AMERICAN INTERNATIONAL UNIVERSITY BANGLADESH (AIUB)

FACULTY OF SCIENCE & TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE & ENGRINEERING

Summer 2024-2025
Section: B , Group: 6

PROJECT ON

International Trade Fair Management System

Supervised By
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Submitted By

Name	ID	Contribution
1. Antor Chandra Das	21-45849-3	Query Writing and Advanced PL/SQL Enhancement
2. Md. Nafiul Haque	22-46355-1	User Interface
3. Mohammad Istishad Alam Tishad	22-46130-1	Database Connection
4. Soumik Sarker	22-46929-1	Project Updates, Relational Algebra

Date of Submission: Aug 25, 2025

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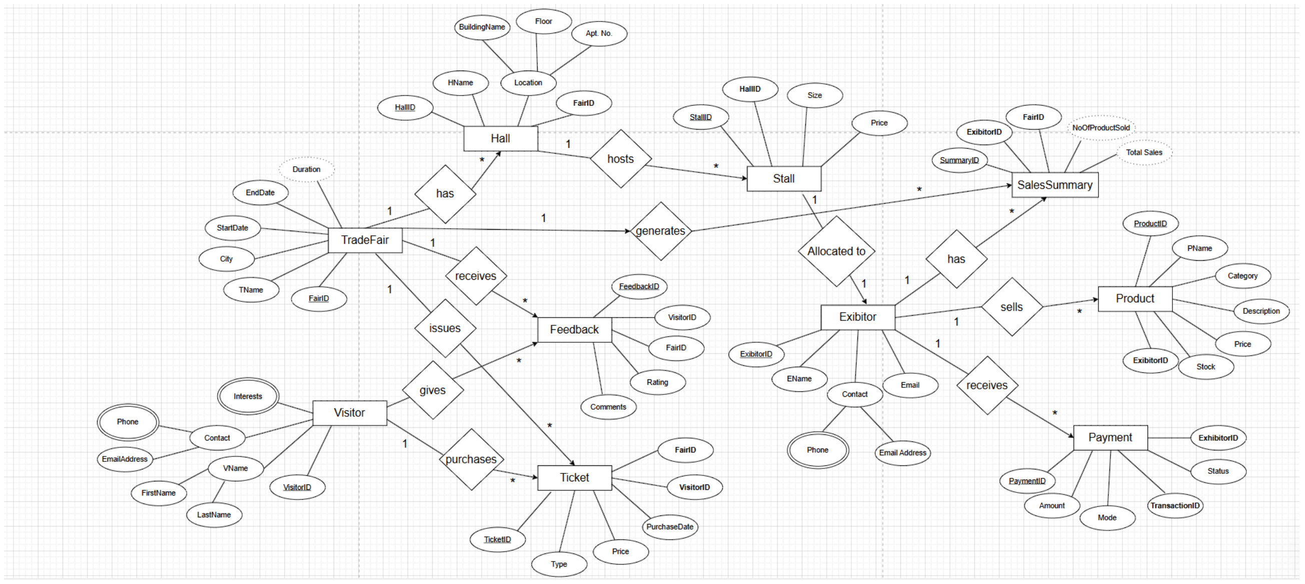
<u>**Project Updates**</u>

ER Diagram:



Normalization:

<u>Relation1: HAS (TradeFair has Hall)</u>

UNF:

TradeFair(<u>FairID</u>, FName, City, StartDate, EndDate, Duration, <u>HallID</u>, HName, Location, BuildingName, Floor, AptNo)

1NF:

No multivalued attributes in 1NF.

<u>FairID</u>, FName, City, StartDate, EndDate, Duration, <u>HallID</u>, HName, Location, BuildingName, Floor, AptNo

2NF:

Remove partial dependencies (Hall depends only on HallID).

1. FairID, Name, City, StartDate, EndDate, Duration

2. HallID, HName, Location, BuildingName, Floor, AptNo, **FairID**

3NF:

No transitive dependency.

1. FairID, FName, City, StartDate, EndDate, Duration

2. HallID, HName, Location, BuildingName, Floor, AptNo, **FairID**

Table Creation:

TradeFair(FairID, Name, City, StartDate, EndDate, Duration)

Hall(HallID, HName, Location, BuildingName, Floor, AptNo, **FairID**)

Relation2: HOSTS (Hall hosts Stall)

UNF:

Hall(HallID, HName, Location, BuildingName, Floor, AptNo, StallID, Size, Price)

1NF:

Atomic attributes only.

HallID, HName, Location, BuildingName, Floor, AptNo, StallID, Size, Price

2NF:

Remove partial dependencies (Stall depends only on StallID).

1. HallID, HName, Location, BuildingName, Floor, AptNo

2. StallID, Size, Price, **HallID**

3NF:

No transitive dependency.

1. HallID, HName, Location, BuildingName, Floor, AptNo

2. StallID, Size, Price, **HallID**

Table Creation:

Hall(HallID, HName, Location, BuildingName, Floor, AptNo)

Stall(StallID, Size, Price, **HallID**)

Relation3: GENERATES (TradeFair generates SalesSummary)

UNF:

TradeFair(FairID, FName, City, StartDate, EndDate, Duration, SummaryID, ExhibitorID, NoOfProductsSold, TotalSales)

1NF:

Already atomic.

FairID, FName, City, StartDate, EndDate, Duration, SummaryID, ExhibitorID, NoOfProductsSold, TotalSales

2NF:

Removes partial dependency.

1. FairID, FName, City, StartDate, EndDate, Duration
2. SummaryID, **FairID**, **ExhibitorID**, NoOfProductsSold, TotalSales

3NF:

No transitive dependency.

1. FairID, FName, City, StartDate, EndDate, Duration
2. SummaryID, **FairID**, **ExhibitorID**, NoOfProductsSold, TotalSales

Table Creation:

TradeFair(FairID, FName, City, StartDate, EndDate, Duration)

SalesSummary(SummaryID, **FairID**, **ExhibitorID**, NoOfProductsSold, TotalSales)

Relation4: HAS (SalesSummary has Exhibitor)

UNF:

SalesSummary(SummaryID, FairID, ExhibitorID, EName, Contact, Email, Phone, EmailAddress)

1NF:

Already atomic.

SummaryID, FairID, ExhibitorID, EName, Contact, Email, Phone, EmailAddress

2NF:

Exhibitor info depends only on ExhibitorID.

1. SummaryID, **FairID**, **ExhibitorID**

2. ExhibitorID, EName, Contact, Email, Phone, EmailAddress

3NF:

No transitive dependency.

1. SummaryID, **FairID**, **ExhibitorID**

2. ExhibitorID, EName, Contact, Email, Phone, EmailAddress

Table Creation:

SalesSummary(SummaryID, **FairID**, **ExhibitorID**)

Exhibitor(ExhibitorID, EName, Contact, Email, Phone, EmailAddress)

Relation5: SELLS (Exibitor sells Product)

UNF:

Exhibitor(ExhibitorID, EName, Contact, Email, Phone, EmailAddress, ProductID, PName, Category, Description, Price, Stock)

1NF:

Already Atromic.

ExhibitorID, EName, Contact, Email, Phone, EmailAddress, ProductID, PName, Category, Description, Price, Stock

2NF:

Product depends only on ProductID.

1. ExhibitorID, EName, Contact, Email, Phone, EmailAddress

2. ProductID, PName, Category, Description, Price, Stock, **ExhibitorID**

3NF:

No transitive dependency.

1. ExhibitorID, EName, Contact, Email, Phone, EmailAddress

2. ProductID, PName, Category, Description, Price, Stock, **ExhibitorID**

Table Creation:

Exhibitor(ExhibitorID, EName, Contact, Email, Phone, EmailAddress)

Product(ProductID, PName, Category, Description, Price, Stock, **ExhibitorID**)

Relation6: RECEIVES (Exibitor receives Payment)

UNF:

Exhibitor(ExhibitorID, EName, Contact, Email, Phone, EmailAddress, PaymentID, Amount, Mode, TransactionID, Status)

1NF:

Already atomic.

ExhibitorID, Name, Contact, Email, Phone, EmailAddress, PaymentID, Amount, Mode, TransactionID, Status

2NF:

Payment depends only on PaymentID.

1. ExhibitorID, EName, Contact, Email, Phone, EmailAddress

2. PaymentID, Amount, Mode, **TransactionID**, Status, **ExhibitorID**

3NF:

1. ExhibitorID, EName, Contact, Email, Phone, EmailAddress

2. PaymentID, Amount, Mode, **TransactionID**, Status, **ExhibitorID**

Table Creation:

Exhibitor(ExhibitorID, EName, Contact, Email, Phone, EmailAddress)

Payment(PaymentID, Amount, Mode, **TransactionID**, Status, **ExhibitorID**)

Relation7: PURCHASES (Visitor purchases Tickets)

UNF:

Visitor(VisitorID, FirstName, LastName, Contact, Phone, EmailAddress, Interests, TicketID, Type, Price, PurchaseDate, FairID)

1NF:

Interests is a multi-valued attribute.

1. Visitor(VisitorID, FirstName, LastName, Contact, Phone, EmailAddress)

2. VisitorInterest(VisitorID, Interest)

3. Ticket(TicketID, Type, Price, PurchaseDate, **FairID**, **VisitorID**)

2NF:

No partial dependency remains.

1. Visitor(VisitorID, FirstName, LastName, Contact, Phone, EmailAddress)

2. VisitorInterest(VisitorID, Interest)

3. Ticket(TicketID, Type, Price, PurchaseDate, **FairID**, **VisitorID**)

3NF:

No Transitive dependency.

1. Visitor(VisitorID, FirstName, LastName, Contact, Phone, EmailAddress)

2. VisitorInterest(VisitorID, Interest)

3. Ticket(TicketID, Type, Price, PurchaseDate, **FairID**, **VisitorID**)

Table Creation:

1. Visitor(VisitorID, FirstName, LastName, Contact, Phone, EmailAddress)

2. VisitorInterest(VisitorID, Interest)

3. Ticket(TicketID, Type, Price, PurchaseDate, **FairID**, **VisitorID**)

Relation8: GIVES (Visitor gives Feedback)

UNF:

Visitor(VisitorID, FirstName, LastName, Contact, Phone, EmailAddress, Interests, FeedbackID, FairID, Rating, Comments)

1NF:

Interests is a multi-valued attribute.

1. Visitor(VisitorID, FirstName, LastName, Contact, Phone, EmailAddress)

2. VisitorInterest(VisitorID, Interest)

3. Feedback(FeedbackID, **FairID**, **VisitorID**, Rating, Comments)

2NF:

No partial dependency remains.

1. Visitor(VisitorID, FirstName, LastName, Contact, Phone, EmailAddress)

2. VisitorInterest(VisitorID, Interest)

3. Feedback(FeedbackID, **FairID**, **VisitorID**, Rating, Comments)

3NF:

No Transitive dependency.

1. Visitor(VisitorID, FirstName, LastName, Contact, Phone, EmailAddress)

2. VisitorInterest(VisitorID, Interest)

3. Feedback(FeedbackID, **FairID**, **VisitorID**, Rating, Comments)

Table Creation:

Visitor(VisitorID, FirstName, LastName, Contact, Phone, EmailAddress)

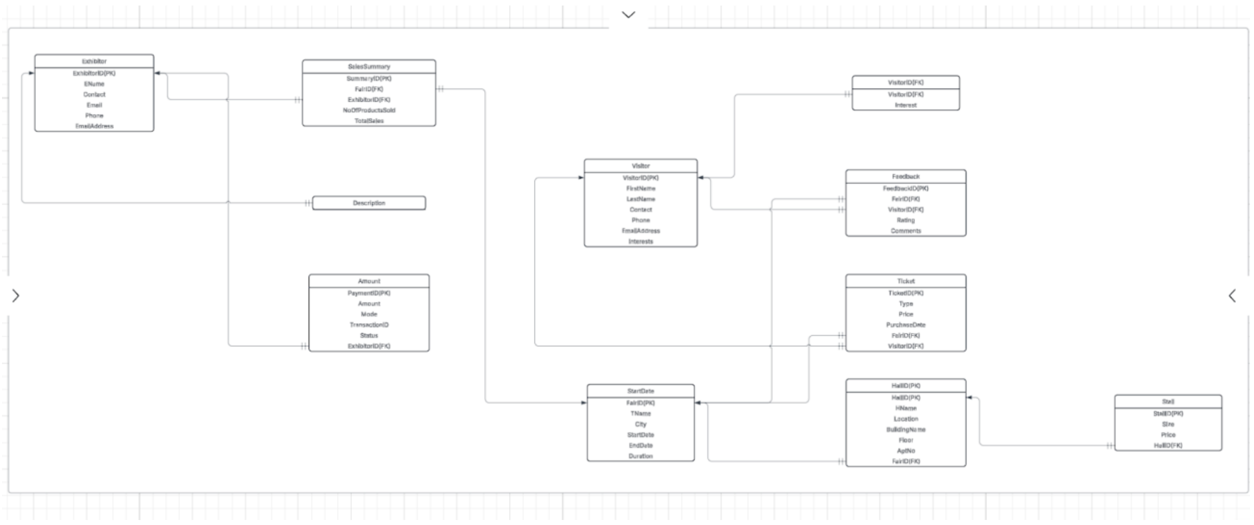
VisitorInterest(VisitorID, Interest)

Feedback(FeedbackID, **FairID**, **VisitorID**, Rating, Comments)

Final Tables:

1. TradeFair(FairID, TName, City, StartDate, EndDate, Duration)
2. Hall(HallID, HName, Location, BuildingName, Floor, AptNo, **FairID**)
3. Stall(StallID, Size, Price, **HallID**)
4. SalesSummary(SummaryID, **FairID**, **ExhibitorID**, NoOfProductsSold, TotalSales)
5. Exhibitor(ExhibitorID, EName, Contact, Email, Phone, EmailAddress)
6. Product(ProductID, PName, Category, Description, Price, Stock, **ExhibitorID**)
7. Payment(PaymentID, Amount, Mode, **TransactionID**, Status, **ExhibitorID**)
8. Visitor(VisitorID, FirstName, LastName, Contact, Phone, EmailAddress, Interests)
9. VisitorInterest(VisitorID, Interest)
10. Ticket(TicketID, Type, Price, PurchaseDate, **FairID**, **VisitorID**)
11. Feedback(FeedbackID, **FairID**, **VisitorID**, Rating, Comments)

Schema Diagram:



Query Writing

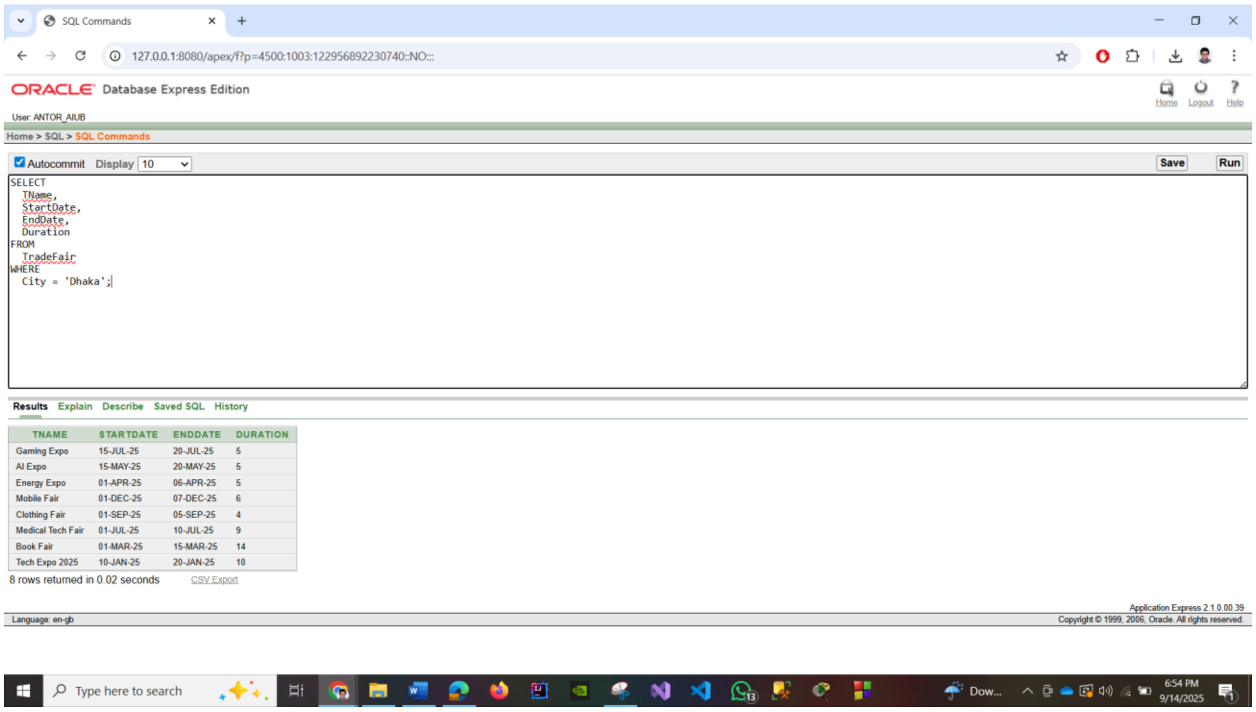
Query 1: Find all trade fairs located in 'Dhaka' and their duration.

Question:
List the names, start dates, end dates, and duration of all trade fairs that are scheduled to take place in the city of 'Dhaka'.

SQL Query:

```
SELECT
  TName,
  StartDate,
  EndDate,
  Duration
FROM
  TradeFair
WHERE
```

City = 'Dhaka';



```
SELECT
  TName,
  StartDate,
  EndDate,
  Duration
FROM
  TradeFair
WHERE
  City = 'Dhaka';
```

TNAME	STARTDATE	ENDDATE	DURATION
Gaming Expo	15-JUL-25	20-JUL-25	5
AI Expo	15-MAY-25	20-MAY-25	5
Energy Expo	01-APR-25	06-APR-25	5
Mobile Fair	01-DEC-25	07-DEC-25	6
Clothing Fair	01-SEP-25	05-SEP-25	4
Medical Tech Fair	01-JUL-25	10-JUL-25	9
Book Fair	01-MAR-25	15-MAR-25	14
Tech Expo 2025	10-JAN-25	20-JAN-25	10

8 rows returned in 0.02 seconds

Query 2: List all products sold by the exhibitor 'TechCorp'.

Question:
What are the products, along with their categories and prices, offered by the exhibitor named 'TechCorp'?

SQL Query:

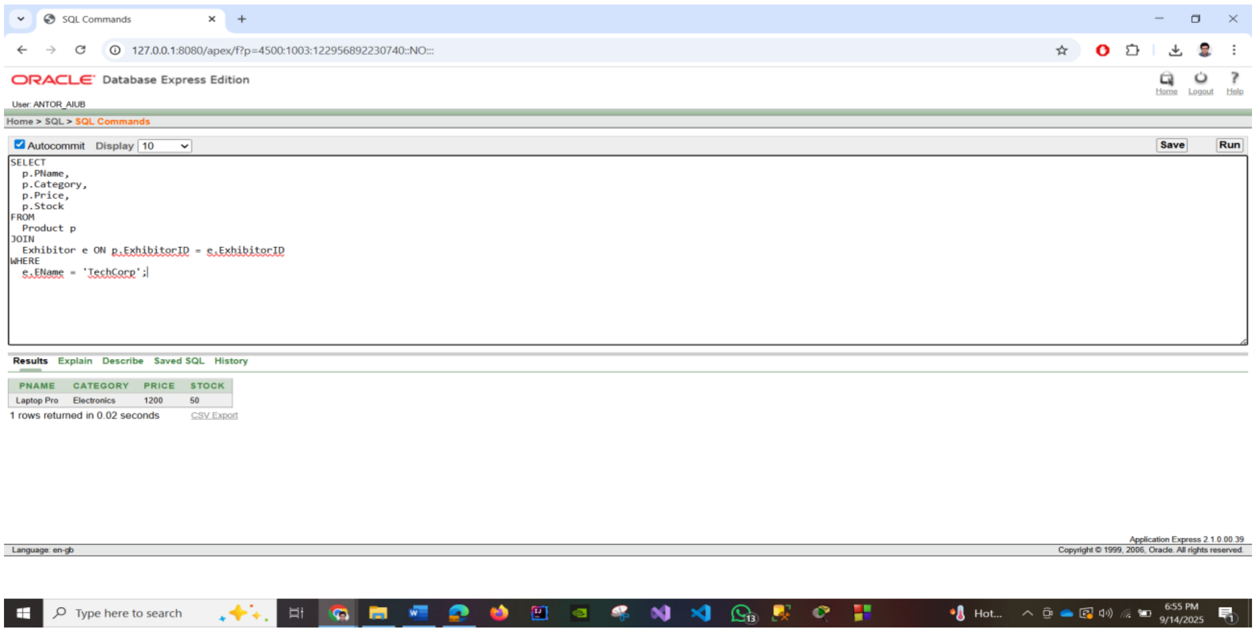
SELECT

 p.PName,

 p.Category,

  p.Price,
  p.Stock
FROM
  Product p
JOIN

```
  Exhibitor e ON p.ExhibitorID = e.ExhibitorID
WHERE
  e.EName = 'TechCorp';
```



```
SELECT
  p.PName,
  p.Category,
  p.Price,
  p.Stock
FROM
  Product p
JOIN
  Exhibitor e ON p.ExhibitorID = e.ExhibitorID
WHERE
  e.EName = 'TechCorp';
```

PNAME	CATEGORY	PRICE	STOCK
Laptop Pro	Electronics	1200	50

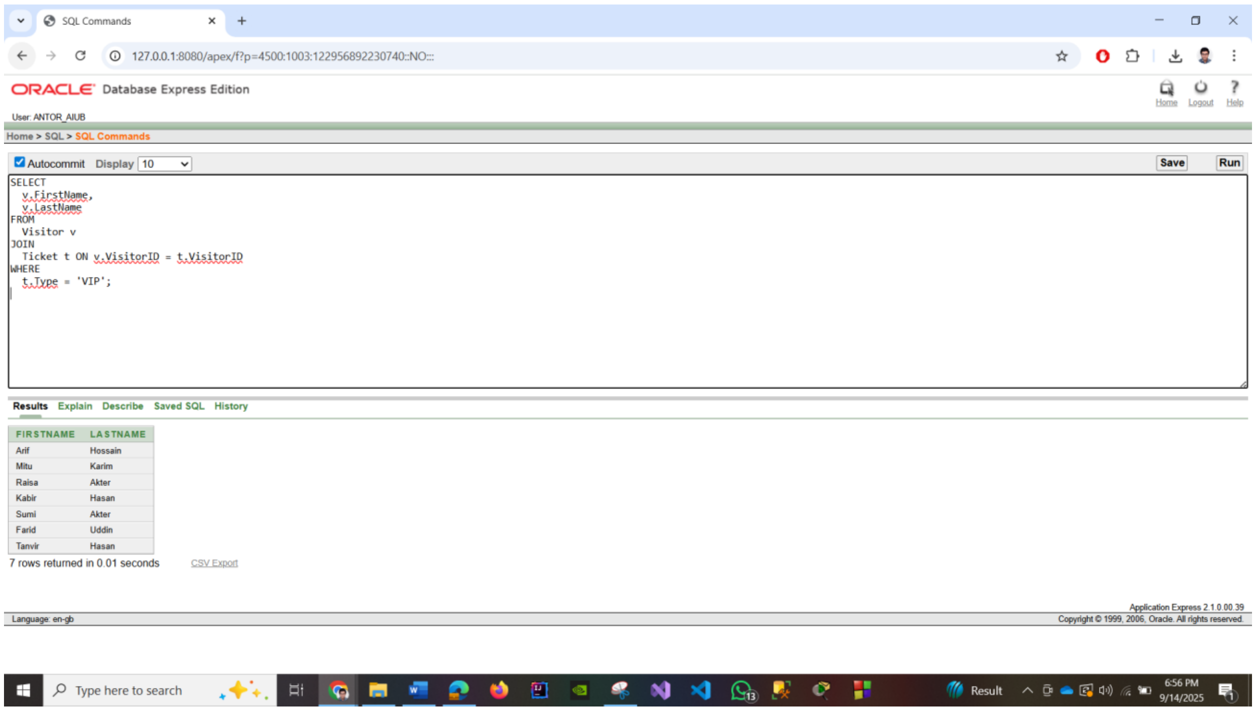
1 rows returned in 0.02 seconds

Query 3: Find visitors who have purchased a 'VIP' ticket.

Question:
Display the first name and last name of all visitors who have purchased a 'VIP' type ticket.

SQL Query:

```
SELECT
  v.FirstName,
  v.LastName
FROM
  Visitor v
JOIN
  Ticket t ON v.VisitorID = t.VisitorID
WHERE
  t.Type = 'VIP';
```



```
SELECT
  v.FirstName,
  v.LastName
FROM
  Visitor v
JOIN
  Ticket t ON v.VisitorID = t.VisitorID
WHERE
  t.Type = 'VIP';
```

FIRSTNAME	LASTNAME
Arif	Hossain
Mitu	Karim
Raisa	Akter
Kabir	Hasan
Sumi	Akter
Farid	Uddin
Tanvir	Hasan

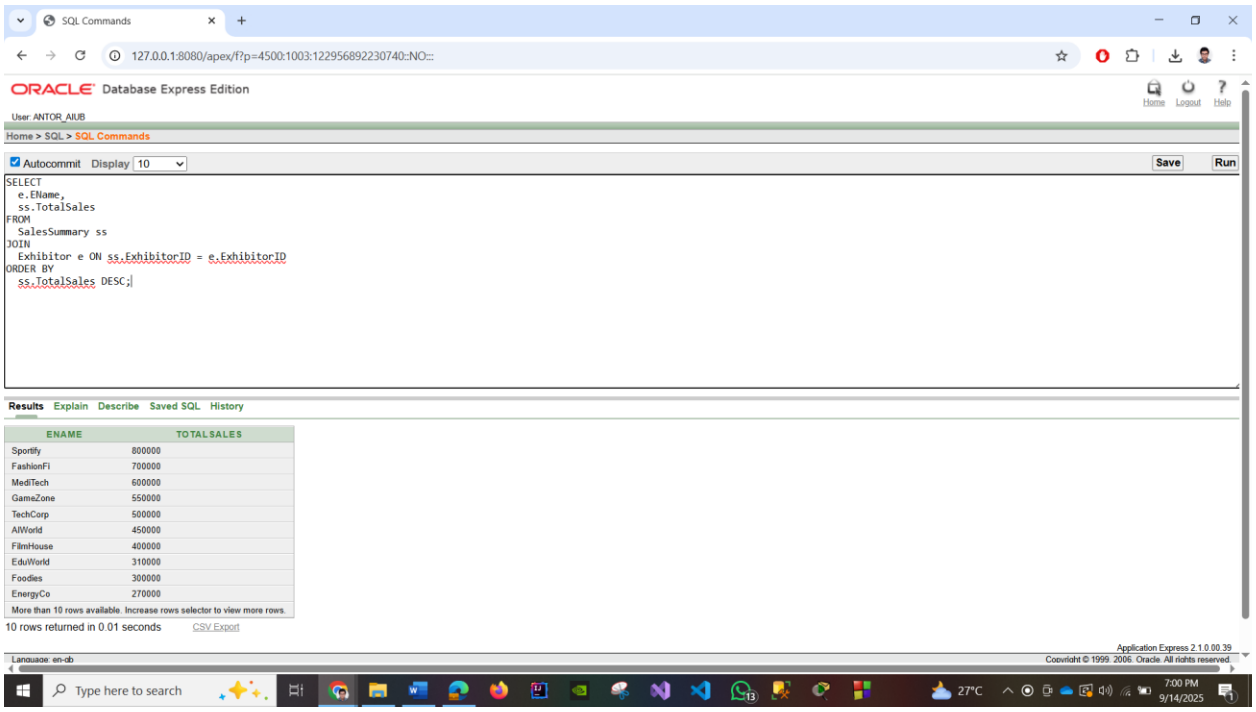
7 rows returned in 0.01 seconds

Query 4: Calculate the total sales for each exhibitor.

Question: What is the total sales amount for each exhibitor? List the exhibitor's name and their corresponding total sales.

SQL Query:

```
SELECT e.EName,
       ss.TotalSales
FROM
    SalesSummary ss
JOIN Exhibitor e ON ss.ExhibitorID = e.ExhibitorID
ORDER BY
    ss.TotalSales DESC;
```



```
SELECT
  e.EName,
  ss.TotalSales
FROM
  SalesSummary ss
JOIN
  Exhibitor e ON ss.ExhibitorID = e.ExhibitorID
ORDER BY
  ss.TotalSales DESC;
```

ENAME	TOTALSALES
Sportify	800000
FashionFi	700000
MediTech	600000
GameZone	550000
TechCorp	500000
AIWorld	450000
FilmHouse	400000
EduWorld	310000
Foodies	300000
EnergyCo	270000

More than 10 rows available. Increase rows selector to view more rows.

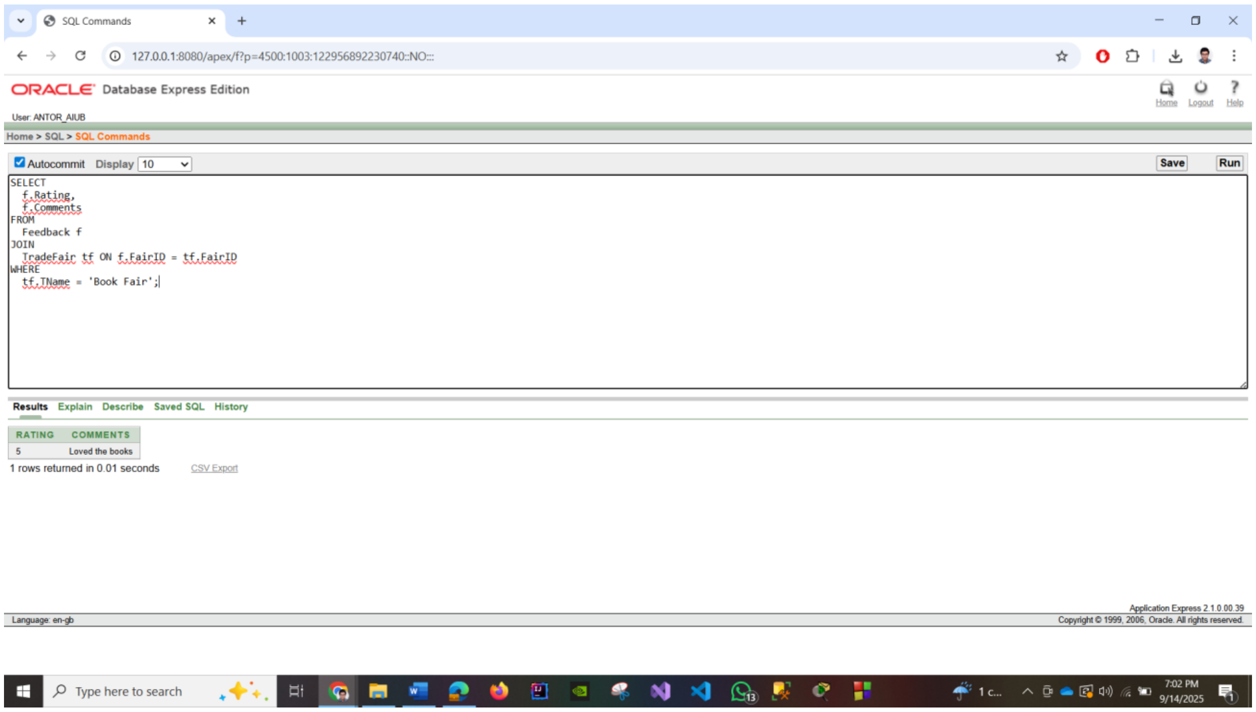
10 rows returned in 0.01 seconds

Query 5: Find the feedback comments for the 'Book Fair'.

Question:
Show all the ratings and comments submitted by visitors for the trade fair named 'Book Fair'.

SQL Query:

```
SELECT
  f.Rating,
  f.Comments
FROM
  Feedback f
JOIN
  TradeFair tf ON f.FairID = tf.FairID
WHERE
  tf.TName = 'Book Fair';
```



```
SELECT
  f.Rating,
  f.Comments
FROM
  Feedback f
JOIN
  TradeFair tf ON f.FairID = tf.FairID
WHERE
  tf.TName = 'Book Fair';
```

RATING	COMMENTS
5	Loved the books

```
1 rows returned in 0.01 seconds
```

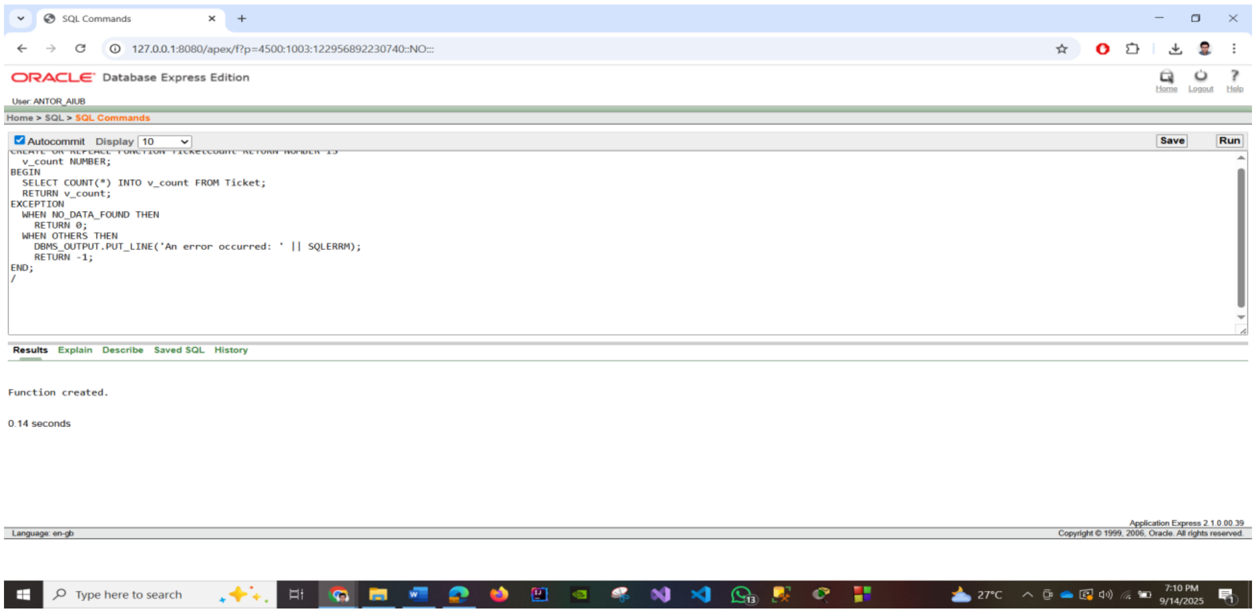
Adding Exception Handling to Advance PL/SQL Codes

Here is your original code with an added EXCEPTION block to handle cases where no data is found (e.g. if the Ticket or Payment tables are empty)

Two Stored Functions (Updated)

TicketCount Function:

```
CREATE OR REPLACE FUNCTION TicketCount RETURN NUMBER IS
  v_count NUMBER;
BEGIN
  SELECT COUNT(*) INTO v_count FROM Ticket;
  RETURN v_count;
EXCEPTION
  WHEN NO_DATA_FOUND THEN
    RETURN 0;
  WHEN OTHERS THEN
    DBMS_OUTPUT.PUT_LINE('An error occurred: ' || SQLERRM);
RETURN -1; END;
```


SQL Commands
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ORACLE Database Express Edition
User: ANTOR_AIUB
Home > SQL > SQL Commands
Autocommit Display 10
Save
Run
Results Explain Describe Saved SQL History
Language: en-gb
Application Express 2.1.0.00.39
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9/14/2025

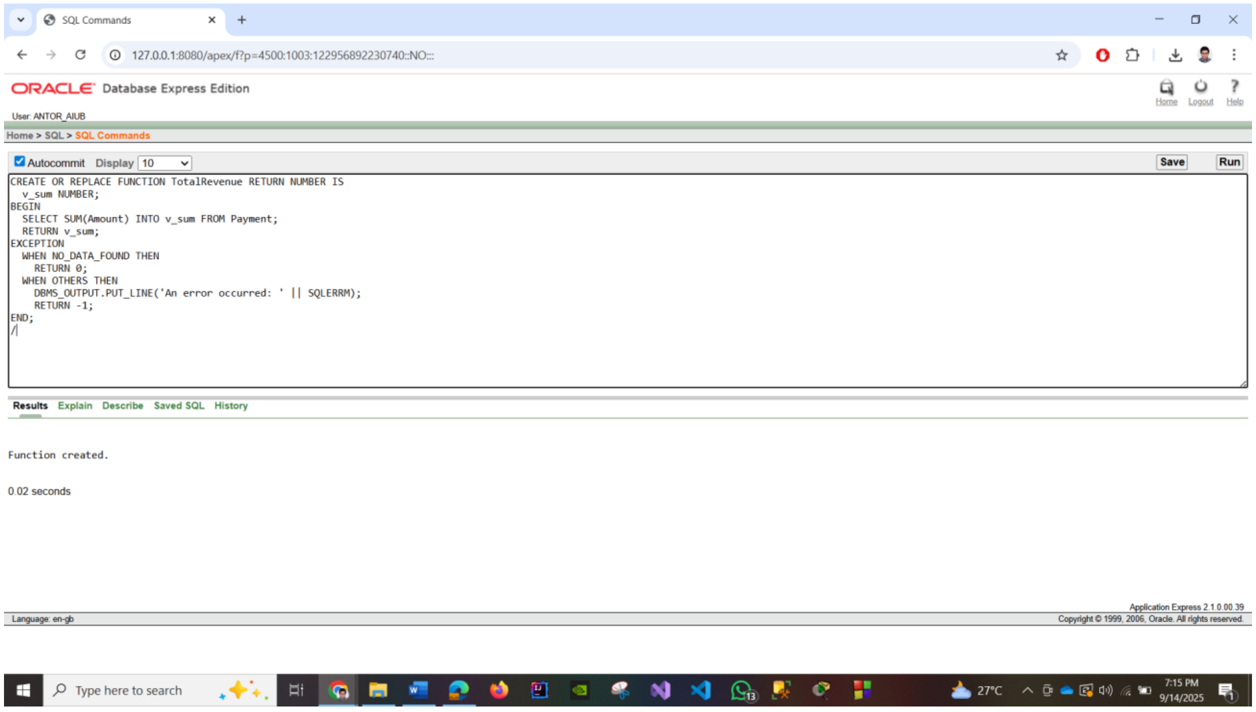
```
CREATE OR REPLACE FUNCTION TicketCount RETURN NUMBER IS
  v_count NUMBER;
BEGIN
  SELECT COUNT(*) INTO v_count FROM Ticket;
  RETURN v_count;
EXCEPTION
  WHEN NO_DATA_FOUND THEN
    RETURN 0;
  WHEN OTHERS THEN
    DBMS_OUTPUT.PUT_LINE('An error occurred: ' || SQLERRM);
    RETURN -1;
END;
/
```

```
Function created.

0.14 seconds
```

TotalRevenue Function:

```
CREATE OR REPLACE FUNCTION TotalRevenue RETURN NUMBER IS
  v_sum NUMBER;
BEGIN
```

```
  SELECT SUM(Amount) INTO v_sum FROM Payment;
  RETURN v_sum;
EXCEPTION
  WHEN NO_DATA_FOUND THEN
    RETURN 0;
  WHEN OTHERS THEN
    DBMS_OUTPUT.PUT_LINE('An error occurred: ' || SQLERRM);
    RETURN -1;
END;
/
```



```
CREATE OR REPLACE FUNCTION TotalRevenue RETURN NUMBER IS
  v_sum NUMBER;
BEGIN
  SELECT SUM(Amount) INTO v_sum FROM Payment;
  RETURN v_sum;
EXCEPTION
  WHEN NO_DATA_FOUND THEN
    RETURN 0;
  WHEN OTHERS THEN
    DBMS_OUTPUT.PUT_LINE('An error occurred: ' || SQLERRM);
    RETURN -1;
END;
/
```

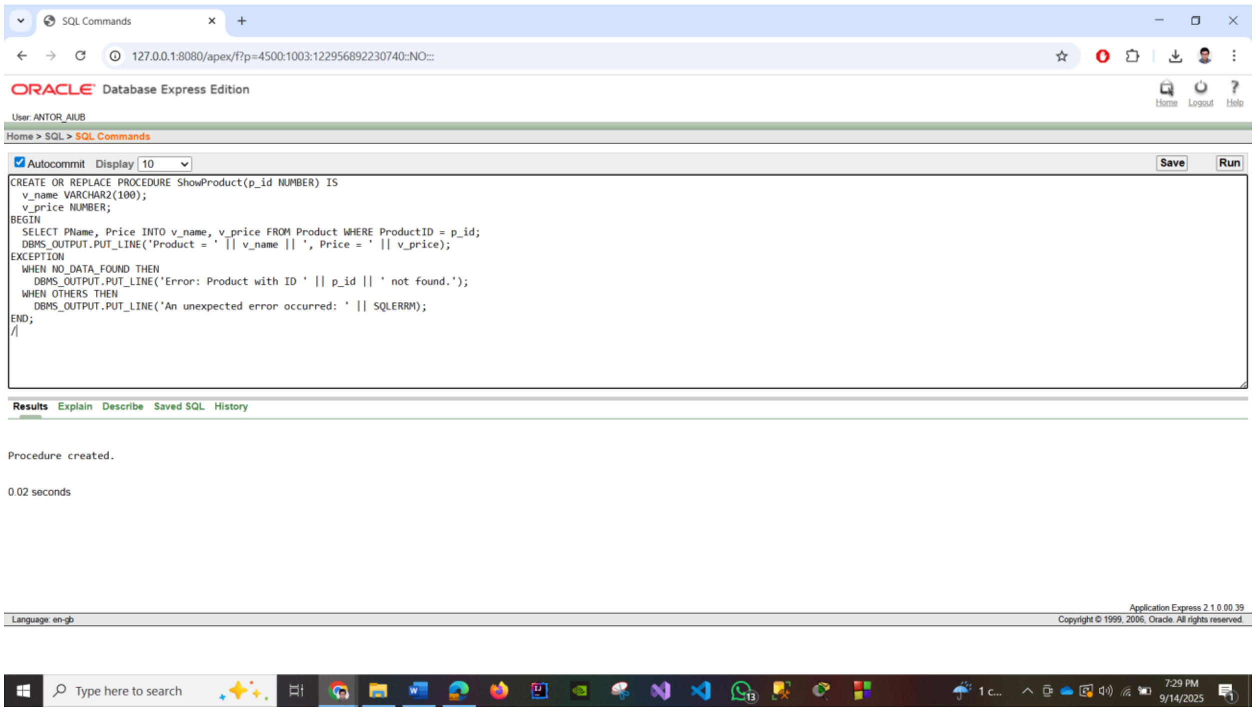
```
Function created.

0.02 seconds
```

b) Two Stored Procedures (Updated)

Here, we add handlers for specific, anticipated errors. For ShowProduct, we handle the case where a Product ID doesn't exist (NO_DATA_FOUND). For AddExhibitor, we handle when you try to insert an Exhibitor ID that already exists (DUP_VAL_ON_INDEX).

ShowProduct Procedure:

```
CREATE OR REPLACE PROCEDURE ShowProduct(p_id NUMBER) IS
  v_name VARCHAR2(100);
  v_price NUMBER;
BEGIN
  SELECT PName, Price INTO v_name, v_price FROM Product WHERE ProductID = p_id;
  DBMS_OUTPUT.PUT_LINE('Product = ' || v_name || ', Price = ' || v_price);
EXCEPTION
  WHEN NO_DATA_FOUND THEN
    DBMS_OUTPUT.PUT_LINE('Error: Product with ID ' || p_id || ' not found.');
  WHEN OTHERS THEN
    DBMS_OUTPUT.PUT_LINE('An unexpected error occurred: ' || SQLERRM);
END;
/
```


SQL Commands
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ORACLE Database Express Edition
User: ANTOR_AIUB
Home > SQL > SQL Commands
Autocommit Display 10
Save
Run
Results Explain Describe Saved SQL History
Language: en-gb
Application Express 2.1.0.00.39
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Type here to search
7:29 PM
9/14/2025

```
CREATE OR REPLACE PROCEDURE ShowProduct(p_id NUMBER) IS
  v_name VARCHAR2(100);
  v_price NUMBER;
BEGIN
  SELECT PName, Price INTO v_name, v_price FROM Product WHERE ProductID = p_id;
  DBMS_OUTPUT.PUT_LINE('Product = ' || v_name || ', Price = ' || v_price);
EXCEPTION
  WHEN NO_DATA_FOUND THEN
    DBMS_OUTPUT.PUT_LINE('Error: Product with ID ' || p_id || ' not found.');
  WHEN OTHERS THEN
    DBMS_OUTPUT.PUT_LINE('An unexpected error occurred: ' || SQLERRM);
END;
/
```

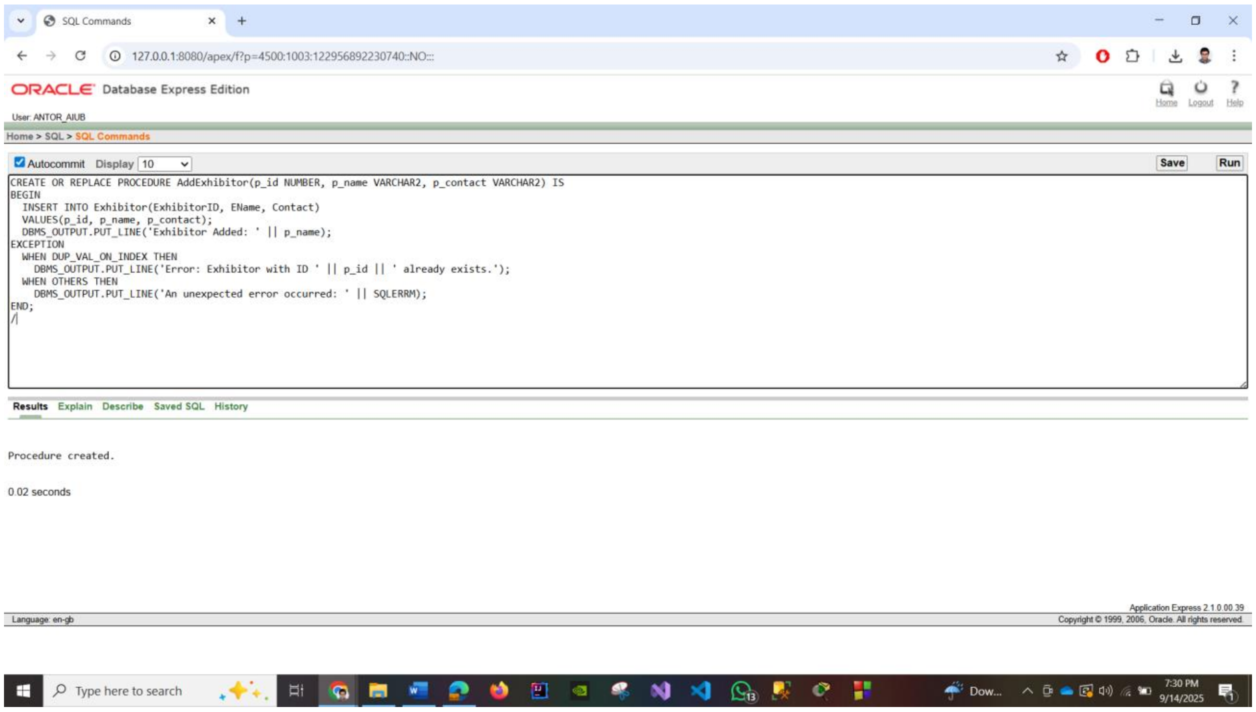
```
Procedure created.

0.02 seconds
```

AddExhibitor Procedure:

```
CREATE OR REPLACE PROCEDURE AddExhibitor(p_id NUMBER, p_name VARCHAR2, p_contact
VARCHAR2) IS
BEGIN
  INSERT INTO Exhibitor(ExhibitorID, EName, Contact)
  VALUES(p_id, p_name, p_contact);
  DBMS_OUTPUT.PUT_LINE('Exhibitor Added: ' || p_name);
```

```
EXCEPTION
  WHEN DUP_VAL_ON_INDEX THEN
    DBMS_OUTPUT.PUT_LINE('Error: Exhibitor with ID ' || p_id || ' already exists.');
  WHEN OTHERS THEN
    DBMS_OUTPUT.PUT_LINE('An unexpected error occurred: ' || SQLERRM);
END;
/
```


SQL Commands
127.0.0.1:8080/apex/f?p=4500:1003:122956892230740::NO:::
ORACLE Database Express Edition
Home Logout Help
User: ANTOR_AIUB
Home > SQL > SQL Commands
Autocommit Display 10
Save Run
Results Explain Describe Saved SQL History
Language: en-gb
Application Express 2.1.0.00.39
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```
CREATE OR REPLACE PROCEDURE AddExhibitor(p_id NUMBER, p_name VARCHAR2, p_contact VARCHAR2) IS
BEGIN
  INSERT INTO Exhibitor(ExhibitorID, EName, Contact)
  VALUES(p_id, p_name, p_contact);
  DBMS_OUTPUT.PUT_LINE('Exhibitor Added: ' || p_name);
EXCEPTION
  WHEN DUP_VAL_ON_INDEX THEN
    DBMS_OUTPUT.PUT_LINE('Error: Exhibitor with ID ' || p_id || ' already exists.');
  WHEN OTHERS THEN
    DBMS_OUTPUT.PUT_LINE('An unexpected error occurred: ' || SQLERRM);
END;
/
```

```
Procedure created.

0.02 seconds
```

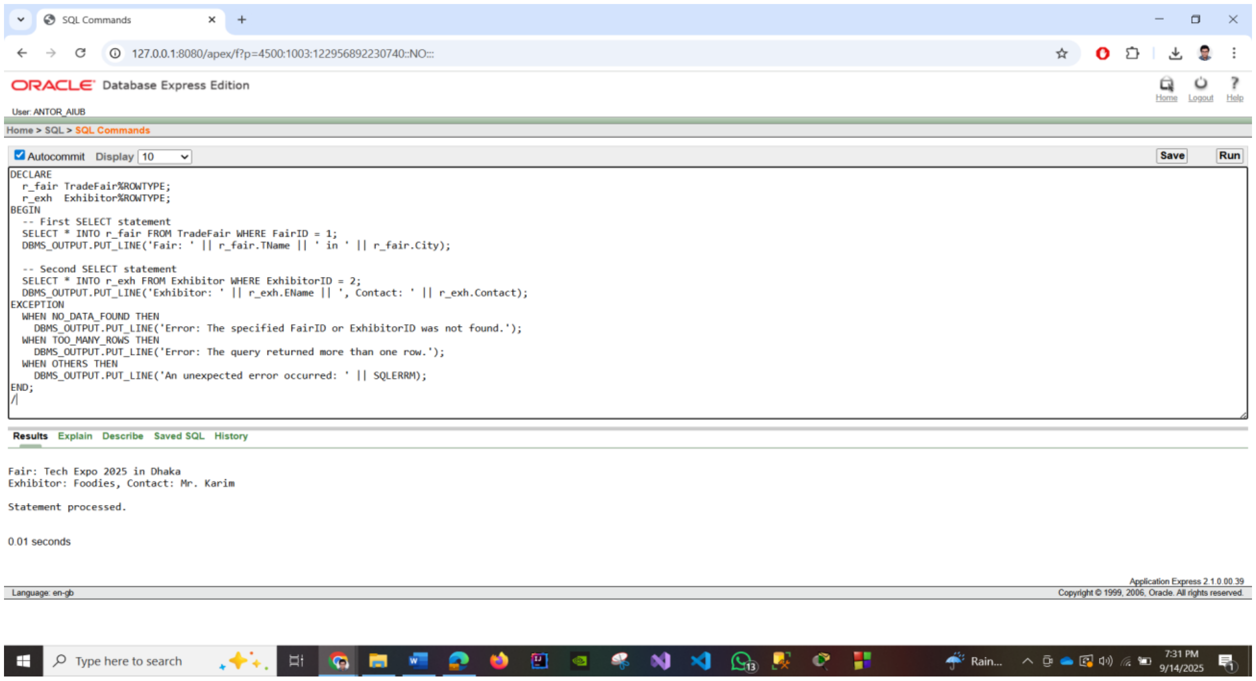
c) Two Table-based Records (Updated)

This is an anonymous block (it has no name). The exception handlers are added to catch errors if a FairID or ExhibitorID is not found or if the query returns more than one row.

```
DECLARE
  r_fair TradeFair%ROWTYPE;
  r_exh  Exhibitor%ROWTYPE;
```

```
BEGIN
  -- First SELECT statement
  SELECT * INTO r_fair FROM TradeFair WHERE FairID = 1;
  DBMS_OUTPUT.PUT_LINE('Fair: ' || r_fair.TName || ' in ' || r_fair.City);

  -- Second SELECT statement
  SELECT * INTO r_exh FROM Exhibitor WHERE ExhibitorID = 2;
  DBMS_OUTPUT.PUT_LINE('Exhibitor: ' || r_exh.EName || ', Contact: ' || r_exh.Contact);
EXCEPTION
  WHEN NO_DATA_FOUND THEN
    DBMS_OUTPUT.PUT_LINE('Error: The specified FairID or ExhibitorID was not found.');
  WHEN TOO_MANY_ROWS THEN
    DBMS_OUTPUT.PUT_LINE('Error: The query returned more than one row.');
  WHEN OTHERS THEN
    DBMS_OUTPUT.PUT_LINE('An unexpected error occurred: ' || SQLERRM);
END;
/
```


SQL Commands
127.0.0.1:8080/apex/f?p=4500:1003:122956892230740::NO:::
ORACLE Database Express Edition
Home
Logout
Help
User: ANTOR_AIUB
Home > SQL > SQL Commands
Autocommit
Display 10
Save
Run
Results
Explain
Describe
Saved SQL
History
Application Express 2.1.0.00.39
Language: en-gb
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9/14/2025

```
DECLARE
  r_fair TradeFair%ROWTYPE;
  r_exh  Exhibitor%ROWTYPE;
BEGIN
  -- First SELECT statement
  SELECT * INTO r_fair FROM TradeFair WHERE FairID = 1;
  DBMS_OUTPUT.PUT_LINE('Fair: ' || r_fair.TName || ' in ' || r_fair.City);

  -- Second SELECT statement
  SELECT * INTO r_exh FROM Exhibitor WHERE ExhibitorID = 2;
  DBMS_OUTPUT.PUT_LINE('Exhibitor: ' || r_exh.EName || ', Contact: ' || r_exh.Contact);
EXCEPTION
  WHEN NO_DATA_FOUND THEN
    DBMS_OUTPUT.PUT_LINE('Error: The specified FairID or ExhibitorID was not found.');
  WHEN TOO_MANY_ROWS THEN
    DBMS_OUTPUT.PUT_LINE('Error: The query returned more than one row.');
  WHEN OTHERS THEN
    DBMS_OUTPUT.PUT_LINE('An unexpected error occurred: ' || SQLERRM);
END;
/
```

```
Fair: Tech Expo 2025 in Dhaka
Exhibitor: Foodies, Contact: Mr. Karim

Statement processed.

0.01 seconds
```

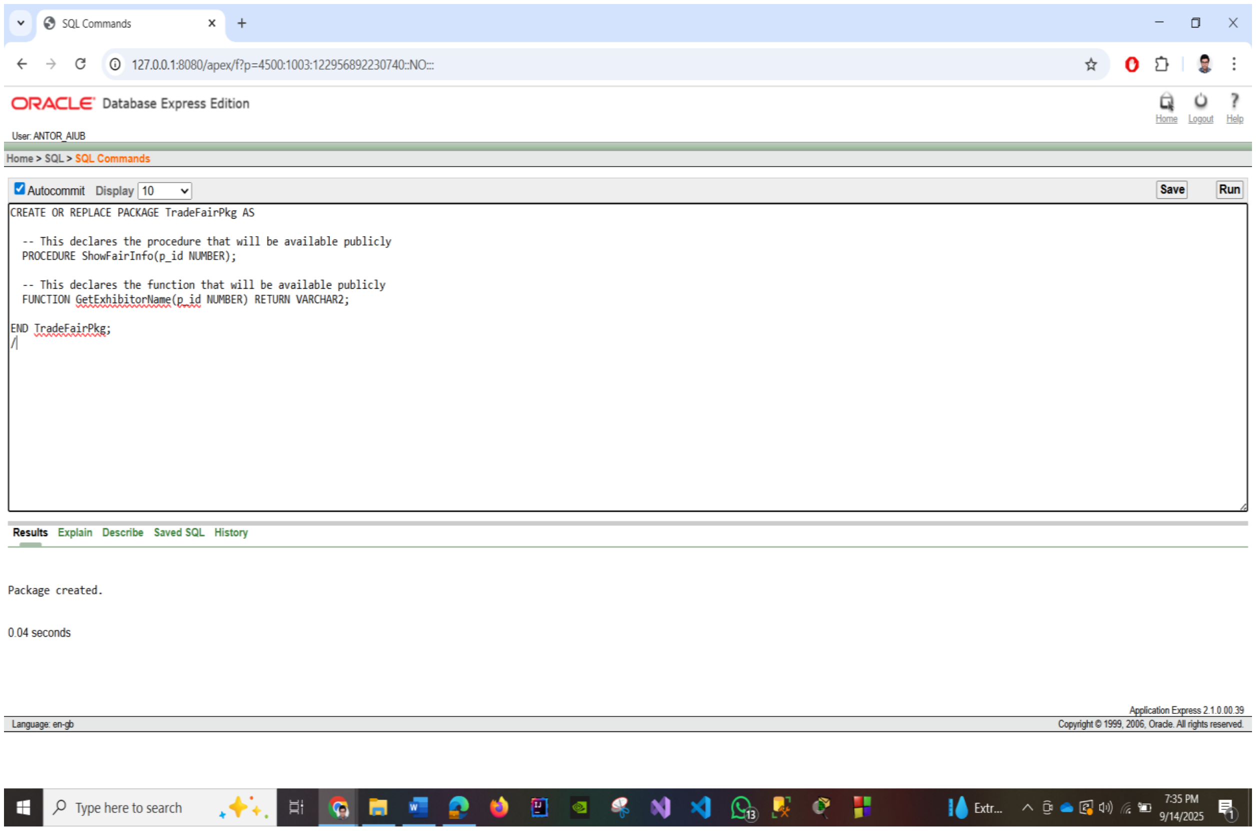
Create the PACKAGE Specification

Copy this entire code block into the Oracle APEX SQL Commands editor and run it. This defines the "blueprint."

codeSQL

```
CREATE OR REPLACE PACKAGE TradeFairPkg AS
```

```
  -- This declares the procedure that will be available publicly
  PROCEDURE ShowFairInfo(p_id NUMBER);

  -- This declares the function that will be available publicly
  FUNCTION GetExhibitorName(p_id NUMBER) RETURN VARCHAR2;

END

/
```



```
CREATE OR REPLACE PACKAGE TradeFairPkg AS

  -- This declares the procedure that will be available publicly
  PROCEDURE ShowFairInfo(p_id NUMBER);

  -- This declares the function that will be available publicly
  FUNCTION GetExhibitorName(p_id NUMBER) RETURN VARCHAR2;

END TradeFairPkg;
/
```

```
Package created.

0.04 seconds
```

SQL Commands
127.0.0.1:8080/apex/f?p=4500:1003:122956892230740::NO:::
ORACLE Database Express Edition
User: ANTOR_AIUB
Home > SQL > SQL Commands
Autocommit Display 10
Save Run
Results Explain Describe Saved SQL History
Application Express 2.1.0.00.39
Language: en-gb
Copyright © 1999, 2006, Oracle. All rights reserved.
Type here to search
7:35 PM 9/14/2025

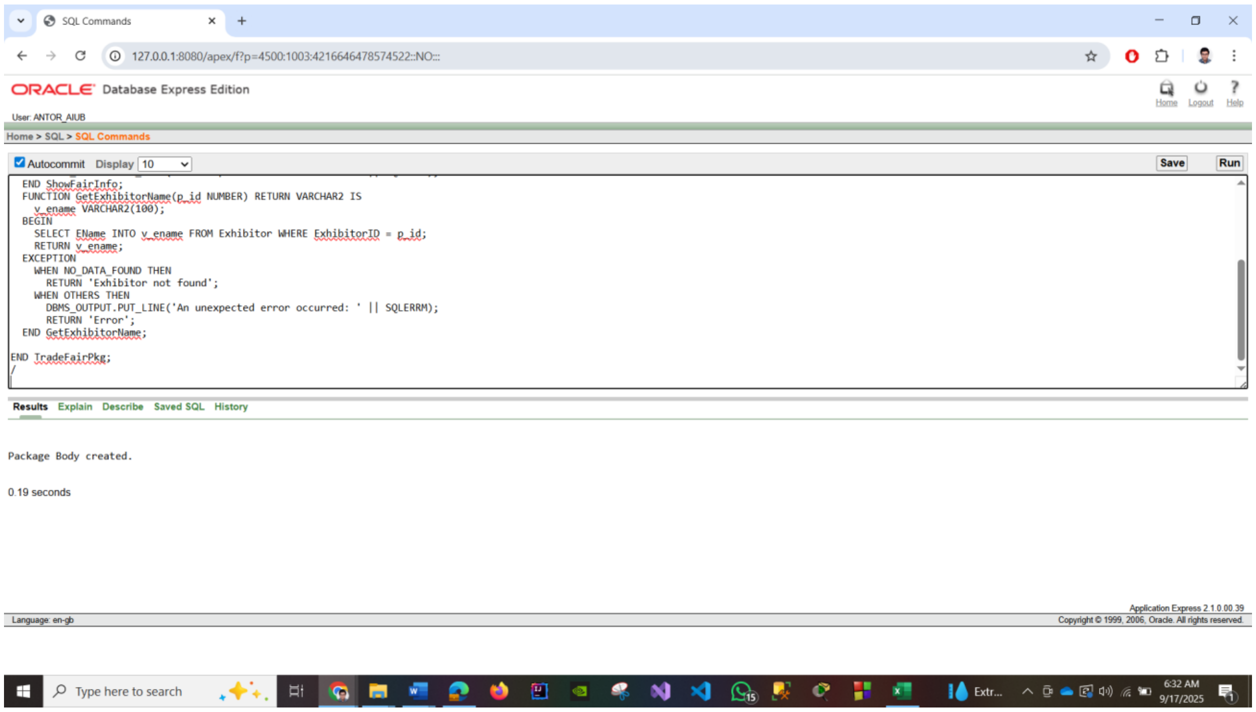
d) Packages (Updated)

Exception handling is added inside the procedures and functions within the PACKAGE BODY. The PACKAGE specification remains the same.

Creating the PACKAGE BODY:

```
CREATE OR REPLACE PACKAGE BODY TradeFairPkg AS

PROCEDURE ShowFairInfo(p_id NUMBER) IS

v_name VARCHAR2(100);

    v_city VARCHAR2(50);

  BEGIN

    SELECT TName, City INTO v_name, v_city FROM TradeFair WHERE FairID = p_id;

    DBMS_OUTPUT.PUT_LINE('Fair: ' || v_name || ' in ' || v_city);

  EXCEPTION

    WHEN NO_DATA_FOUND THEN

      DBMS_OUTPUT.PUT_LINE('Error: Fair with ID ' || p_id || ' not found.');

    WHEN OTHERS THEN

      DBMS_OUTPUT.PUT_LINE('An unexpected error occurred: ' || SQLERRM);

  END ShowFairInfo;

  FUNCTION GetExhibitorName(p_id NUMBER) RETURN VARCHAR2 IS

    v_ename VARCHAR2(100);

  BEGIN

    SELECT EName INTO v_ename FROM Exhibitor WHERE ExhibitorID = p_id;

    RETURN v_ename;

  EXCEPTION
```

```
    WHEN NO_DATA_FOUND THEN
      RETURN 'Exhibitor not found';
    WHEN OTHERS THEN
      DBMS_OUTPUT.PUT_LINE('An unexpected error occurred: ' || SQLERRM);
      RETURN 'Error';
  END GetExhibitorName;

END TradeFairPkg;
/
```



SQL Commands

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ORACLE Database Express Edition

User: ANTOR_AIUB

Home > SQL > SQL Commands

Autocommit Display 10

```
  END ShowFairInfo;
  FUNCTION GetExhibitorName(p_id NUMBER) RETURN VARCHAR2 IS
    v_ename VARCHAR2(100);
  BEGIN
    SELECT EName INTO v_ename FROM Exhibitor WHERE ExhibitorID = p_id;
    RETURN v_ename;
  EXCEPTION
    WHEN NO_DATA_FOUND THEN
      RETURN 'Exhibitor not found';
    WHEN OTHERS THEN
      DBMS_OUTPUT.PUT_LINE('An unexpected error occurred: ' || SQLERRM);
      RETURN 'Error';
  END GetExhibitorName;

END TradeFairPkg;
/
```

```
Package Body created.

0.19 seconds
```

Language: en-gb

Application Express 2.1.0.00.39
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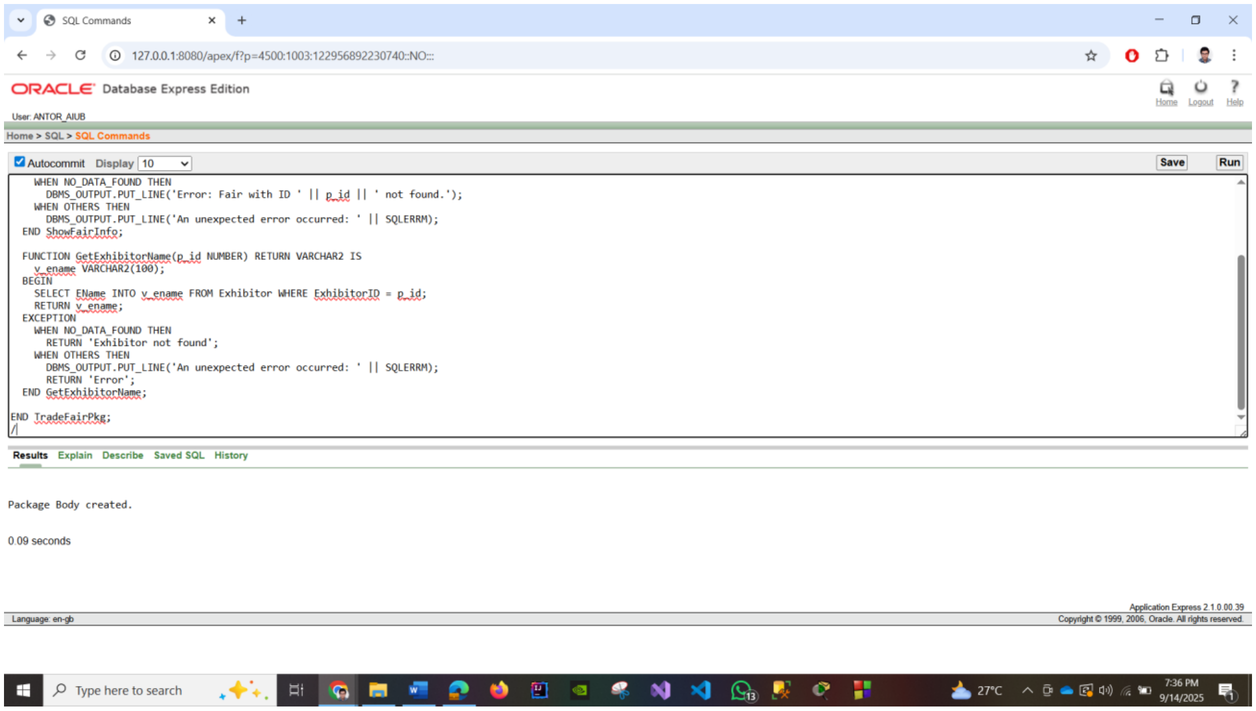
```
v_name VARCHAR2(100);

v_city VARCHAR2(50);

  BEGIN

    SELECT TName, City INTO v_name, v_city FROM TradeFair WHERE FairID = p_id;

    DBMS_OUTPUT.PUT_LINE('Fair: ' || v_name || ' in ' || v_city);

  EXCEPTION

    WHEN NO_DATA_FOUND THEN
```

```
      DBMS_OUTPUT.PUT_LINE('Error: Fair with ID ' || p_id || ' not found.');
    WHEN OTHERS THEN
      DBMS_OUTPUT.PUT_LINE('An unexpected error occurred: ' || SQLERRM);
  END ShowFairInfo;

  FUNCTION GetExhibitorName(p_id NUMBER) RETURN VARCHAR2 IS
    v_ename VARCHAR2(100);
  BEGIN
    SELECT EName INTO v_ename FROM Exhibitor WHERE ExhibitorID = p_id;
    RETURN v_ename;
  EXCEPTION
    WHEN NO_DATA_FOUND THEN
      RETURN 'Exhibitor not found';
    WHEN OTHERS THEN
      DBMS_OUTPUT.PUT_LINE('An unexpected error occurred: ' || SQLERRM);
      RETURN 'Error';
  END GetExhibitorName;

END TradeFairPkg;
/
```


SQL Commands
127.0.0.1:8080/apex/f?p=4500:1003:122956892230740::NO:::
ORACLE Database Express Edition
Home
Logout
Help
User: ANTOR_AIUB
Home > SQL > SQL Commands
Autocommit
Display 10
Save
Run
Results
Explain
Describe
Saved SQL
History
Application Express 2.1.0.00.39
Copyright © 1999, 2006, Oracle. All rights reserved.
Language: en-gb
Type here to search
27°C
7:36 PM
9/14/2025

```
    WHEN NO_DATA_FOUND THEN
      DBMS_OUTPUT.PUT_LINE('Error: Fair with ID ' || p_id || ' not found.');
    WHEN OTHERS THEN
      DBMS_OUTPUT.PUT_LINE('An unexpected error occurred: ' || SQLERRM);
  END ShowFairInfo;

  FUNCTION GetExhibitorName(p_id NUMBER) RETURN VARCHAR2 IS
    v_ename VARCHAR2(100);
  BEGIN
    SELECT EName INTO v_ename FROM Exhibitor WHERE ExhibitorID = p_id;
    RETURN v_ename;
  EXCEPTION
    WHEN NO_DATA_FOUND THEN
      RETURN 'Exhibitor not found';
    WHEN OTHERS THEN
      DBMS_OUTPUT.PUT_LINE('An unexpected error occurred: ' || SQLERRM);
      RETURN 'Error';
  END GetExhibitorName;

END TradeFairPkg;
/
```

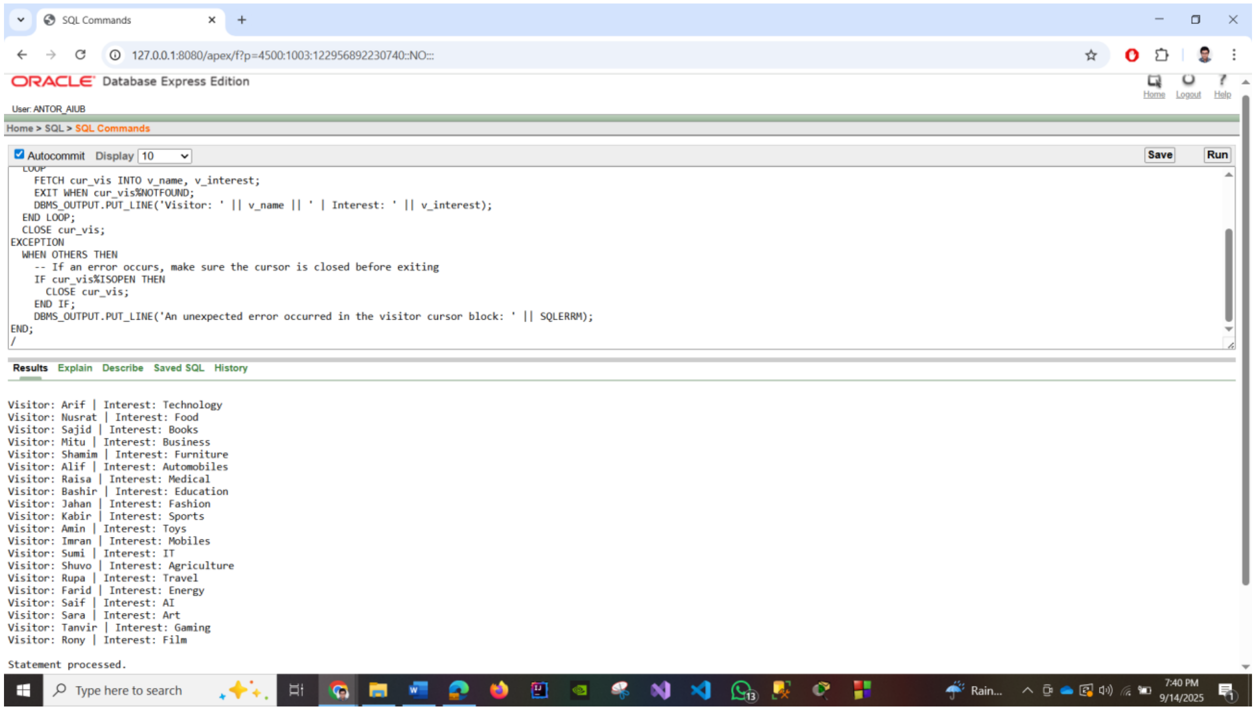
```
Package Body created.

0.09 seconds
```

e) Updated Code for "Two Explicit Cursors"

In this block, we add a handler that will catch any unexpected errors during the loop.

```
-- Section: B, Group 6

DECLARE

  CURSOR cur_vis IS SELECT FirstName, Interests FROM Visitor;

  v_name Visitor.FirstName%TYPE;

 v_interest Visitor.Interests%TYPE;

BEGIN

  OPEN cur_vis;

LOOP

    FETCH cur_vis INTO v_name, v_interest;

    EXIT WHEN cur_vis%NOTFOUND;

 DBMS_OUTPUT.PUT_LINE('Visitor: ' || v_name || ' | Interest: ' || v_interest);

  END LOOP;

  CLOSE cur_vis;

EXCEPTION

  WHEN OTHERS THEN

    -- If an error occurs, make sure the cursor is closed before exiting

    IF cur_vis%ISOPEN THEN

      CLOSE cur_vis;

    END IF;

    DBMS_OUTPUT.PUT_LINE('An unexpected error occurred in the visitor cursor block: ' ||
SQLERRM);
```

```
END;
/
```



```
  LOOP
    FETCH cur_vis INTO v_name, v_interest;
    EXIT WHEN cur_vis%NOTFOUND;
    DBMS_OUTPUT.PUT_LINE('Visitor: ' || v_name || ' | Interest: ' || v_interest);
  END LOOP;
  CLOSE cur_vis;
EXCEPTION
  WHEN OTHERS THEN
    -- If an error occurs, make sure the cursor is closed before exiting
    IF cur_vis%ISOPEN THEN
      CLOSE cur_vis;
    END IF;
    DBMS_OUTPUT.PUT_LINE('An unexpected error occurred in the visitor cursor block: ' || SQLERRM);
END;
/
```

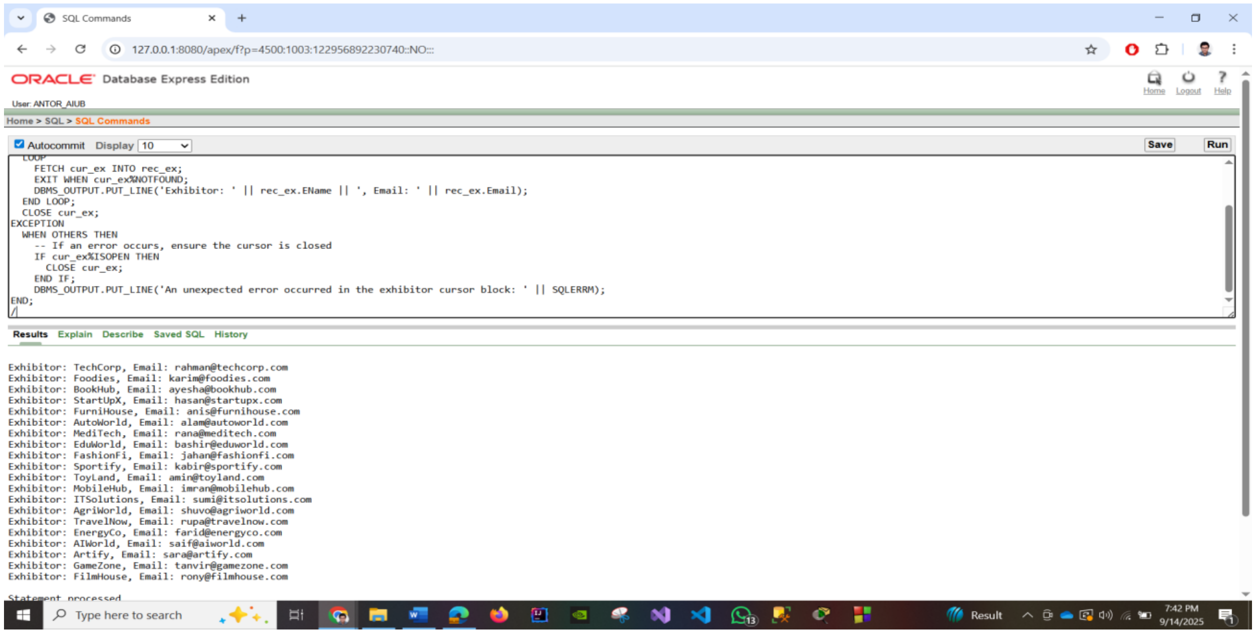
```
Visitor: Arif | Interest: Technology
Visitor: Nusrat | Interest: Food
Visitor: Sajid | Interest: Books
Visitor: Mitu | Interest: Business
Visitor: Shamim | Interest: Furniture
Visitor: Alif | Interest: Automobiles
Visitor: Raisa | Interest: Medical
Visitor: Bashir | Interest: Education
Visitor: Jahan | Interest: Fashion
Visitor: Kabir | Interest: Sports
Visitor: Amin | Interest: Toys
Visitor: Imran | Interest: Mobiles
Visitor: Sumi | Interest: IT
Visitor: Shuvo | Interest: Agriculture
Visitor: Rupa | Interest: Travel
Visitor: Farid | Interest: Energy
Visitor: Saif | Interest: AI
Visitor: Sara | Interest: Art
Visitor: Tanvir | Interest: Gaming
Visitor: Rony | Interest: Film

Statement processed.
```

f) Updated Code for "Two Cursor-based Records"

This is a similar cursor loop. The same logic applies: add a WHEN OTHERS block and ensure the cursor is closed in case of an error.

```
-- Section: B, Group 6
DECLARE
  CURSOR cur_ex IS SELECT * FROM Exhibitor;
  rec_ex cur_ex%ROWTYPE;
BEGIN
  OPEN cur_ex;
  LOOP
    FETCH cur_ex INTO rec_ex;
    EXIT WHEN cur_ex%NOTFOUND;
    DBMS_OUTPUT.PUT_LINE('Exhibitor: ' || rec_ex.EName || ', Email: ' || rec_ex.Email);
  END LOOP;
  CLOSE cur_ex;
```

```
EXCEPTION
  WHEN OTHERS THEN
    -- If an error occurs, ensure the cursor is closed
    IF cur_ex%ISOPEN THEN
      CLOSE cur_ex;
    END IF;
    DBMS_OUTPUT.PUT_LINE('An unexpected error occurred in the exhibitor cursor block: ' ||
SQLERRM);
END;
/
```


SQL Commands
127.0.0.1:8080/apex/f?p=4500:1003:122956892230740::NO:::
ORACLE Database Express Edition
User: ANTOR_AIUB
Home > SQL > SQL Commands
Autocommit Display 10
Save
Run
Results Explain Describe Saved SQL History
Type here to search
Result
7:42 PM
9/14/2025

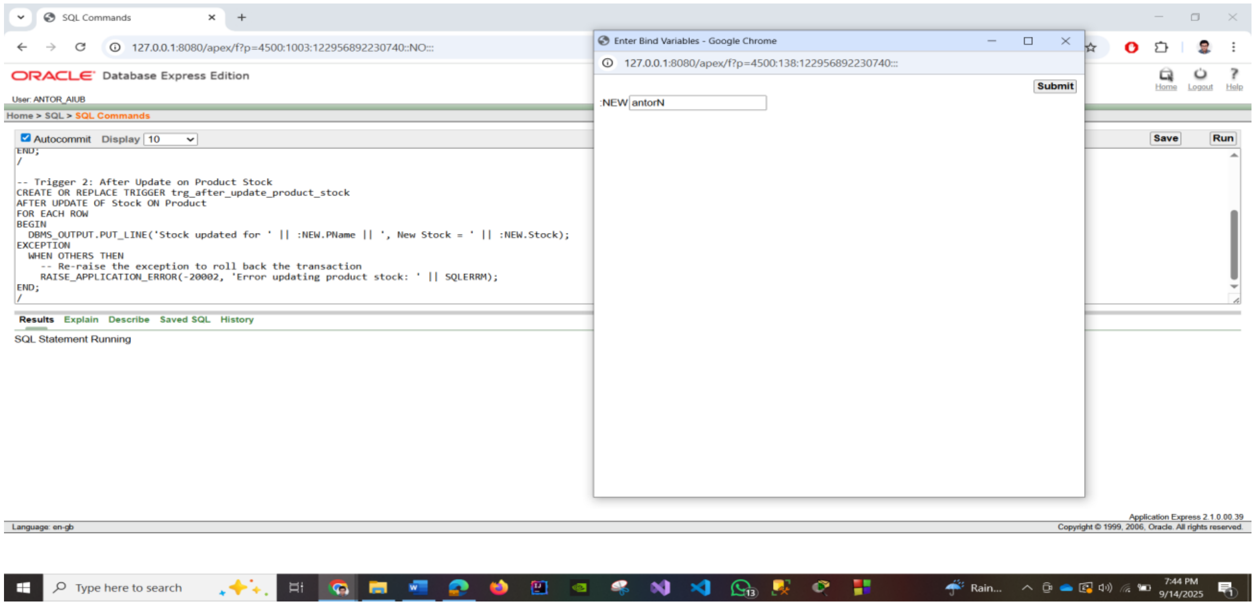
```
  LOOP
    FETCH cur_ex INTO rec_ex;
    EXIT WHEN cur_ex%NOTFOUND;
    DBMS_OUTPUT.PUT_LINE('Exhibitor: ' || rec_ex.EName || ', Email: ' || rec_ex.Email);
  END LOOP;
  CLOSE cur_ex;
EXCEPTION
  WHEN OTHERS THEN
    -- If an error occurs, ensure the cursor is closed
    IF cur_ex%ISOPEN THEN
      CLOSE cur_ex;
    END IF;
    DBMS_OUTPUT.PUT_LINE('An unexpected error occurred in the exhibitor cursor block: ' || SQLERRM);
END;
/
```

```
Exhibitor: TechCorp, Email: rahman@techcorp.com
Exhibitor: Foodies, Email: karim@foodies.com
Exhibitor: BookHub, Email: ayesha@bookhub.com
Exhibitor: StartUpX, Email: hasan@startupx.com
Exhibitor: FurniHouse, Email: anis@furnihouse.com
Exhibitor: AutoWorld, Email: alam@autoworld.com
Exhibitor: MediTech, Email: rana@meditech.com
Exhibitor: EduWorld, Email: bashir@eduworld.com
Exhibitor: FashionFi, Email: jahan@fashionfi.com
Exhibitor: Sportify, Email: kabir@sportify.com
Exhibitor: ToyLand, Email: amin@toyland.com
Exhibitor: MobileHub, Email: imran@mobilehub.com
Exhibitor: ITSolutions, Email: sumi@itsolutions.com
Exhibitor: AgriWorld, Email: shuvo@agriworld.com
Exhibitor: TravelNow, Email: rupa@travelnow.com
Exhibitor: EnergyCo, Email: farid@energyco.com
Exhibitor: AIWorld, Email: saif@aiworld.com
Exhibitor: Artify, Email: sara@artify.com
Exhibitor: GameZone, Email: tanvir@gamezone.com
Exhibitor: FilmHouse, Email: rony@filmhouse.com

Statement processed
```

g) Two Row-level Triggers (Updated)

```
-- Trigger 1: After Insert on Payment
CREATE OR REPLACE TRIGGER trg_after_insert_payment
AFTER INSERT ON Payment
FOR EACH ROW
BEGIN
  DBMS_OUTPUT.PUT_LINE('Payment received: ' || :NEW.Amount || ' for Exhibitor ' ||
:NEW.ExhibitorID);
EXCEPTION
  WHEN OTHERS THEN
    -- Re-raise the exception to roll back the transaction
    RAISE_APPLICATION_ERROR(-20001, 'Error processing new payment: ' || SQLERRM);
END;
/
```

```
-- Trigger 2: After Update on Product Stock
CREATE OR REPLACE TRIGGER trg_after_update_product_stock
AFTER UPDATE OF Stock ON Product
FOR EACH ROW
BEGIN
  DBMS_OUTPUT.PUT_LINE('Stock updated for ' || :NEW.PName || ', New Stock = ' || :NEW.Stock);
EXCEPTION
  WHEN OTHERS THEN
    -- Re-raise the exception to roll back the transaction
    RAISE_APPLICATION_ERROR(-20002, 'Error updating product stock: ' || SQLERRM);
END;
/
```



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User: ANTOR_AIUB

Home > SQL > SQL Commands

Autocommit [✓] Display 10

```
END;
/

-- Trigger 2: After Update on Product Stock
CREATE OR REPLACE TRIGGER trg_after_update_product_stock
AFTER UPDATE OF Stock ON Product
FOR EACH ROW
BEGIN
  DBMS_OUTPUT.PUT_LINE('Stock updated for ' || :NEW.PName || ', New Stock = ' || :NEW.Stock);
EXCEPTION
  WHEN OTHERS THEN
    -- Re-raise the exception to roll back the transaction
    RAISE_APPLICATION_ERROR(-20002, 'Error updating product stock: ' || SQLERRM);
END;
/
```

SQL Statement Running

Enter Bind Variables - Google Chrome

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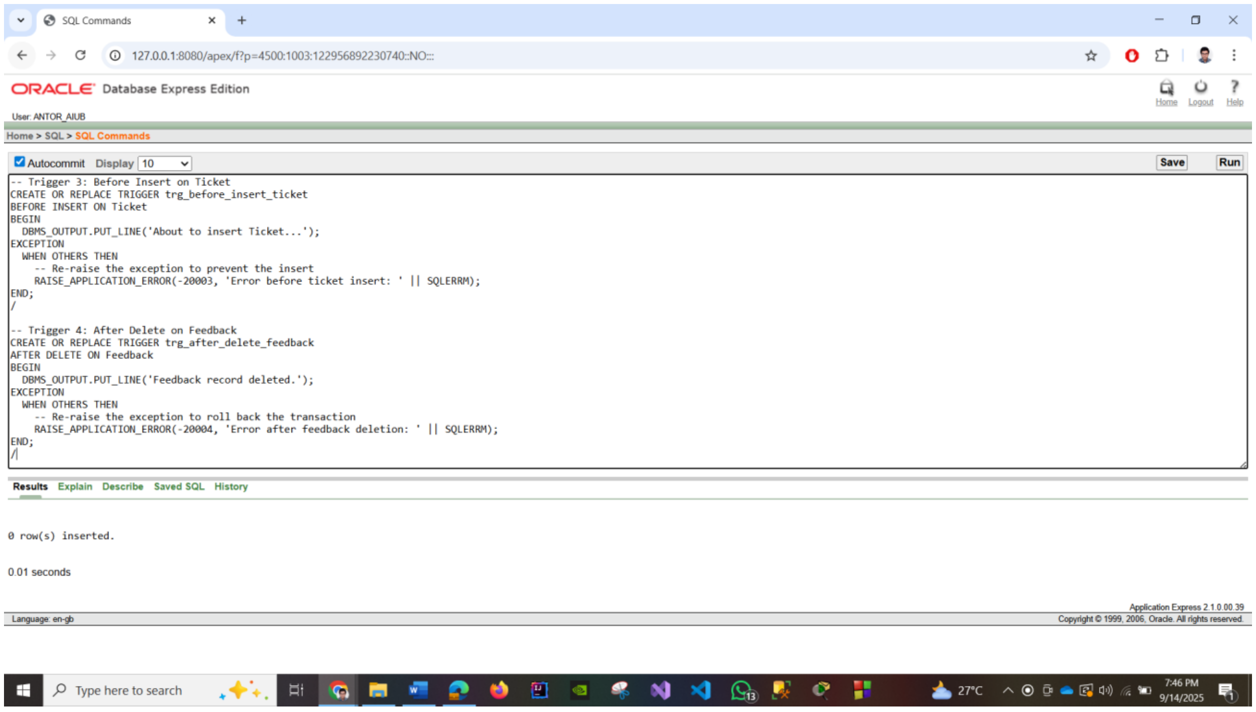
:NEW antorN

h) Two Statement-level Triggers (Updated)

```
-- Trigger 3: Before Insert on Ticket
CREATE OR REPLACE TRIGGER trg_before_insert_ticket
BEFORE INSERT ON Ticket
BEGIN
  DBMS_OUTPUT.PUT_LINE('About to insert Ticket...');
EXCEPTION
  WHEN OTHERS THEN
    -- Re-raise the exception to prevent the insert
    RAISE_APPLICATION_ERROR(-20003, 'Error before ticket insert: ' || SQLERRM);
END;
/

-- Trigger 4: After Delete on Feedback
```

```
CREATE OR REPLACE TRIGGER trg_after_delete_feedback
AFTER DELETE ON Feedback
BEGIN
  DBMS_OUTPUT.PUT_LINE('Feedback record deleted.');
EXCEPTION
  WHEN OTHERS THEN
    -- Re-raise the exception to roll back the transaction
    RAISE_APPLICATION_ERROR(-20004, 'Error after feedback deletion: ' || SQLERRM);
END;
/
```



```
-- Trigger 3: Before Insert on Ticket
CREATE OR REPLACE TRIGGER trg_before_insert_ticket
BEFORE INSERT ON Ticket
BEGIN
  DBMS_OUTPUT.PUT_LINE('About to insert Ticket...');
EXCEPTION
  WHEN OTHERS THEN
    -- Re-raise the exception to prevent the insert
    RAISE_APPLICATION_ERROR(-20003, 'Error before ticket insert: ' || SQLERRM);
END;
/

-- Trigger 4: After Delete on Feedback
CREATE OR REPLACE TRIGGER trg_after_delete_feedback
AFTER DELETE ON Feedback
BEGIN
  DBMS_OUTPUT.PUT_LINE('Feedback record deleted.');
EXCEPTION
  WHEN OTHERS THEN
    -- Re-raise the exception to roll back the transaction
    RAISE_APPLICATION_ERROR(-20004, 'Error after feedback deletion: ' || SQLERRM);
END;
/
```

```
0 row(s) inserted.

0.01 seconds
```

Relational Algebra:

Q1: Find the MembershipType of the member whose Email is soumik@example.com. (Table: MemberContactInfo)

Answer:

πMembershipType(σEmail = "soumik@example.com"(MemberContactInfo))

Q2: Find the Name of the member whose MemberID is 3. (Table: MemberInfo)

Answer:

πName(σMemberID = 3(MemberInfo))

Q3: Find the PoolID of the pool whose Location is Manikganj. (Table: PoolInfo)

Answer:

πPoolID(σLocation = "Manikganj"(PoolInfo))

Q4: Find the EventDate of the event named **"**Winter Training**"**. (Table: EventInfo)

Answer:

πEventDate(σName = "Winter Training"(EventInfo))

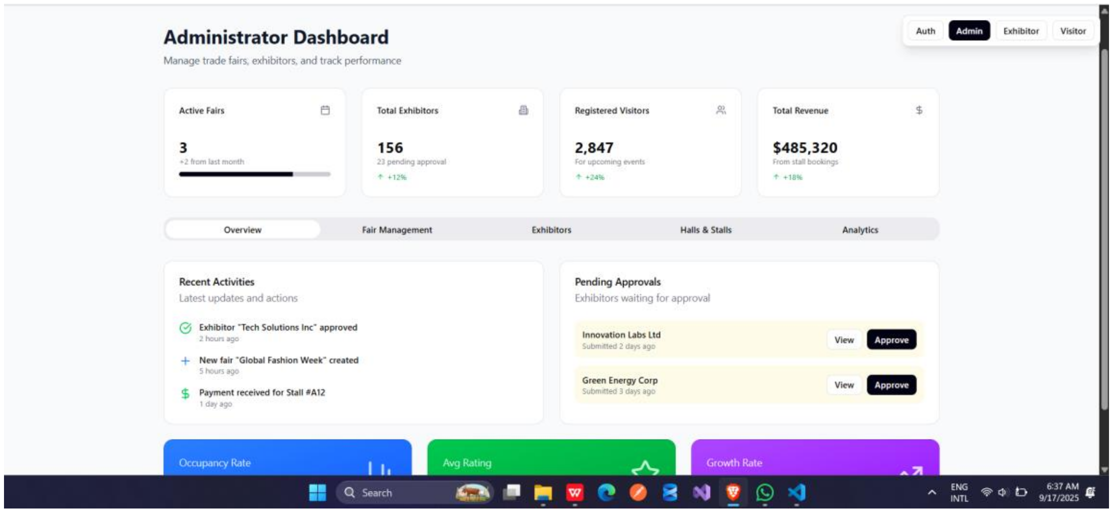
Q5: Find the Email of the trainer whose Name is Soumik. (Table: TrainerInfo)

Answer:

πEmail(σName = "Soumik"(TrainerInfo))

User Interface

Admin



Administrator Dashboard

Manage trade fairs, exhibitors, and track performance

Active Fairs	Total Exhibitors	Registered Visitors	Total Revenue
3	156	2,847	$485,320
+2 from last month	23 pending approval	For upcoming events	From stall bookings
	+12%	+24%	+18%

Recent Activities

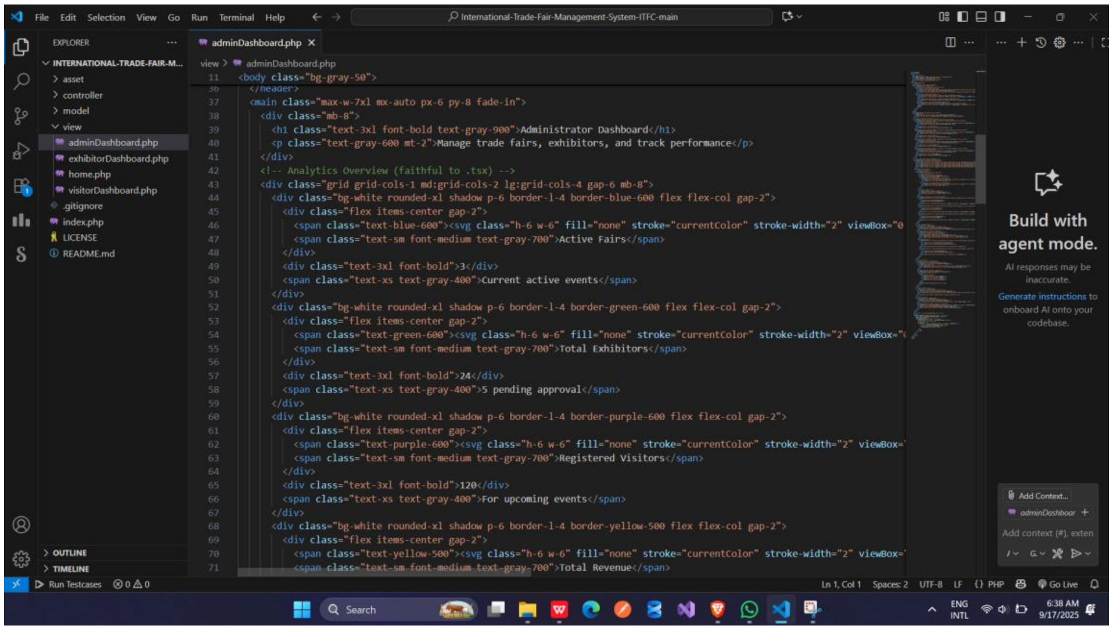
Latest updates and actions

- Exhibitor "Tech Solutions Inc" approved — 2 hours ago
- New fair "Global Fashion Week" created — 5 hours ago
- Payment received for Stall #A12 — 1 day ago

Pending Approvals

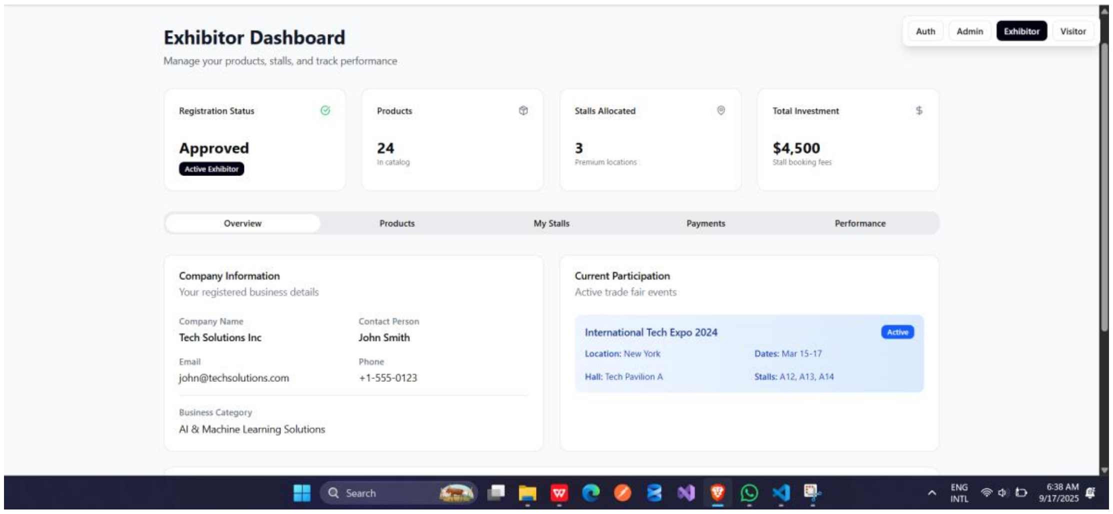
Exhibitors waiting for approval

- Innovation Labs Ltd — Submitted 2 days ago — View / Approve
- Green Energy Corp — Submitted 3 days ago — View / Approve



```html
<body class="bg-gray-50">
    </header>
    <main class="max-w-7xl mx-auto px-6 py-8 fade-in">
      <div class="mb-8">
        <h1 class="text-3xl font-bold text-gray-900">Administrator Dashboard</h1>
        <p class="text-gray-600 mt-2">Manage trade fairs, exhibitors, and track performance</p>
      </div>
      <!-- Analytics Overview (faithful to .tsx) -->
      <div class="grid grid-cols-1 md:grid-cols-2 lg:grid-cols-4 gap-6 mb-8">
        <div class="bg-white rounded-xl shadow p-6 border-l-4 border-blue-600 flex flex-col gap-2">
          <div class="flex items-center gap-2">
            <span class="text-blue-600"><svg class="h-6 w-6" fill="none" stroke="currentColor" stroke-width="2" viewBox="0
            <span class="text-sm font-medium text-gray-700">Active Fairs</span>
          </div>
          <div class="text-3xl font-bold">3</div>
          <span class="text-xs text-gray-400">Current active events</span>
        </div>
        <div class="bg-white rounded-xl shadow p-6 border-l-4 border-green-600 flex flex-col gap-2">
          <div class="flex items-center gap-2">
            <span class="text-green-600"><svg class="h-6 w-6" fill="none" stroke="currentColor" stroke-width="2" viewBox="
            <span class="text-sm font-medium text-gray-700">Total Exhibitors</span>
          </div>
          <div class="text-3xl font-bold">24</div>
          <span class="text-xs text-gray-400">5 pending approval</span>
        </div>
        <div class="bg-white rounded-xl shadow p-6 border-l-4 border-purple-600 flex flex-col gap-2">
          <div class="flex items-center gap-2">
            <span class="text-purple-600"><svg class="h-6 w-6" fill="none" stroke="currentColor" stroke-width="2" viewBox="
            <span class="text-sm font-medium text-gray-700">Registered Visitors</span>
          </div>
          <div class="text-3xl font-bold">120</div>
          <span class="text-xs text-gray-400">For upcoming events</span>
        </div>
        <div class="bg-white rounded-xl shadow p-6 border-l-4 border-yellow-500 flex flex-col gap-2">
          <div class="flex items-center gap-2">
            <span class="text-yellow-500"><svg class="h-6 w-6" fill="none" stroke="currentColor" stroke-width="2" viewBox="
            <span class="text-sm font-medium text-gray-700">Total Revenue</span>
```

Exhibitor



Exhibitor Dashboard

Manage your products, stalls, and track performance

Registration Status	Products	Stalls Allocated	Total Investment
Approved	24	3	$4,500
Active Exhibitor	In catalog	Premium locations	Stall booking fees

Company Information

Your registered business details

Company Name: Tech Solutions Inc

Contact Person: John Smith

Email: john@techsolutions.com

Phone: +1-555-0123

Business Category: AI & Machine Learning Solutions

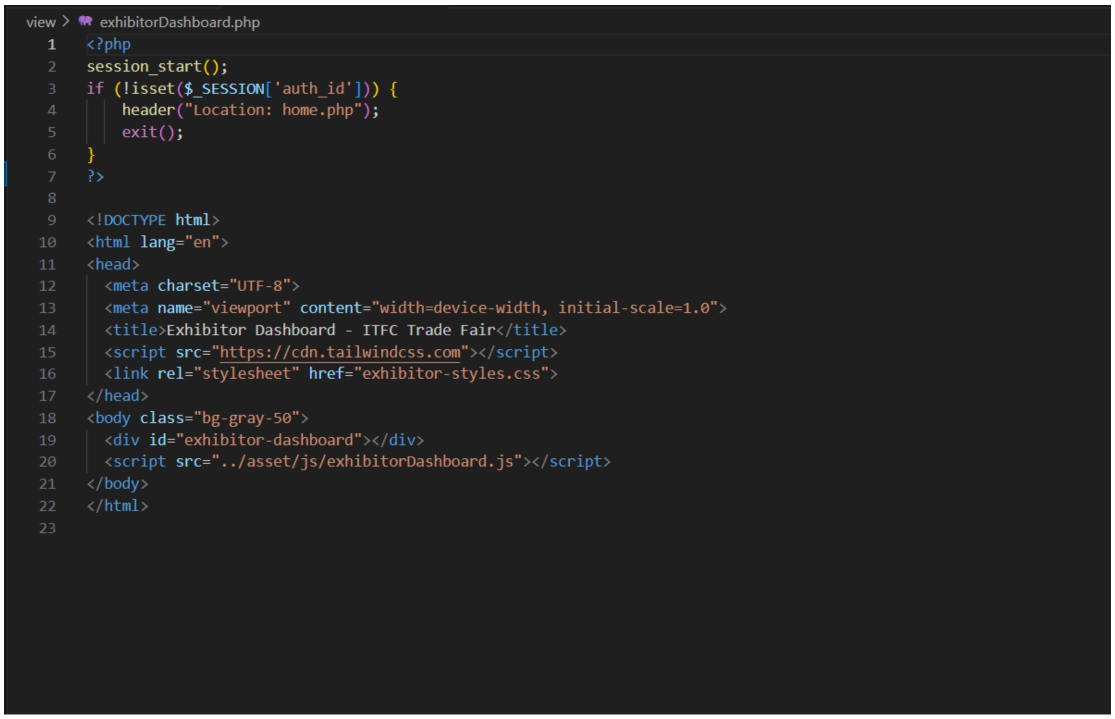
Current Participation

Active trade fair events

International Tech Expo 2024 — Active

Location: New York | Dates: Mar 15-17

Hall: Tech Pavilion A | Stalls: A12, A13, A14

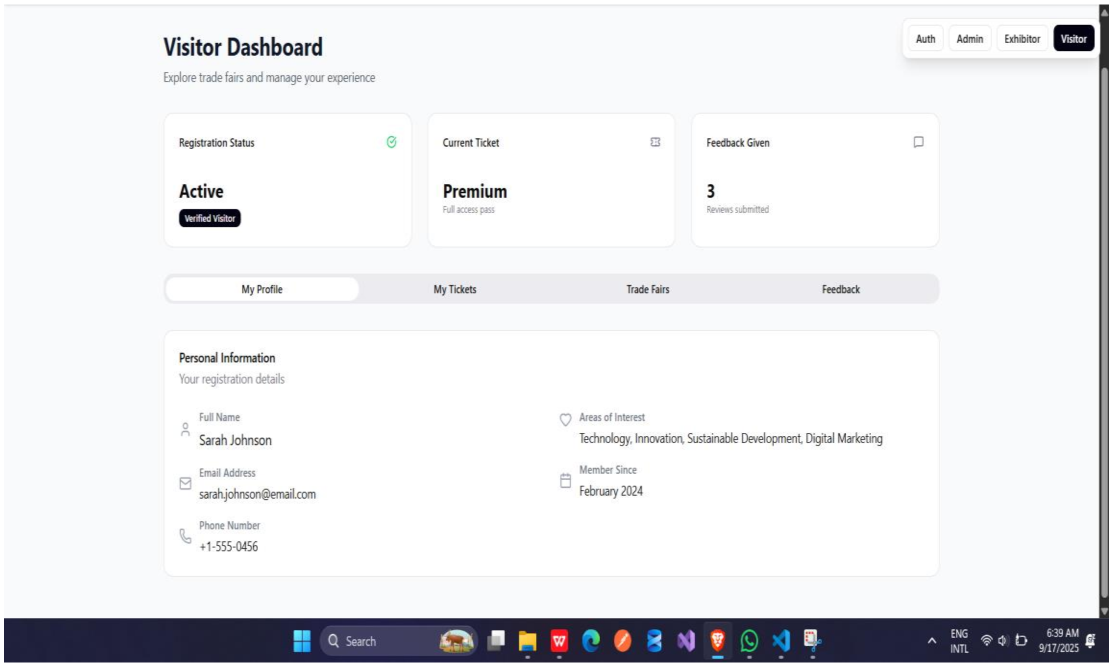


view > exhibitorDashboard.php

```
<?php
session_start();
if (!isset($_SESSION['auth_id'])) {
    header("Location: home.php");
    exit();
}
?>

<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Exhibitor Dashboard - ITFC Trade Fair</title>
  <script src="https://cdn.tailwindcss.com"></script>
  <link rel="stylesheet" href="exhibitor-styles.css">
</head>
<body class="bg-gray-50">
  <div id="exhibitor-dashboard"></div>
  <script src="../asset/js/exhibitorDashboard.js"></script>
</body>
</html>
```

Visitor



Visitor Dashboard

Explore trade fairs and manage your experience

Auth | Admin | Exhibitor | Visitor

Registration Status

Active

Verified Visitor

Current Ticket

Premium

Full access pass

Feedback Given

3

Reviews submitted

My Profile | My Tickets | Trade Fairs | Feedback

Personal Information

Your registration details

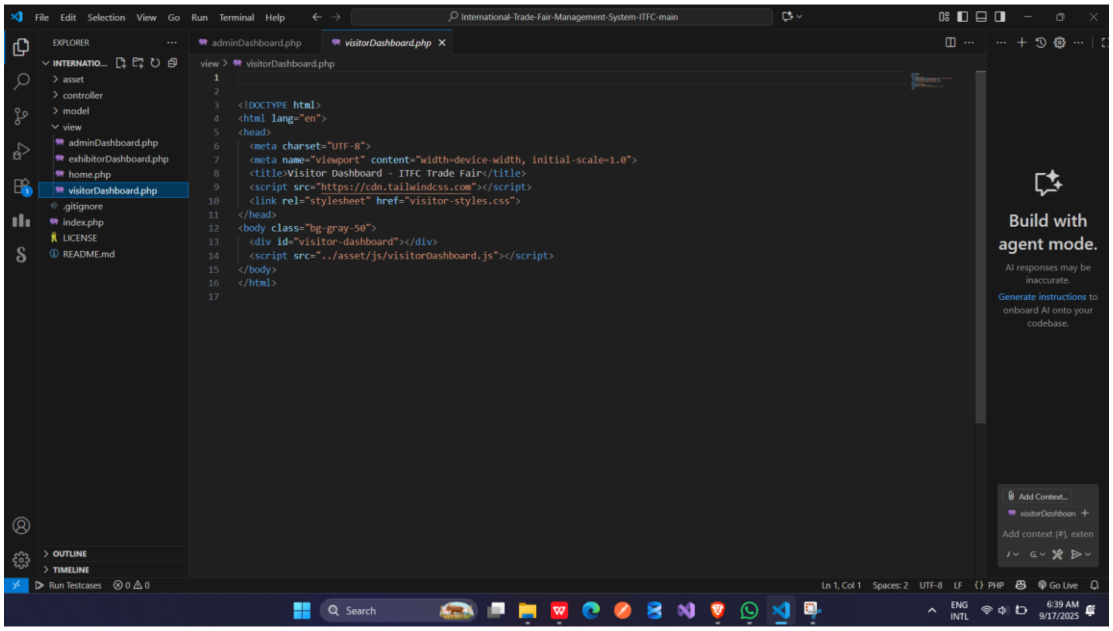
Full Name: Sarah Johnson

Email Address: sarah.johnson@email.com

Phone Number: +1-555-0456

Areas of Interest: Technology, Innovation, Sustainable Development, Digital Marketing

Member Since: February 2024



International-Trade-Fair-Management-System-ITFC-main

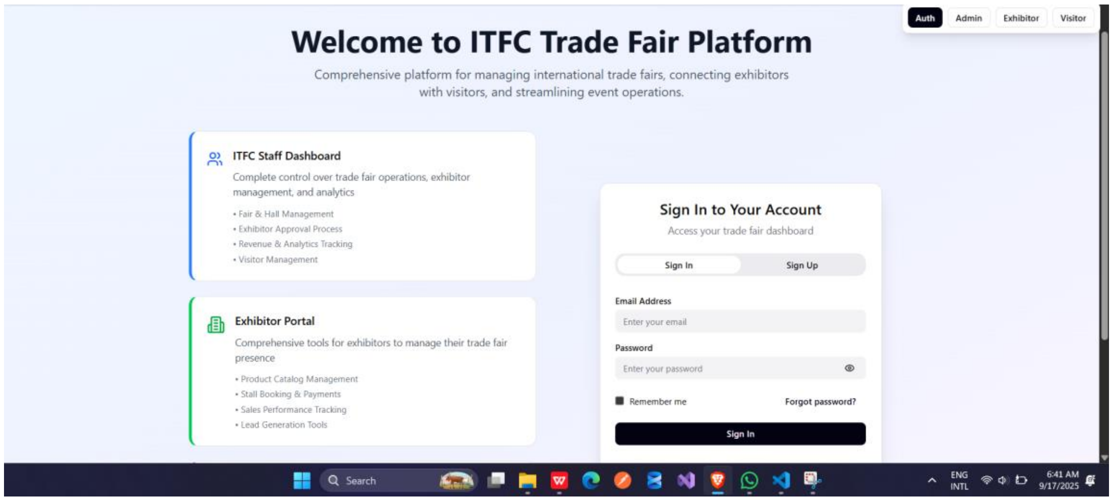
view > visitorDashboard.php

```html


<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Visitor Dashboard - ITFC Trade Fair</title>
  <script src="https://cdn.tailwindcss.com"></script>
  <link rel="stylesheet" href="visitor-styles.css">
</head>
<body class="bg-gray-50">
  <div id="visitor-dashboard"></div>
  <script src="../asset/js/visitorDashboard.js"></script>
</body>
</html>

```

Home page



Welcome to ITFC Trade Fair Platform

Comprehensive platform for managing international trade fairs, connecting exhibitors with visitors, and streamlining event operations.

ITFC Staff Dashboard

Complete control over trade fair operations, exhibitor management, and analytics

- Fair & Hall Management
- Exhibitor Approval Process
- Revenue & Analytics Tracking
- Visitor Management

Exhibitor Portal

Comprehensive tools for exhibitors to manage their trade fair presence

- Product Catalog Management
- Stall Booking & Payments
- Sales Performance Tracking
- Lead Generation Tools

Sign In to Your Account

Access your trade fair dashboard

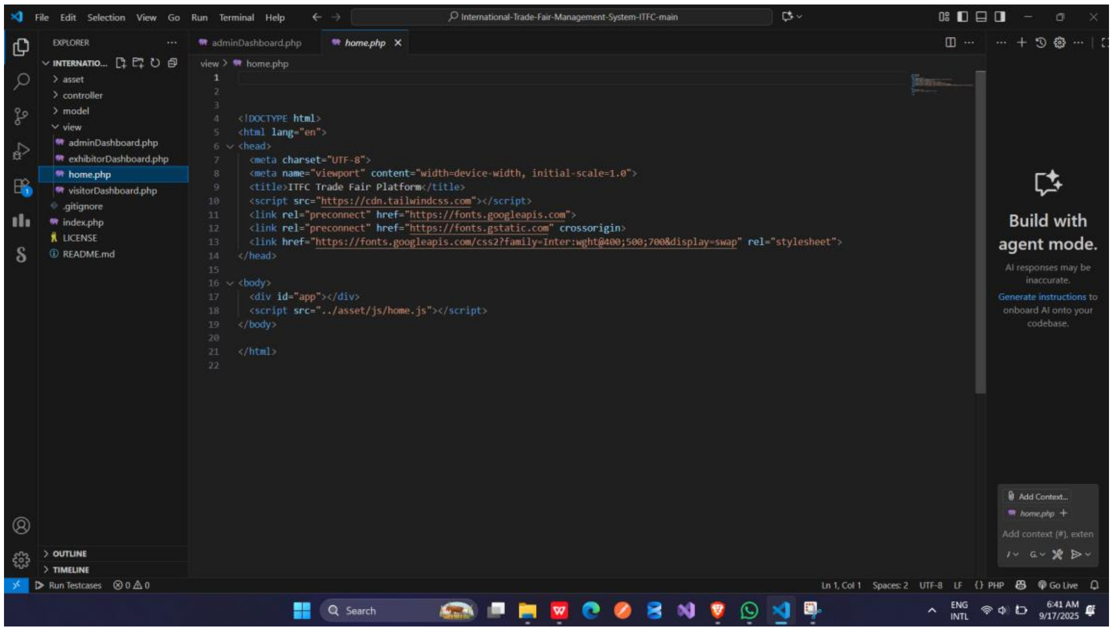
Sign In | Sign Up

Email Address: Enter your email

Password: Enter your password

Remember me — Forgot password?

Sign In



```html



<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>ITFC Trade Fair Platform</title>
  <script src="https://cdn.tailwindcss.com"></script>
  <link rel="preconnect" href="https://fonts.googleapis.com">
  <link rel="preconnect" href="https://fonts.gstatic.com" crossorigin>
  <link href="https://fonts.googleapis.com/css2?family=Inter:wght@400;500;700&display=swap" rel="stylesheet">
</head>

<body>
  <div id="app"></div>
  <script src="../asset/js/home.js"></script>
</body>

</html>

```