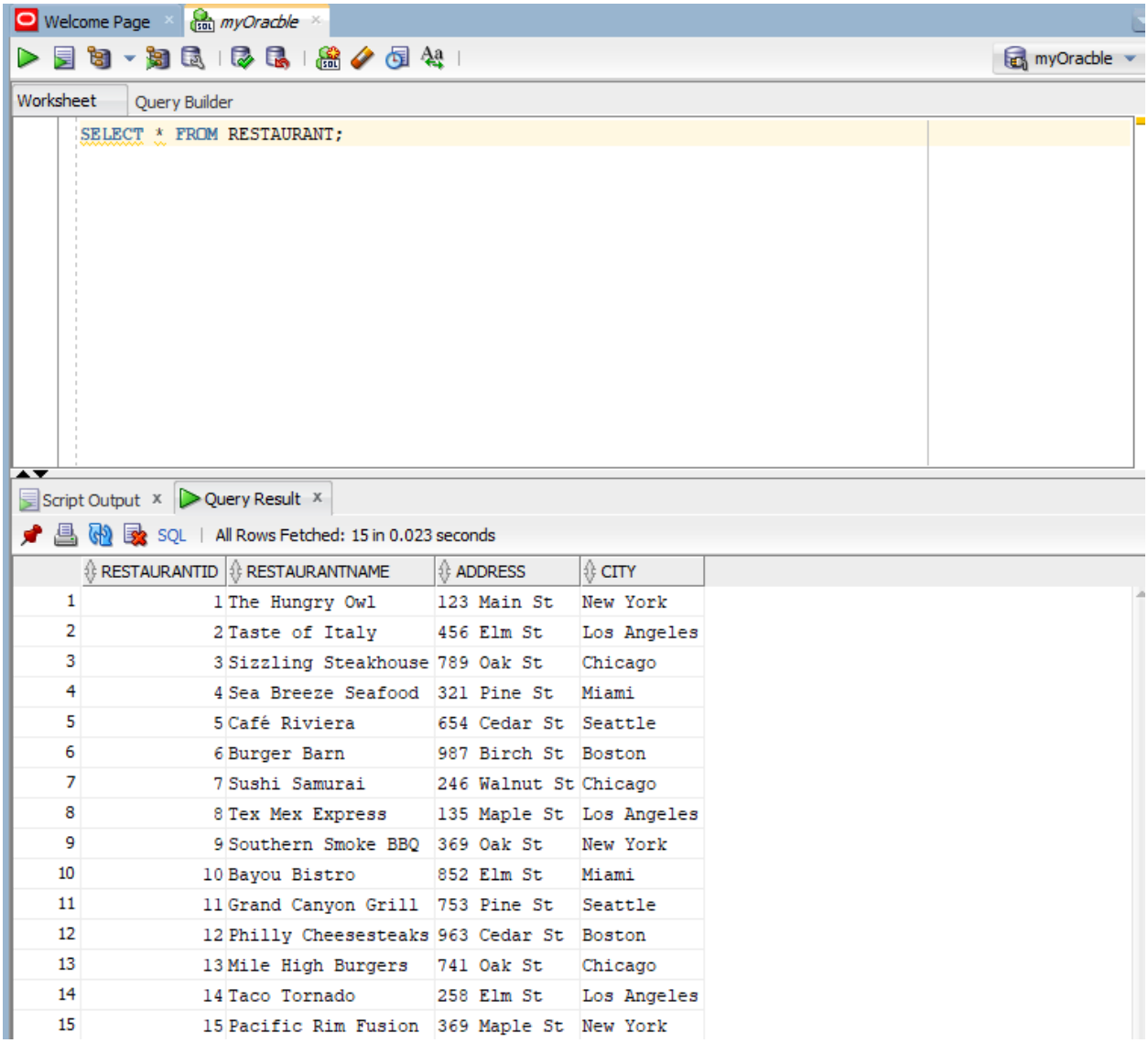
Ans: Queries to Insert Dummy Data in Tables:

Output 1 -



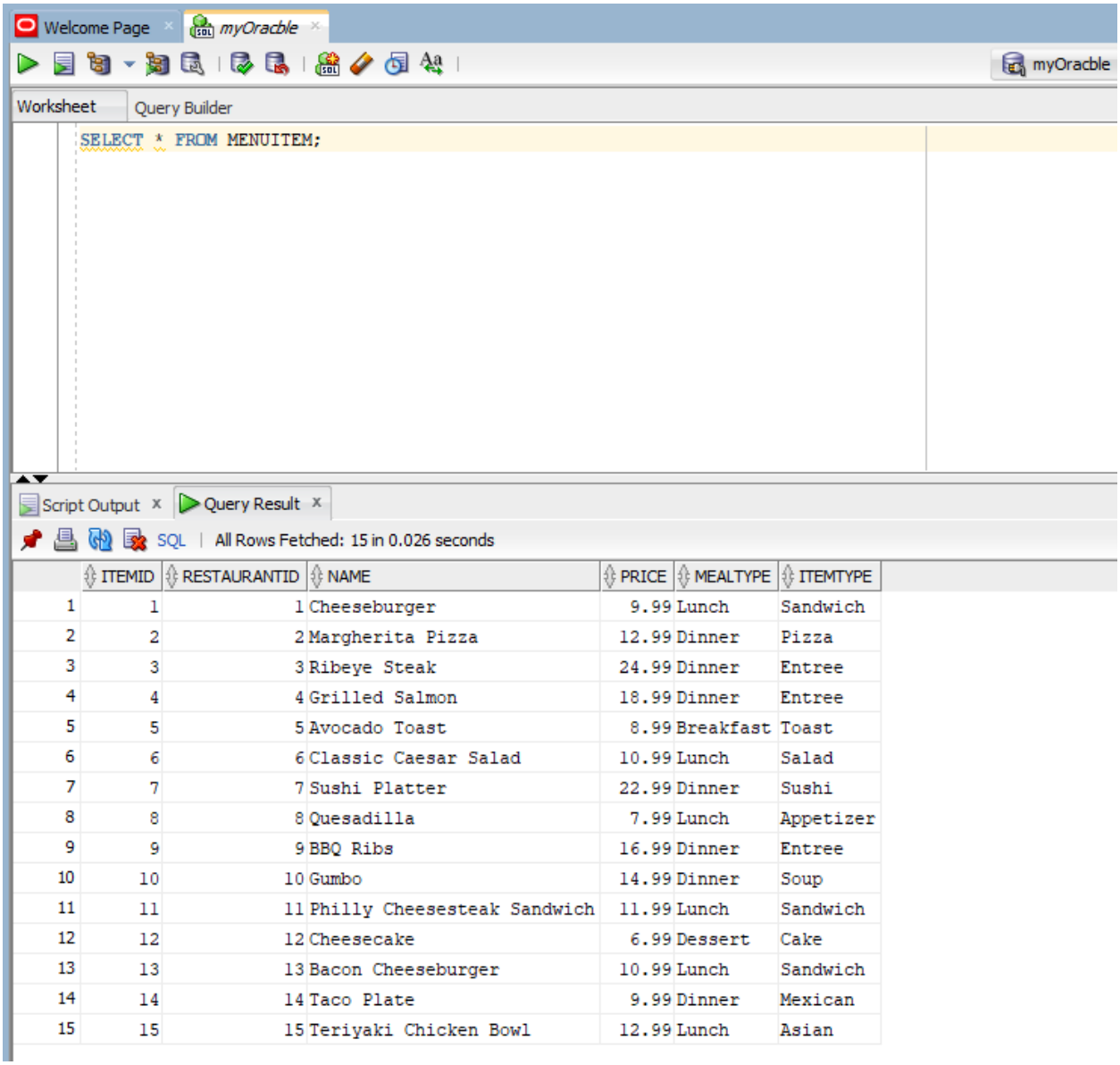
	CUSTOMERID	NAME	ADDRESS	PHONE	EMAIL	CITY
1	1	John Doe	123 Main St	12345...	john@examp...	New York
2	2	Jane Smith	456 Elm St	98765...	jane@examp...	Los Ang...
3	3	Michael Jo...	789 Oak St	55512...	michael@ex...	Chicago
4	4	Emily Davis	321 Pine St	33398...	emily@exam...	Miami
5	5	David Brown	654 Cedar St	99987...	david@exam...	Seattle
6	6	Sarah Wilson	987 Birch St	11122...	sarah@exam...	Boston
7	7	Daniel Mar...	246 Walnut St	77788...	daniel@exa...	San Fra...
8	8	Jessica Ta...	135 Maple St	44455...	jessica@ex...	Dallas
9	9	Christophe...	369 Oak St	22233...	chris@exam...	Atlanta
10	10	Amanda Her...	852 Elm St	88877...	amanda@exa...	Houston
11	11	Justin Nguyen	753 Pine St	12398...	justin@exa...	Phoenix
12	12	Ashley Garcia	963 Cedar St	45678...	ashley@exa...	Philade...
13	13	Matthew Ro...	741 Oak St	78901...	matthew@ex...	Denver
14	14	Brittany M...	258 Elm St	98765...	brittany@e...	Austin
15	15	Ryan Thompson	369 Maple St	65412...	ryan@examp...	Portland

Output 2 -



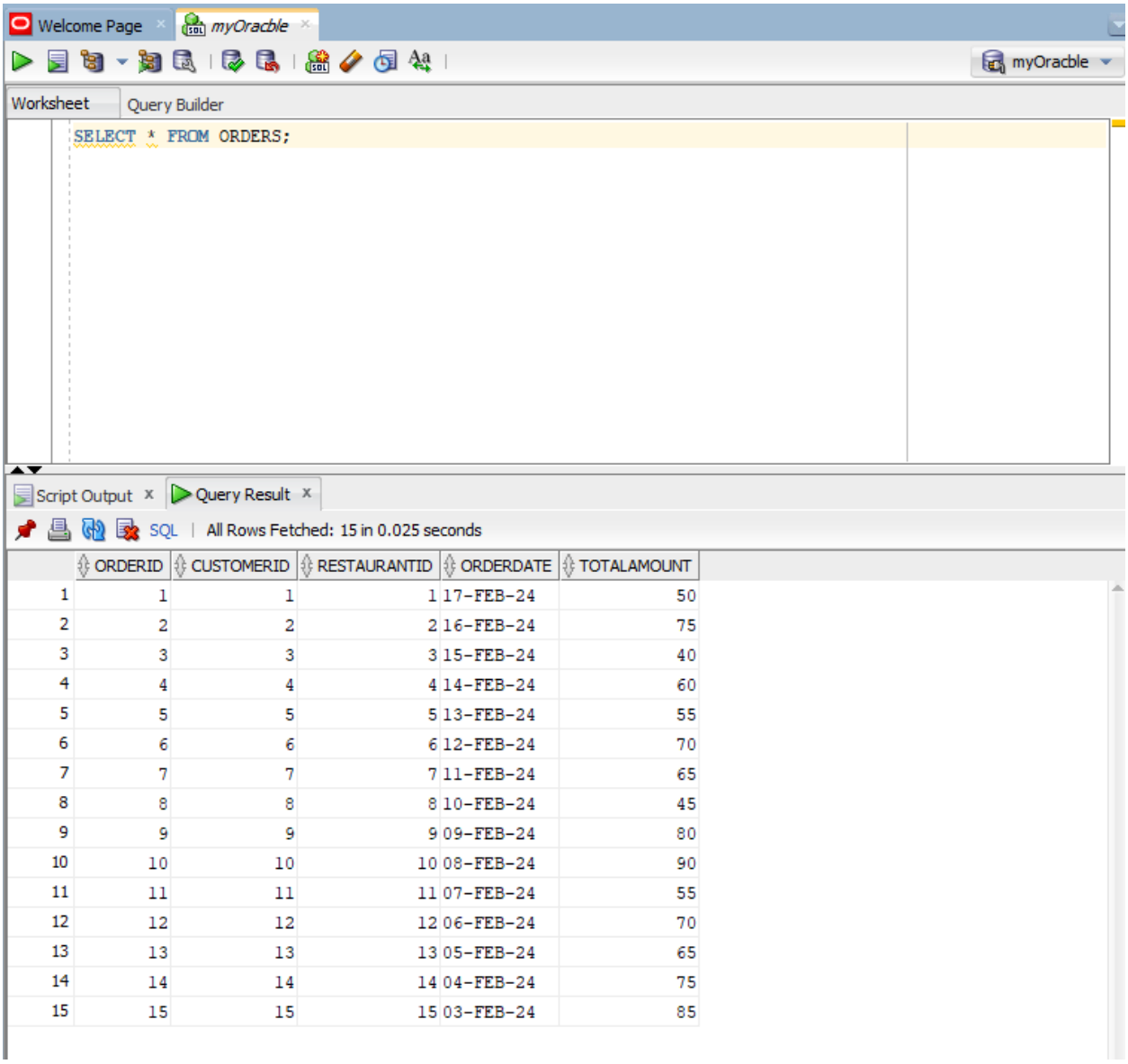
	RESTAURANTID	RESTAURANTNAME	ADDRESS	CITY
1	1	The Hungry Owl	123 Main St	New York
2	2	Taste of Italy	456 Elm St	Los Angeles
3	3	Sizzling Steakhouse	789 Oak St	Chicago
4	4	Sea Breeze Seafood	321 Pine St	Miami
5	5	Café Riviera	654 Cedar St	Seattle
6	6	Burger Barn	987 Birch St	Boston
7	7	Sushi Samurai	246 Walnut St	Chicago
8	8	Tex Mex Express	135 Maple St	Los Angeles
9	9	Southern Smoke BBQ	369 Oak St	New York
10	10	Bayou Bistro	852 Elm St	Miami
11	11	Grand Canyon Grill	753 Pine St	Seattle
12	12	Philly Cheesesteaks	963 Cedar St	Boston
13	13	Mile High Burgers	741 Oak St	Chicago
14	14	Taco Tornado	258 Elm St	Los Angeles
15	15	Pacific Rim Fusion	369 Maple St	New York

Output 3 -



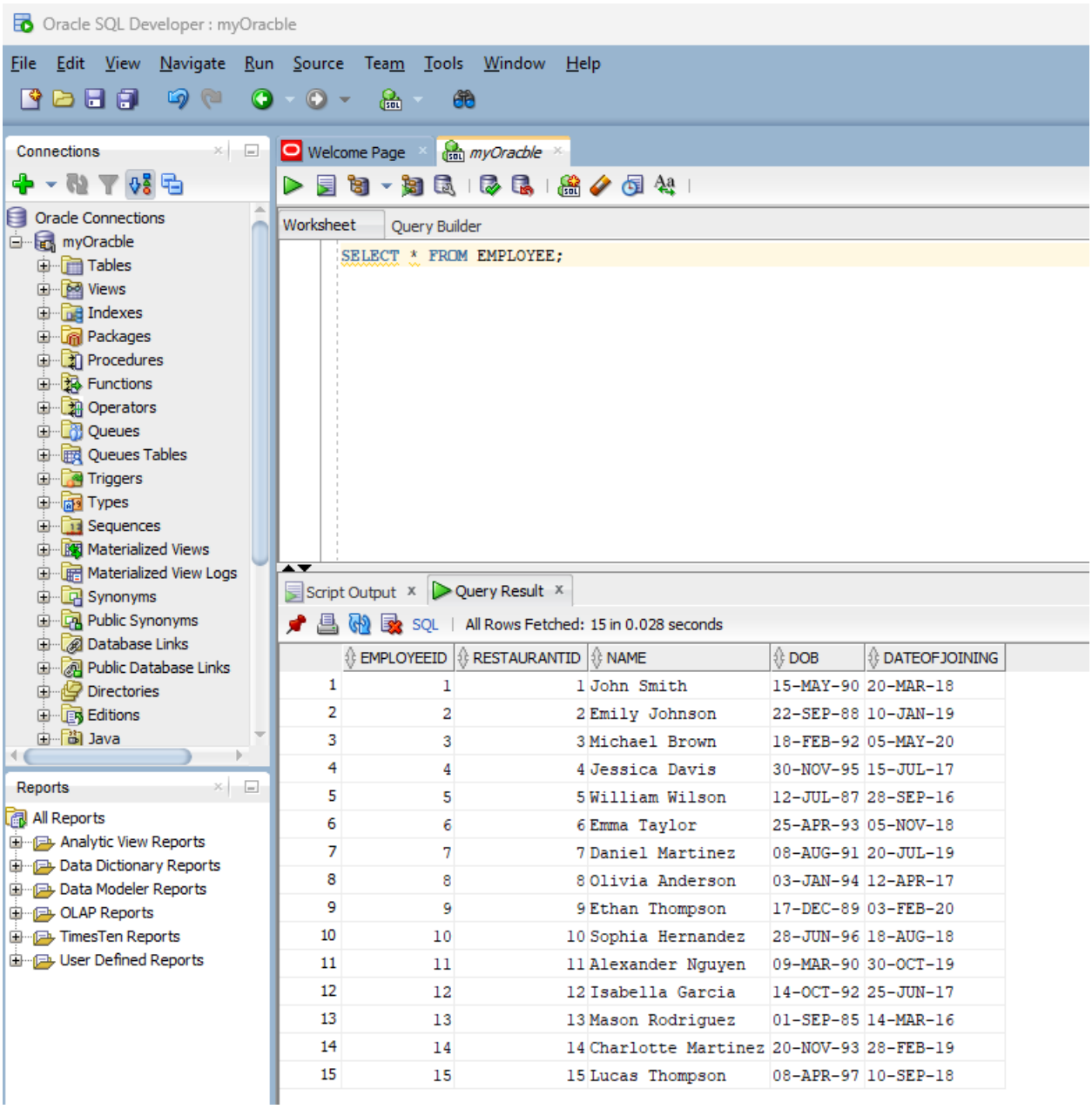
	ITEMID	RESTAURANTID	NAME	PRICE	MEALTYPE	ITEMTYPE
1	1	1	Cheeseburger	9.99	Lunch	Sandwich
2	2	2	Margherita Pizza	12.99	Dinner	Pizza
3	3	3	Ribeye Steak	24.99	Dinner	Entree
4	4	4	Grilled Salmon	18.99	Dinner	Entree
5	5	5	Avocado Toast	8.99	Breakfast	Toast
6	6	6	Classic Caesar Salad	10.99	Lunch	Salad
7	7	7	Sushi Platter	22.99	Dinner	Sushi
8	8	8	Quesadilla	7.99	Lunch	Appetizer
9	9	9	BBQ Ribs	16.99	Dinner	Entree
10	10	10	Gumbo	14.99	Dinner	Soup
11	11	11	Philly Cheesesteak Sandwich	11.99	Lunch	Sandwich
12	12	12	Cheesecake	6.99	Dessert	Cake
13	13	13	Bacon Cheeseburger	10.99	Lunch	Sandwich
14	14	14	Taco Plate	9.99	Dinner	Mexican
15	15	15	Teriyaki Chicken Bowl	12.99	Lunch	Asian

Output 4 -



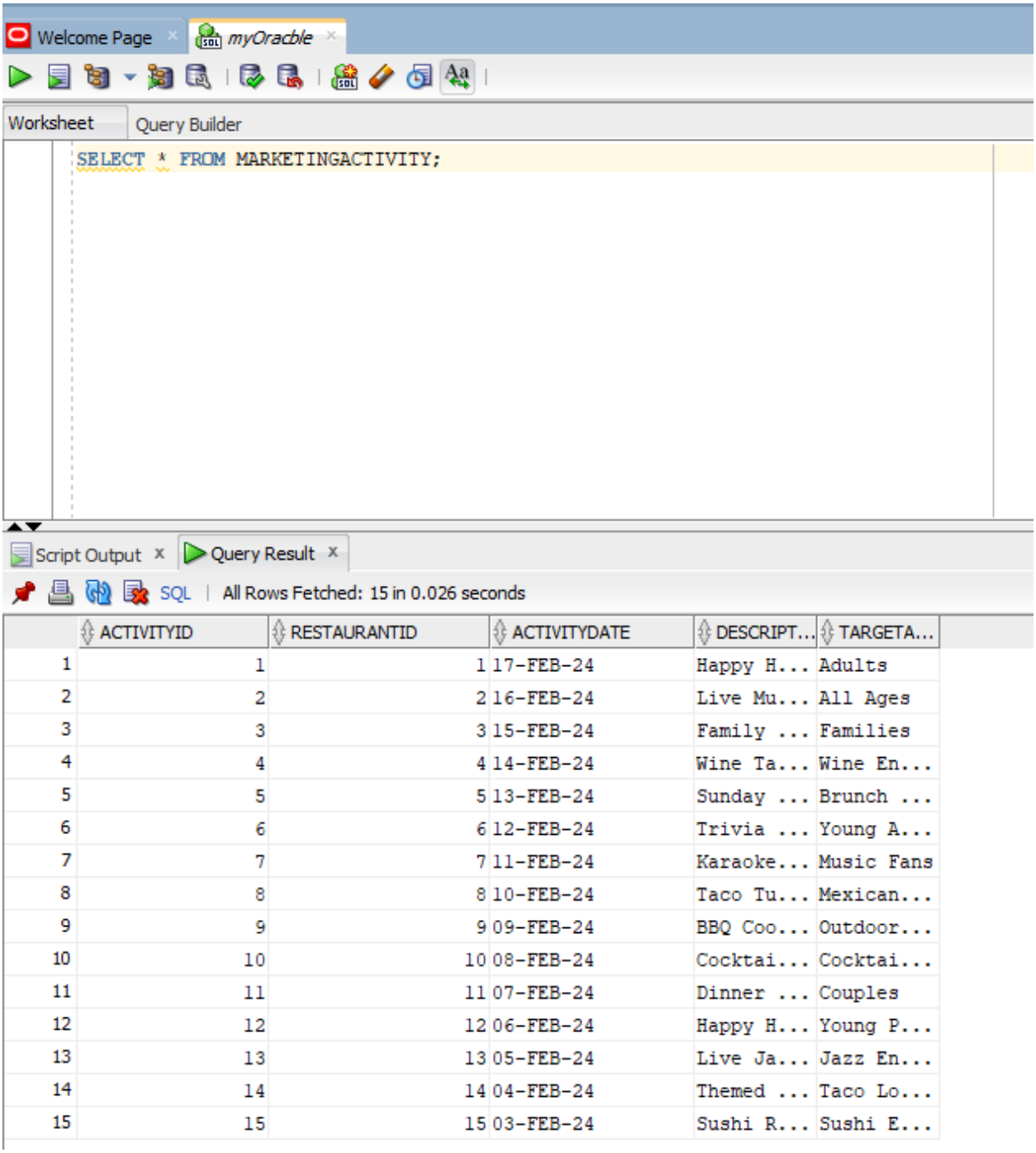
	ORDERID	CUSTOMERID	RESTAURANTID	ORDERDATE	TOTALAMOUNT
1	1	1	1	17-FEB-24	50
2	2	2	2	16-FEB-24	75
3	3	3	3	15-FEB-24	40
4	4	4	4	14-FEB-24	60
5	5	5	5	13-FEB-24	55
6	6	6	6	12-FEB-24	70
7	7	7	7	11-FEB-24	65
8	8	8	8	10-FEB-24	45
9	9	9	9	09-FEB-24	80
10	10	10	10	08-FEB-24	90
11	11	11	11	07-FEB-24	55
12	12	12	12	06-FEB-24	70
13	13	13	13	05-FEB-24	65
14	14	14	14	04-FEB-24	75
15	15	15	15	03-FEB-24	85

Output 5 -



	EMPLOYEEID	RESTAURANTID	NAME	DOB	DATEOFJOINING
1	1	1	John Smith	15-MAY-90	20-MAR-18
2	2	2	Emily Johnson	22-SEP-88	10-JAN-19
3	3	3	Michael Brown	18-FEB-92	05-MAY-20
4	4	4	Jessica Davis	30-NOV-95	15-JUL-17
5	5	5	William Wilson	12-JUL-87	28-SEP-16
6	6	6	Emma Taylor	25-APR-93	05-NOV-18
7	7	7	Daniel Martinez	08-AUG-91	20-JUL-19
8	8	8	Olivia Anderson	03-JAN-94	12-APR-17
9	9	9	Ethan Thompson	17-DEC-89	03-FEB-20
10	10	10	Sophia Hernandez	28-JUN-96	18-AUG-18
11	11	11	Alexander Nguyen	09-MAR-90	30-OCT-19
12	12	12	Isabella Garcia	14-OCT-92	25-JUN-17
13	13	13	Mason Rodriguez	01-SEP-85	14-MAR-16
14	14	14	Charlotte Martinez	20-NOV-93	28-FEB-19
15	15	15	Lucas Thompson	08-APR-97	10-SEP-18

Output 6 -



	ACTIVITYID	RESTAURANTID	ACTIVITYDATE	DESCRIPT...	TARGETA...
1	1	1	17-FEB-24	Happy H...	Adults
2	2	2	16-FEB-24	Live Mu...	All Ages
3	3	3	15-FEB-24	Family ...	Families
4	4	4	14-FEB-24	Wine Ta...	Wine En...
5	5	5	13-FEB-24	Sunday ...	Brunch ...
6	6	6	12-FEB-24	Trivia ...	Young A...
7	7	7	11-FEB-24	Karaoke...	Music Fans
8	8	8	10-FEB-24	Taco Tu...	Mexican...
9	9	9	09-FEB-24	BBQ Coo...	Outdoor...
10	10	10	08-FEB-24	Cocktai...	Cocktai...
11	11	11	07-FEB-24	Dinner ...	Couples
12	12	12	06-FEB-24	Happy H...	Young P...
13	13	13	05-FEB-24	Live Ja...	Jazz En...
14	14	14	04-FEB-24	Themed ...	Taco Lo...
15	15	15	03-FEB-24	Sushi R...	Sushi E...

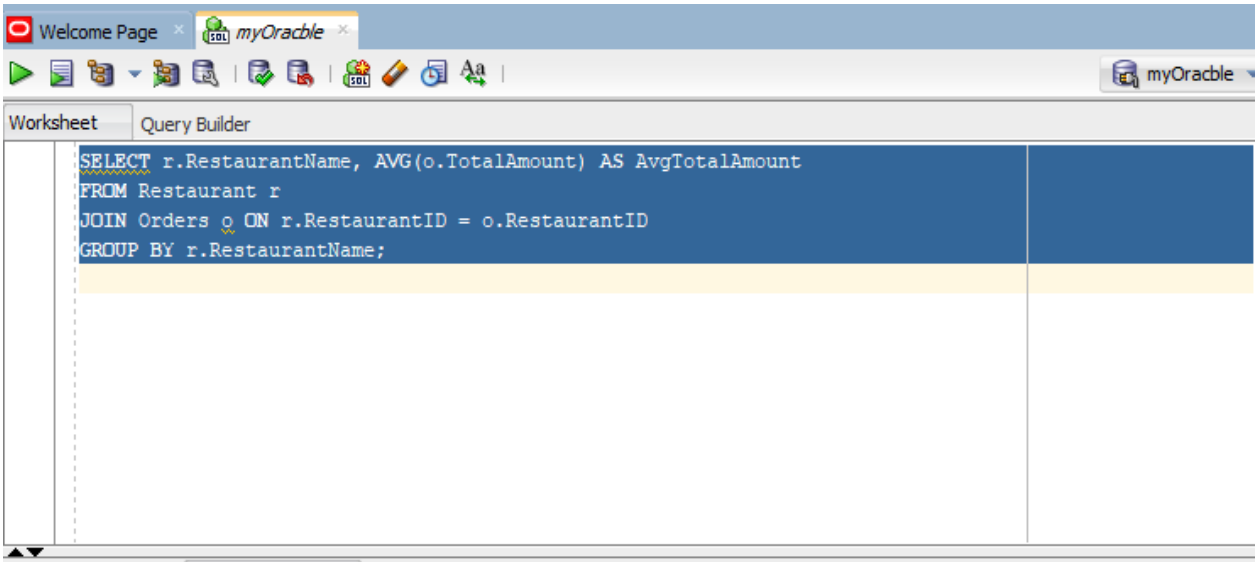
5. **(25 points) Identify 10 important, non-trivial queries for this database. Write the queries in English and state the importance of each query, within the context of the application domain.**

   Write the queries in SQL and run them against the database. Show the SQL commands. Provide screen shots of the results obtained. Trivial queries are, for example, 'retrieve the names of the customers,' or 'identify the customers who live in Atlanta and are over 21 years of age.' At least 7 of the queries should require a join operation. One of the queries should use some form of a trigger or a way to capture integrity constraints.

Ans:

1. **Query 1: Average Total Amount Spent per Order for Each Restaurant**

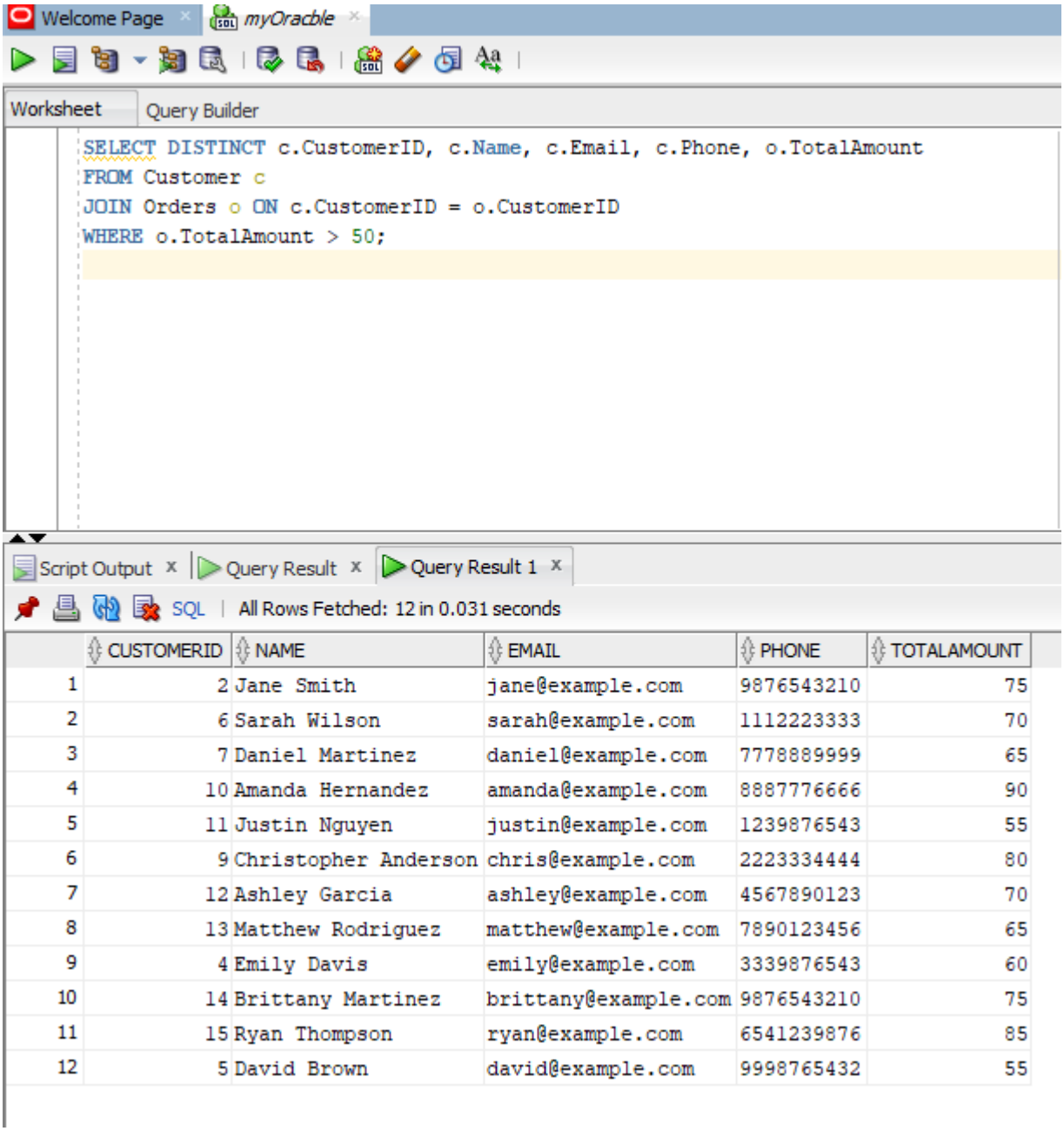
Importance: Understanding the average total amount spent per order at each restaurant is crucial for gauging customer purchasing behaviors and revenue generation patterns. This insight aids in pricing strategies, identifying high-value customers, and optimizing menu offerings, ultimately driving profitability, and enhancing customer satisfaction through targeted service enhancements.



	RESTAURANTNAME	AVGTOTALAMOUNT
1	Taste of Italy	75
2	Burger Barn	70
3	Mile High Burgers	65
4	The Hungry Owl	50
5	Café Riviera	55
6	Tex Mex Express	45
7	Grand Canyon Grill	55
8	Philly Cheesesteaks	70
9	Sizzling Steakhouse	40
10	Sea Breeze Seafood	60
11	Sushi Samurai	65
12	Pacific Rim Fusion	85
13	Southern Smoke BBQ	80
14	Bayou Bistro	90
15	Taco Tornado	75

2. **Query 2: Query to Retrieve Customers Who Have Placed Orders with Total Amount Greater Than $50**

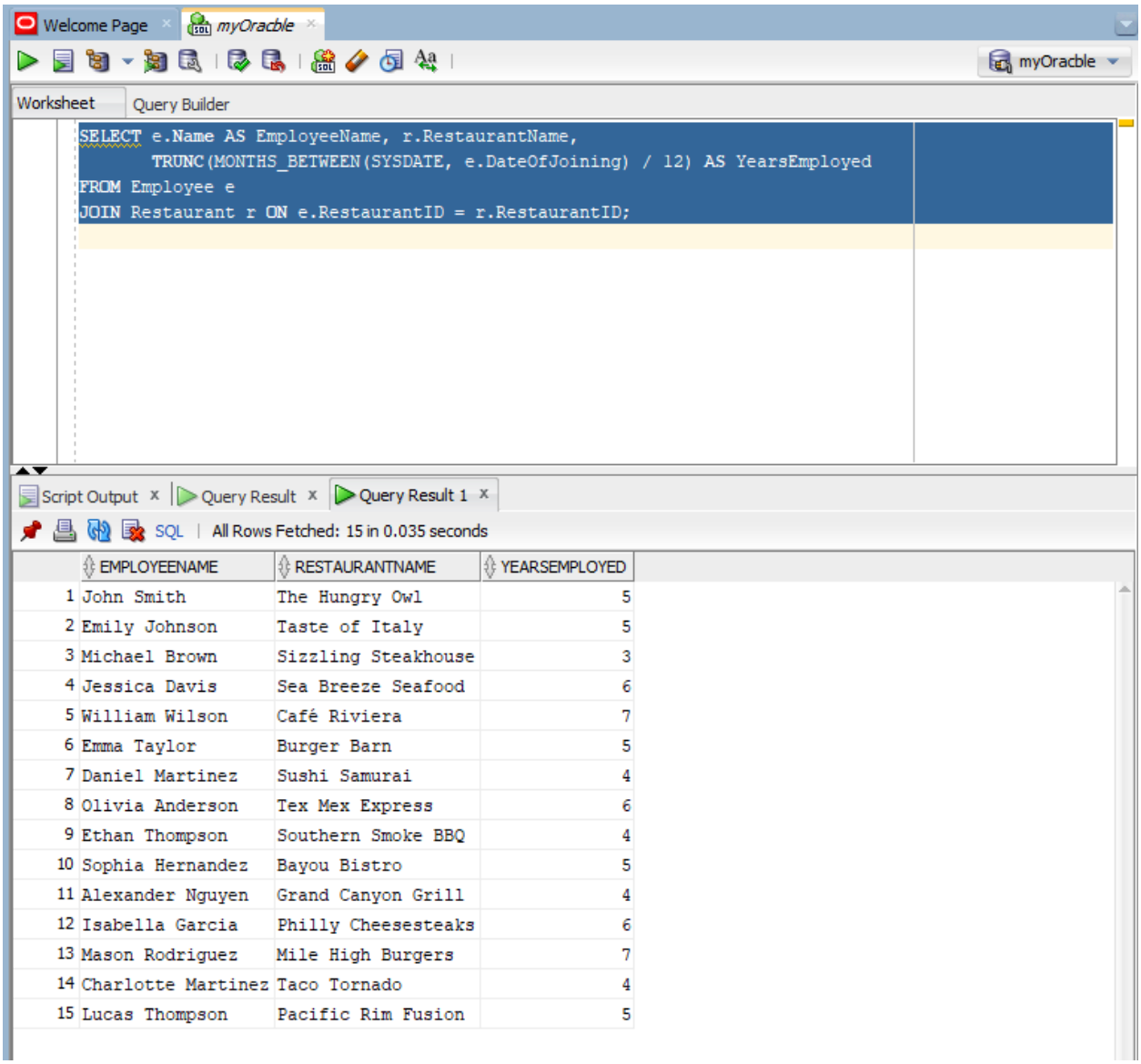
Importance: The query extracts customer details and their order amounts exceeding 50 usd, aiding businesses in identifying high-value customers, analyzing purchasing patterns, and optimizing marketing strategies. It facilitates data-driven decisions, enhances customer relationships, and informs performance monitoring within organizations.



	CUSTOMERID	NAME	EMAIL	PHONE	TOTALAMOUNT
1	2	Jane Smith	jane@example.com	9876543210	75
2	6	Sarah Wilson	sarah@example.com	1112223333	70
3	7	Daniel Martinez	daniel@example.com	7778889999	65
4	10	Amanda Hernandez	amanda@example.com	8887776666	90
5	11	Justin Nguyen	justin@example.com	1239876543	55
6	9	Christopher Anderson	chris@example.com	2223334444	80
7	12	Ashley Garcia	ashley@example.com	4567890123	70
8	13	Matthew Rodriguez	matthew@example.com	7890123456	65
9	4	Emily Davis	emily@example.com	3339876543	60
10	14	Brittany Martinez	brittany@example.com	9876543210	75
11	15	Ryan Thompson	ryan@example.com	6541239876	85
12	5	David Brown	david@example.com	9998765432	55

3. Query 3: Query to Get Employee Names and Their Duration of Employment (in Years) in Each Restaurant

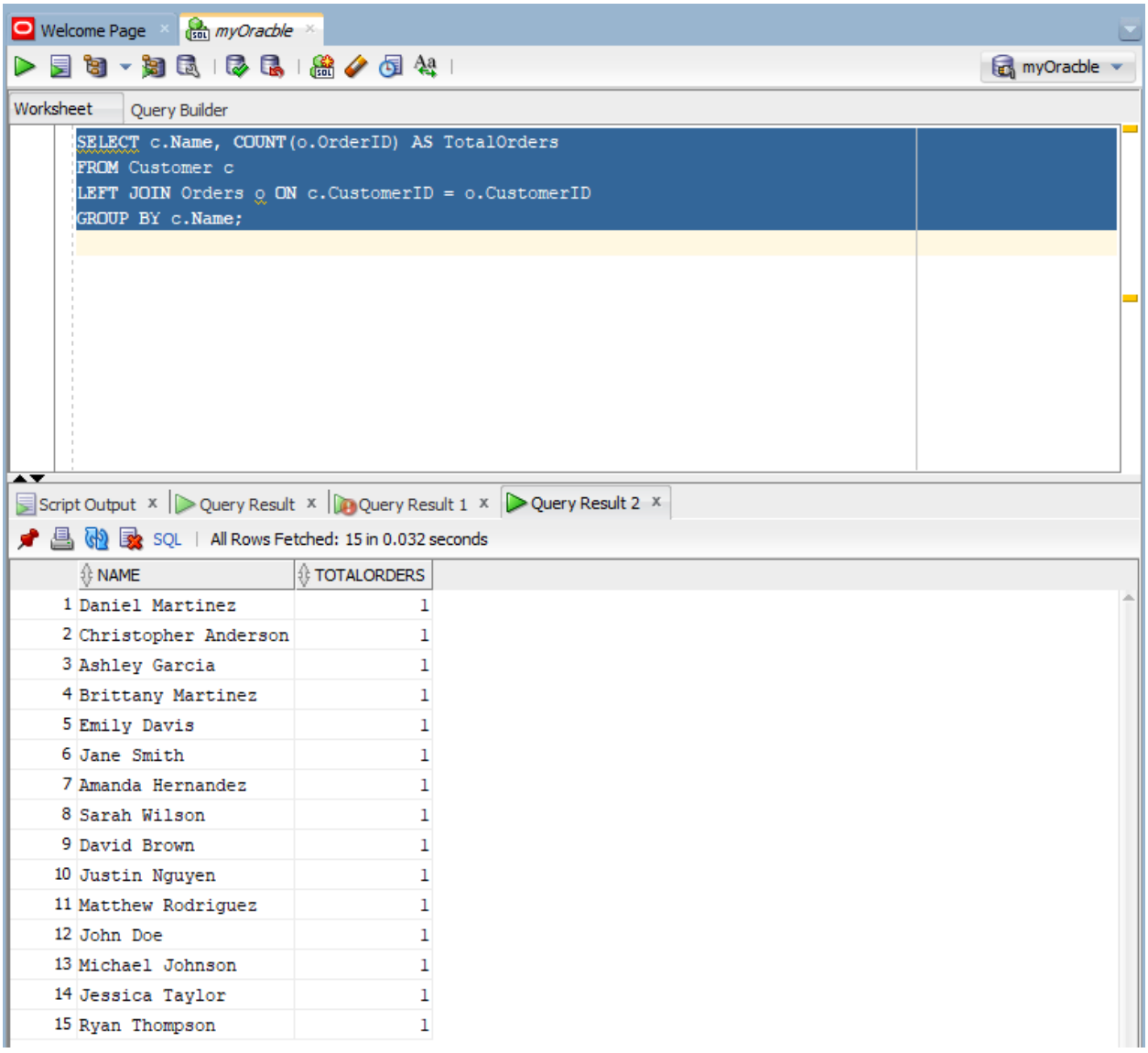
Importance: This SQL query retrieves employee names, their respective restaurant affiliations, and calculates their duration of employment in years. It's crucial for monitoring workforce longevity, assessing employee retention rates across different restaurants, and facilitating strategic human resource management decisions to enhance operational stability and employee satisfaction.



	EMPLOYEENAME	RESTAURANTNAME	YEARSEMPLOYED
1	John Smith	The Hungry Owl	5
2	Emily Johnson	Taste of Italy	5
3	Michael Brown	Sizzling Steakhouse	3
4	Jessica Davis	Sea Breeze Seafood	6
5	William Wilson	Café Riviera	7
6	Emma Taylor	Burger Barn	5
7	Daniel Martinez	Sushi Samurai	4
8	Olivia Anderson	Tex Mex Express	6
9	Ethan Thompson	Southern Smoke BBQ	4
10	Sophia Hernandez	Bayou Bistro	5
11	Alexander Nguyen	Grand Canyon Grill	4
12	Isabella Garcia	Philly Cheesesteaks	6
13	Mason Rodriguez	Mile High Burgers	7
14	Charlotte Martinez	Taco Tornado	4
15	Lucas Thompson	Pacific Rim Fusion	5

4. Query 4: Query to Retrieve the Total Number of Orders Placed by Each Customer

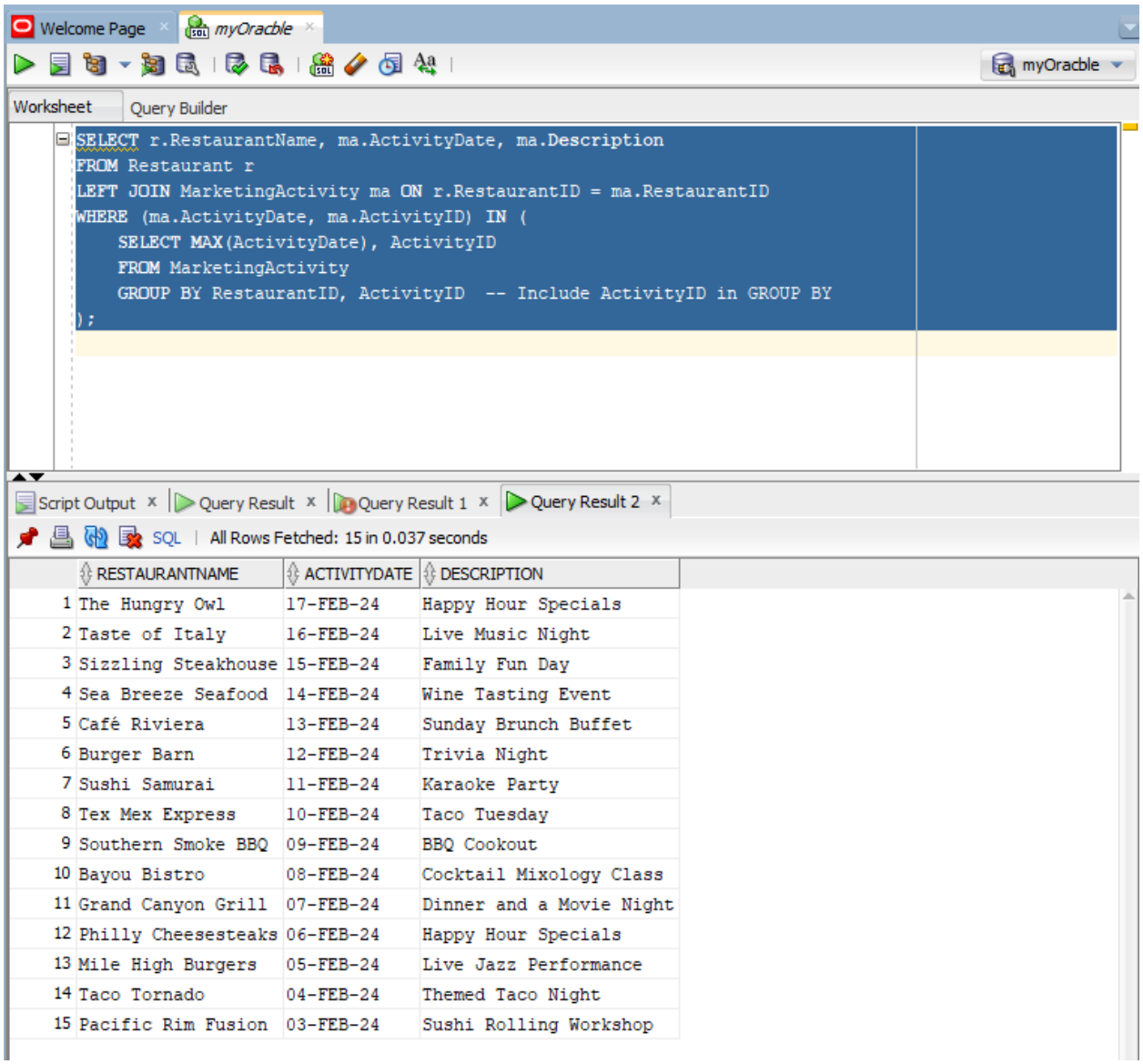
Importance: This SQL query retrieves each customer's name along with the total number of orders they've placed. It's essential for analyzing customer engagement, identifying loyal customers, and tailoring marketing strategies to maximize customer retention and satisfaction, ultimately driving business growth and profitability through targeted customer relationship management initiatives.



	NAME	TOTALORDERS
1	Daniel Martinez	1
2	Christopher Anderson	1
3	Ashley Garcia	1
4	Brittany Martinez	1
5	Emily Davis	1
6	Jane Smith	1
7	Amanda Hernandez	1
8	Sarah Wilson	1
9	David Brown	1
10	Justin Nguyen	1
11	Matthew Rodriguez	1
12	John Doe	1
13	Michael Johnson	1
14	Jessica Taylor	1
15	Ryan Thompson	1

5. Query 5: "Latest Marketing Activities per Restaurant"

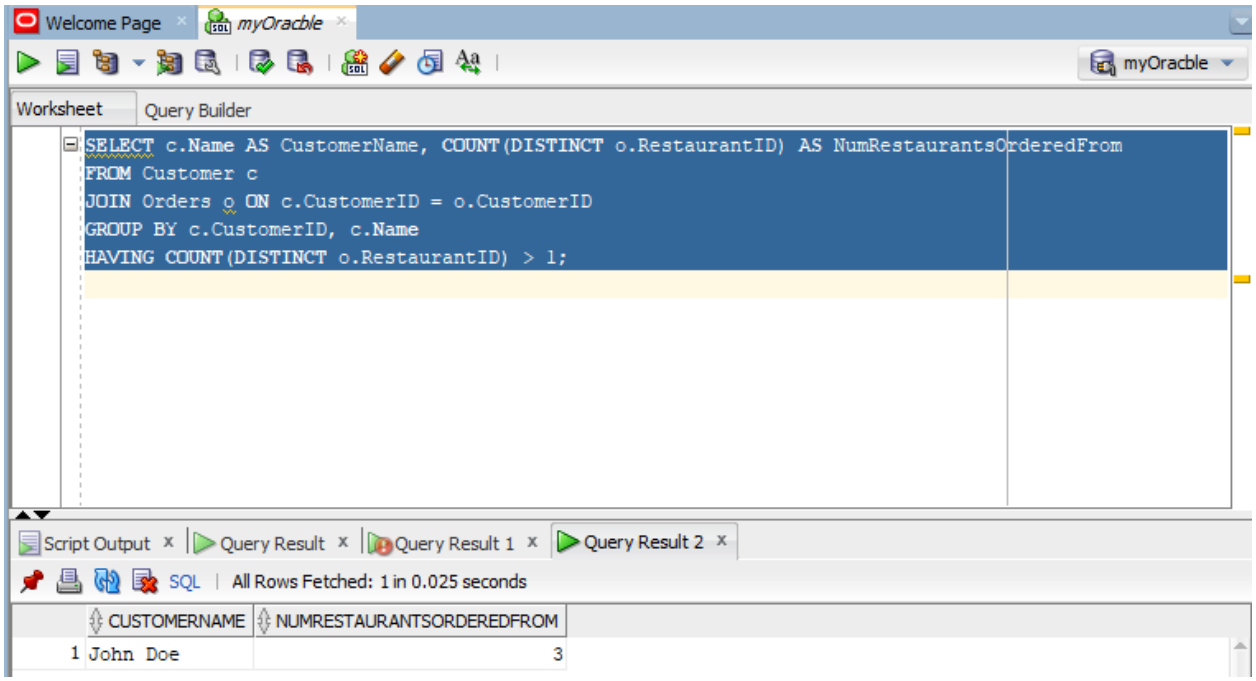
Importance: This query retrieves the most recent marketing activities for each restaurant, facilitating strategic decision-making by providing insights into recent promotional efforts. Understanding recent marketing initiatives helps assess their effectiveness and informs future marketing strategies, contributing to business growth and customer engagement.



	RESTAURANTNAME	ACTIVITYDATE	DESCRIPTION
1	The Hungry Owl	17-FEB-24	Happy Hour Specials
2	Taste of Italy	16-FEB-24	Live Music Night
3	Sizzling Steakhouse	15-FEB-24	Family Fun Day
4	Sea Breeze Seafood	14-FEB-24	Wine Tasting Event
5	Café Riviera	13-FEB-24	Sunday Brunch Buffet
6	Burger Barn	12-FEB-24	Trivia Night
7	Sushi Samurai	11-FEB-24	Karaoke Party
8	Tex Mex Express	10-FEB-24	Taco Tuesday
9	Southern Smoke BBQ	09-FEB-24	BBQ Cookout
10	Bayou Bistro	08-FEB-24	Cocktail Mixology Class
11	Grand Canyon Grill	07-FEB-24	Dinner and a Movie Night
12	Philly Cheesesteaks	06-FEB-24	Happy Hour Specials
13	Mile High Burgers	05-FEB-24	Live Jazz Performance
14	Taco Tornado	04-FEB-24	Themed Taco Night
15	Pacific Rim Fusion	03-FEB-24	Sushi Rolling Workshop

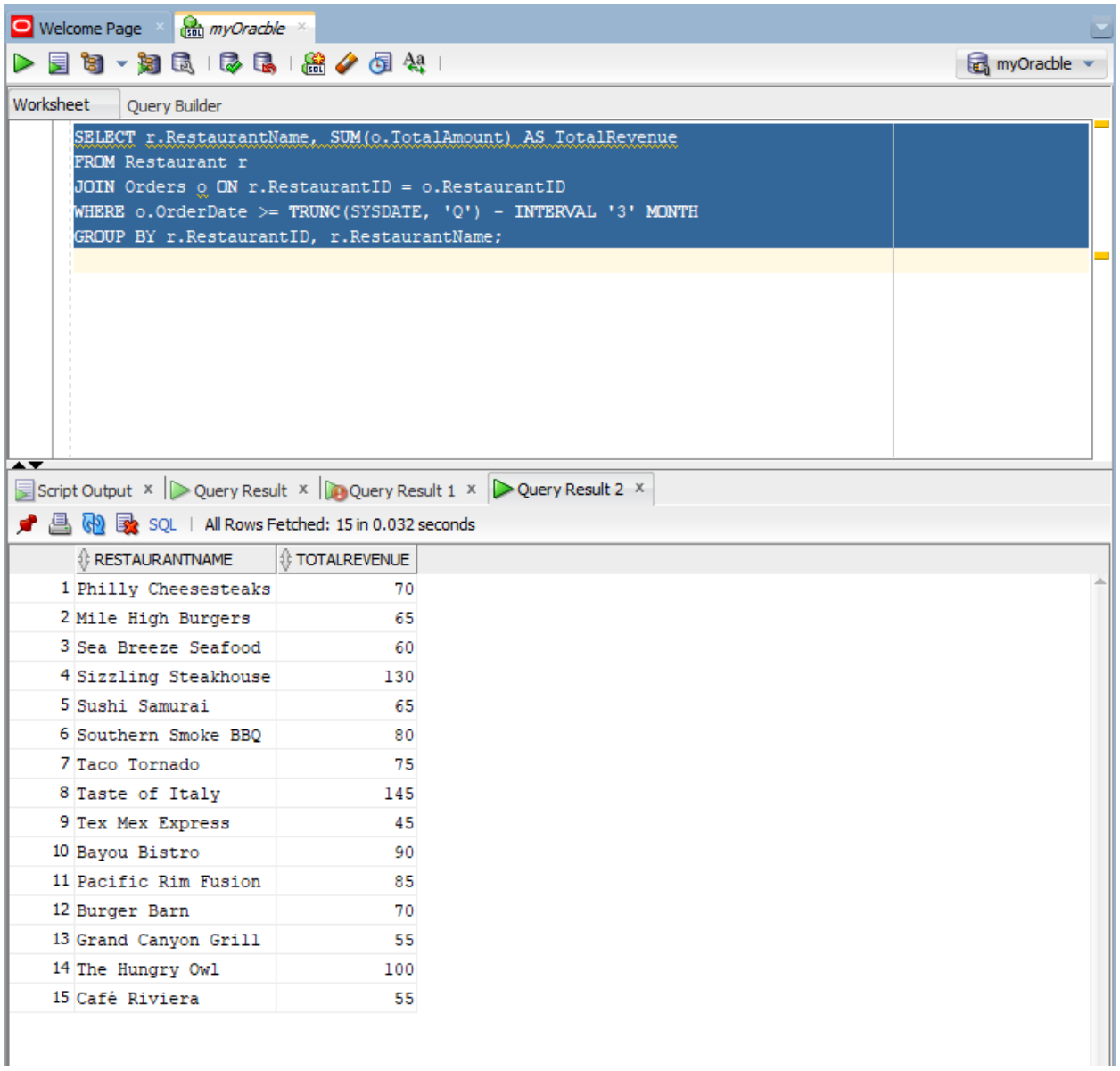
6. Query 6: Customer Diversity: Number of Restaurants Ordered From

Importance: This SQL query identifies customers who have placed orders at multiple restaurants, offering insights into customer behavior and preferences. It aids in understanding customer engagement with different offerings, enabling targeted marketing efforts and enhancing customer loyalty through diversified product offerings and personalized experiences.



7. Query 7: Query to Find the Total Revenue Generated by Each Restaurant in the Last Quarter

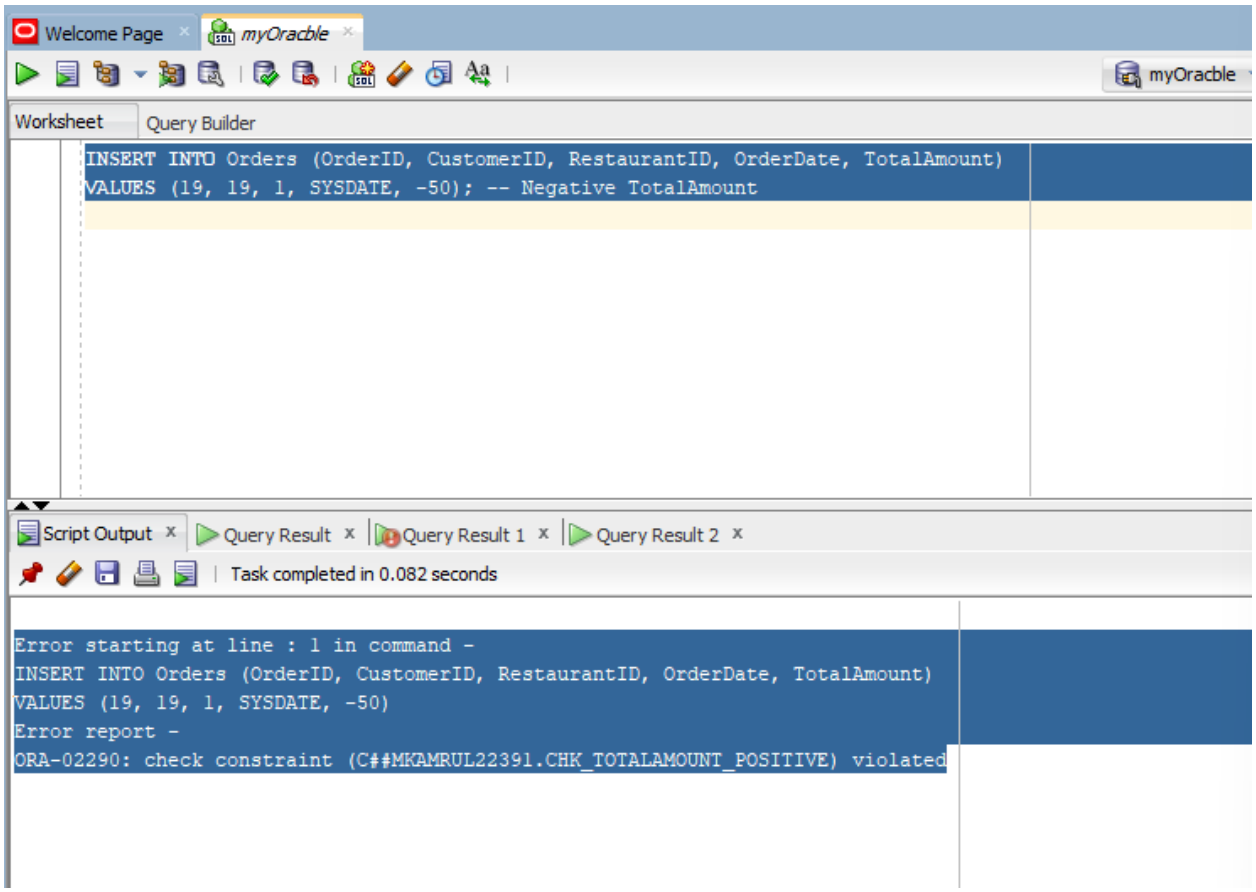
Importance: This SQL query computes the total revenue generated by each restaurant in the last quarter, providing valuable insights into revenue performance over a specific period. It enables financial analysis, identifies top-performing restaurants, and informs strategic decision-making, such as resource allocation and marketing strategies, to optimize revenue growth and profitability.



	RESTAURANTNAME	TOTALREVENUE
1	Philly Cheesesteaks	70
2	Mile High Burgers	65
3	Sea Breeze Seafood	60
4	Sizzling Steakhouse	130
5	Sushi Samurai	65
6	Southern Smoke BBQ	80
7	Taco Tornado	75
8	Taste of Italy	145
9	Tex Mex Express	45
10	Bayou Bistro	90
11	Pacific Rim Fusion	85
12	Burger Barn	70
13	Grand Canyon Grill	55
14	The Hungry Owl	100
15	Café Riviera	55

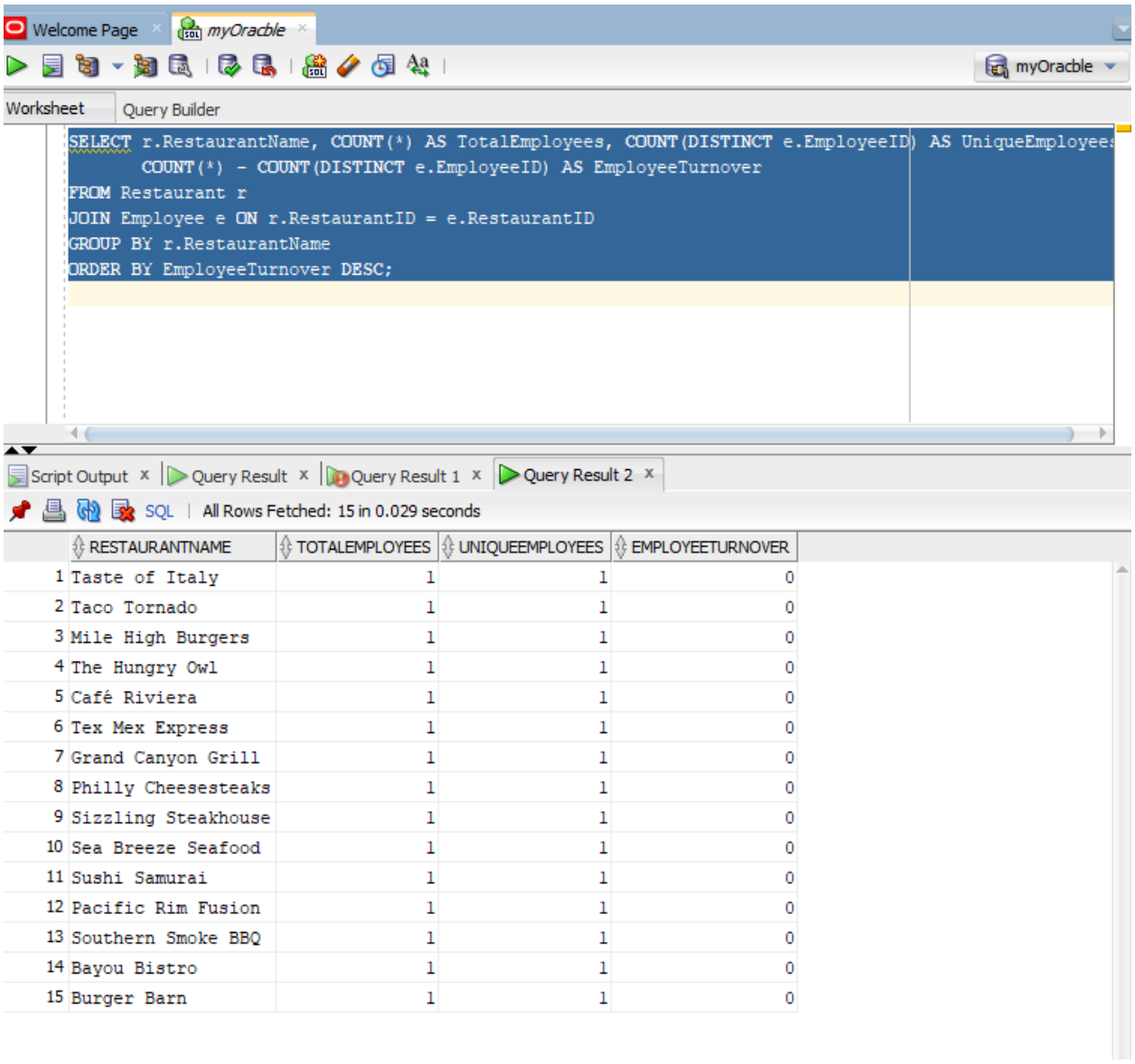
8. **Query 8: Ensuring Positive Total Amounts in Orders (integrity constraint)**

Importance: This query demonstrates the importance of enforcing data integrity constraints in the database schema. By adding a check constraint (**CHK_TOTALAMOUNT_POSITIVE**) on the **TotalAmount** column of the **Orders** table, it ensures that only positive values are allowed for the total amount of an order. This is crucial for maintaining accurate financial records and preventing invalid or negative order amounts from being entered into the database. The error message resulting from the attempted insertion of an order with a negative total amount highlights the effectiveness of the integrity constraint in maintaining data consistency and reliability.



9. **Query 9: Identify Restaurants with High Employee Turnover Rates**

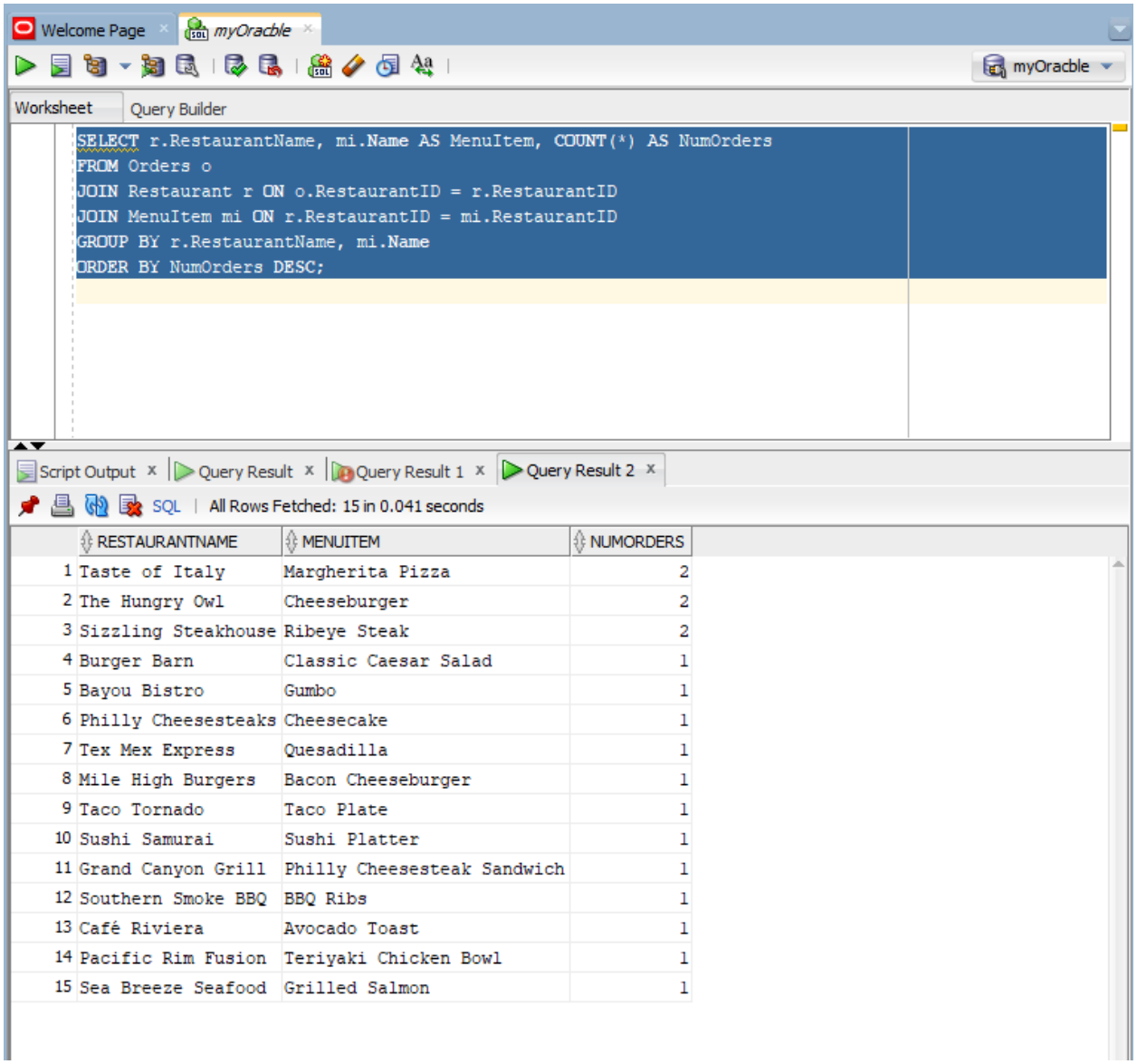
Importance: This query identifies restaurants with high employee turnover rates by counting the total number of employees and the number of unique employees (eliminating duplicates) at each restaurant. The difference between these two counts represents the turnover rate, indicating the number of employees who have left the restaurant. Understanding which locations have high turnover rates can help management address underlying issues, improve employee satisfaction, and reduce recruitment costs.



	RESTAURANTNAME	TOTALEMPLOYEES	UNIQUEEMPLOYEES	EMPLOYEETURNOVER
1	Taste of Italy	1	1	0
2	Taco Tornado	1	1	0
3	Mile High Burgers	1	1	0
4	The Hungry Owl	1	1	0
5	Café Riviera	1	1	0
6	Tex Mex Express	1	1	0
7	Grand Canyon Grill	1	1	0
8	Philly Cheesesteaks	1	1	0
9	Sizzling Steakhouse	1	1	0
10	Sea Breeze Seafood	1	1	0
11	Sushi Samurai	1	1	0
12	Pacific Rim Fusion	1	1	0
13	Southern Smoke BBQ	1	1	0
14	Bayou Bistro	1	1	0
15	Burger Barn	1	1	0

10. Query 10: Analysis of Popular Menu Items by Restaurant

Importance: This query is crucial for restaurant management to understand customer preferences at different locations. By identifying popular menu items per restaurant, establishments can optimize inventory, pricing, and marketing strategies to enhance customer satisfaction and drive revenue growth effectively.



	RESTAURANTNAME	MENUITEM	NUMORDERS
1	Taste of Italy	Margherita Pizza	2
2	The Hungry Owl	Cheeseburger	2
3	Sizzling Steakhouse	Ribeye Steak	2
4	Burger Barn	Classic Caesar Salad	1
5	Bayou Bistro	Gumbo	1
6	Philly Cheesesteaks	Cheesecake	1
7	Tex Mex Express	Quesadilla	1
8	Mile High Burgers	Bacon Cheeseburger	1
9	Taco Tornado	Taco Plate	1
10	Sushi Samurai	Sushi Platter	1
11	Grand Canyon Grill	Philly Cheesesteak Sandwich	1
12	Southern Smoke BBQ	BBQ Ribs	1
13	Café Riviera	Avocado Toast	1
14	Pacific Rim Fusion	Teriyaki Chicken Bowl	1
15	Sea Breeze Seafood	Grilled Salmon	1

6. **(10 points) Discuss the real-world significance of this database. You will need to research and understand the purposes of customer relationship management systems. Do not simply write down the general purpose of a customer relationship management system. Identify what additional constructs should be included in the database and state how they would be useful. This question requires well-conceived and well-written arguments that reflect the role of data and its analysis.**

Ans:

In the context of the online ordering startup, the CRM database should go beyond traditional CRM systems to address the unique needs of the business and its customers. Additional constructs that should be included in the database, along with their significance, are:

1. **Customer Segmentation Data:** Incorporating customer segmentation data allows the platform to categorize customers based on demographics, order history, and preferences. For example, customers who frequently order vegetarian dishes can receive targeted promotions for new plant-based menu items. This segmentation enhances marketing efforts and drives sales.
2. **Order Preferences and History:** Tracking individual customers' order preferences and history enables the platform to offer personalized recommendations and promotions. Analyzing past orders helps identify patterns and trends, allowing for tailored suggestions to each customer's taste. This personalization enhances the overall customer experience and encourages repeat purchases.
3. **Feedback and Reviews:** Integrating a feedback and reviews system into the database provides valuable insights into customer satisfaction levels and areas for improvement. Positive reviews can be leveraged for marketing purposes, while addressing negative feedback promptly helps retain customers and improve brand reputation.
4. **Loyalty Program Management:** Implementing a loyalty program within the CRM database incentivizes repeat purchases and fosters customer loyalty. Tracking customers' participation and reward redemption helps identify loyal customers and tailor special offers to encourage continued patronage, strengthening relationships and increasing customer lifetime value.
5. **Integration with Social Media Platforms:** Integrating the CRM database with social media platforms facilitates direct communication with customers and enhances brand visibility. Monitoring social media interactions and responding to inquiries or feedback strengthens brand loyalty and advocacy, contributing to overall customer engagement and satisfaction.

By including these additional constructs in the CRM database, the online ordering platform gains deeper insights into customer behavior and preferences, enabling personalized experiences, improved satisfaction, and business growth. It becomes a powerful tool for data-driven decision-making, helping the platform adapt to evolving customer needs and remain competitive in the market.

7. **(10 points) Create a set of ppt slides that you would use to guide your presentation to the client. Make sure that the slides are presented from a management perspective.**
   - Attached PPT in iCollege submission.