American International University- Bangladesh(AIUB)

Department of Computer Science

Faculty of Science Technology

Summer 2023-24

Advance Database Management System

Section: A

Final Term Project Documentation

Project Title: Office Recreational Fund Management

Submitted by:

Name	ID	Contribution
Sumaiya Tasnim	21-45583-3	30% [implicit locking, interface]
Nishat Afla	21-45574-3	30% [explicit locking, interface]
Mahmud Al Ashiq	21-45010-2	40% [exception handling, relational algebra, interface]

Project Updates:

We received positive feedback on the midterm project report. There was no technical issue. However, we decided to update the scenario description for a better understanding of the relations among the entities.

Updated Scenario Description:

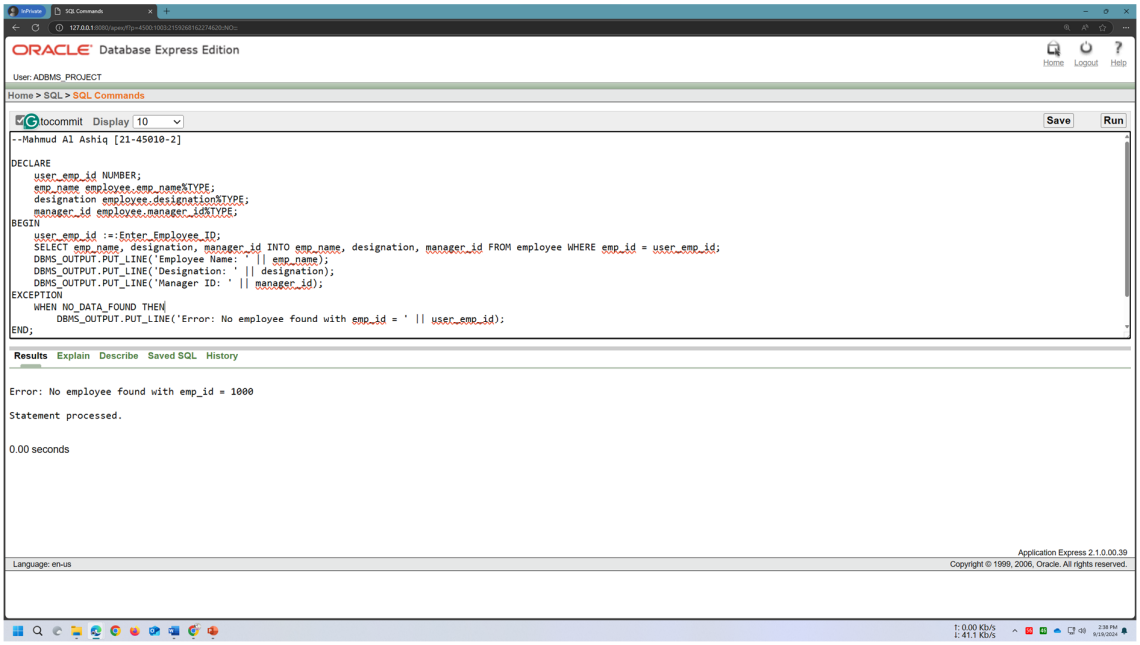
The office recreational fund management organizes activities for employees. In an office, the Recreational Fund Management contributes monthly and yearly recreational funds to the events. Each event is identified by an event ID, name, date, budget, and description. An event has an expense. Each event expense has an expense ID, description, amount, and date. A department allocates a fund as a recreational fund. The office manager can manage many funds. Each fund has a fund ID, allocated fund, and allocation date. Each department has a department ID and name. The office manager is a special type of employee, and the department managed by the manager is stored in the database. Each employee has an employee ID, name, department, and designation. An office manager can supervise many sponsors. Each sponsor has a sponsor ID, description, and name. A manager can take votes from the company's employees on decisions such as location and activities in a recreational event and can propose many fund proposals to the department. Departments verify the proposals. Each proposal has a proposal ID, description, proposed date, and proposed budget and status, indicating whether the proposal is accepted or rejected. A department can view reports that provide a total overview of all the recreational funds. These reports include a report ID, department name, event name, amounts, and dates.

Query:

Exception handling

Q. Write a PL/SQL block where the user inputs the emp_id, and the query fetches employee details. Handle the "No Data Found" exception if no employee is found.

```
DECLARE
    user_emp_id NUMBER;
    emp_name employee.emp_name%TYPE;
    designation employee.designation%TYPE;
    manager_id employee.manager_id%TYPE;
BEGIN
    user_emp_id :=:Enter_Employee_ID;
    SELECT emp_name, designation, manager_id INTO emp_name, designation, manager_id FROM employee WHERE emp_id = user_emp_id;
    DBMS_OUTPUT.PUT_LINE('Employee Name: ' || emp_name);
    DBMS_OUTPUT.PUT_LINE('Designation: ' || designation);
    DBMS_OUTPUT.PUT_LINE('Manager ID: ' || manager_id);
EXCEPTION
    WHEN NO_DATA_FOUND THEN
        DBMS_OUTPUT.PUT_LINE('Error: No employee found with emp_id = ' || user_emp_id);
END;
```

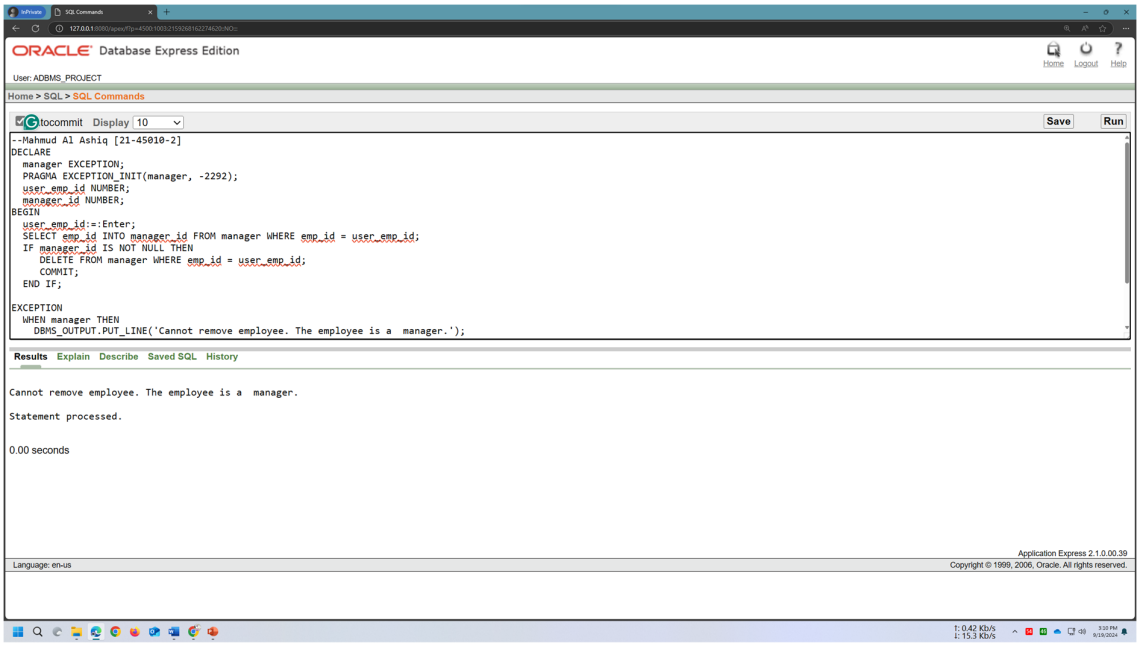


Q2. Write a query where the user input the manager ID as emp_id to remove from the manager table with integrity constraint violation exception handling.

```
DECLARE
  manager EXCEPTION;
  PRAGMA EXCEPTION_INIT(manager, -2292);
  user_emp_id NUMBER;
  manager_id NUMBER;

BEGIN
  user_emp_id:=:Enter;
  SELECT emp_id INTO manager_id FROM manager WHERE emp_id = user_emp_id;
  IF manager_id IS NOT NULL THEN
     DELETE FROM manager WHERE emp_id = user_emp_id;
     COMMIT;
  END IF;

EXCEPTION
  WHEN manager THEN
    DBMS_OUTPUT.PUT_LINE('Cannot remove employee. The employee is a  manager.');
  WHEN OTHERS THEN
    DBMS_OUTPUT.PUT_LINE('An unexpected error occurred: ' || SQLERRM);
END;
/
```

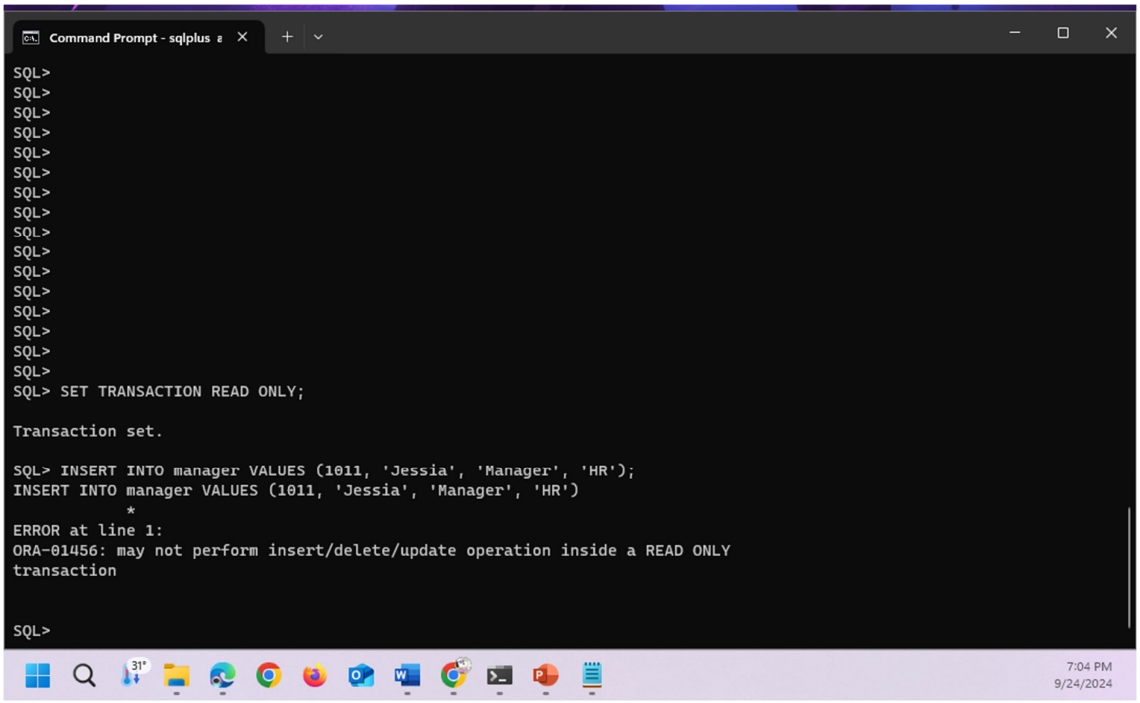


Implicit locking

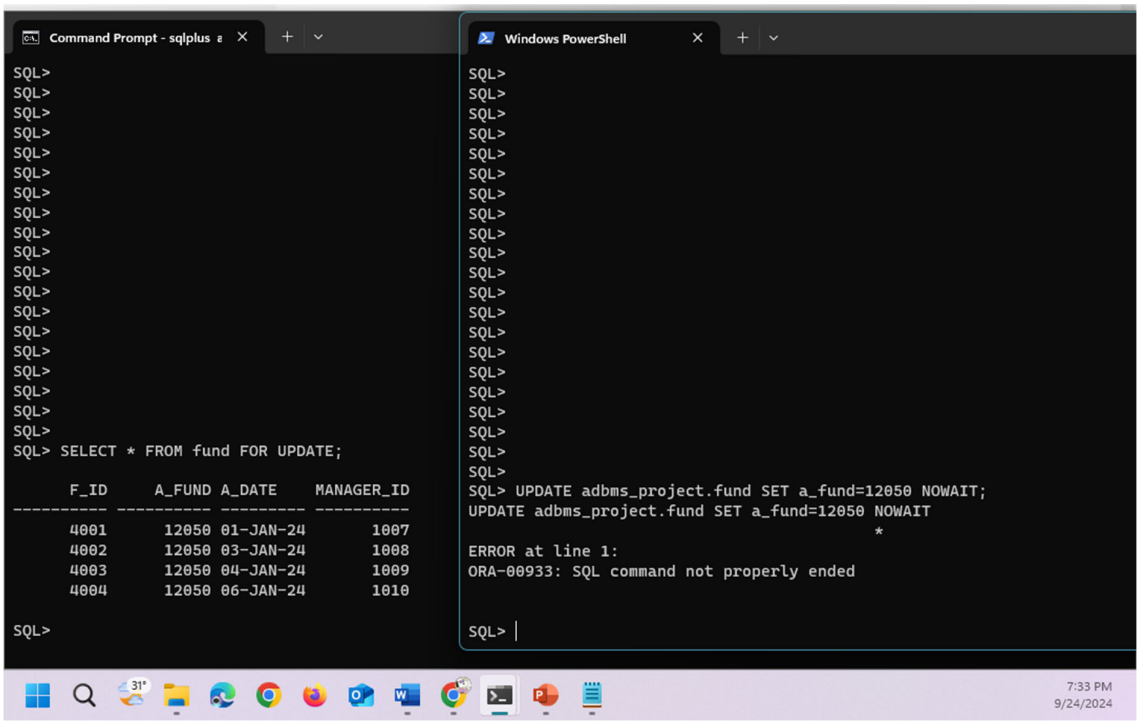
1. Make the database read-only

SET TRANSACTION READ ONLY;

INSERT INTO manager VALUES (1011, 'Jessia', 'Manager', 'HR');

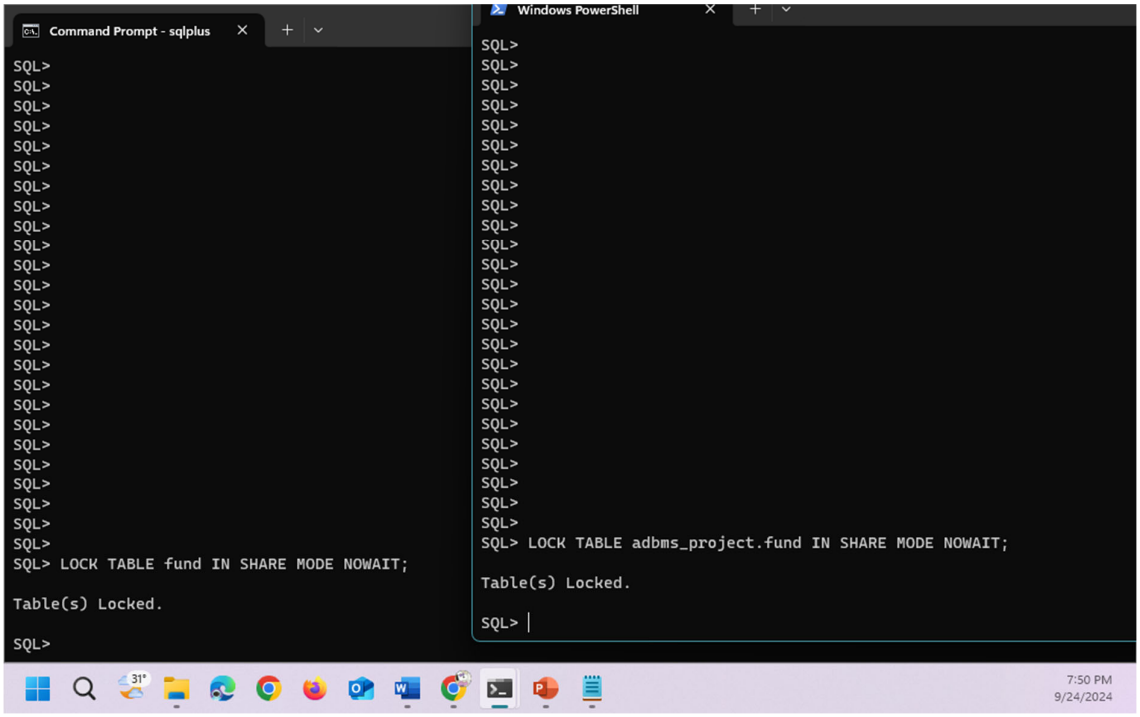


2. Lock a table's UPDATE statement

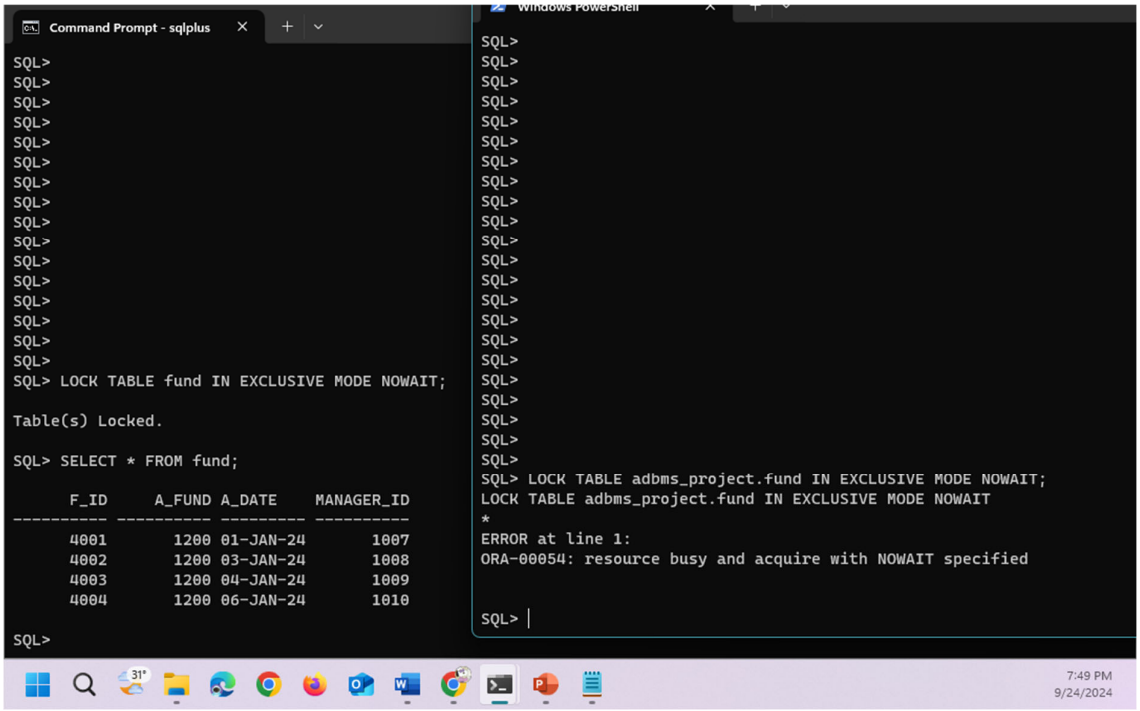


Explicit locking

1. **Lock table in share mode**



2. **Lock table in Exclusive mode**



Relational Algebra

1. **Find all event budgets of over 5000 BDT.**

   $\sigma_{amount > 5000}\ (budget)$

2. **Find the manager ID for each event budget of an amount greater than 5000.**

   $\prod_{manager\_id}\ (\sigma_{amount > 5000}\ (budget))$

3. Find all the event names under manager id ‘1007’.

   $\prod_{event\_name}\ (\sigma_{manager\_id\ =1007}\ (event))$

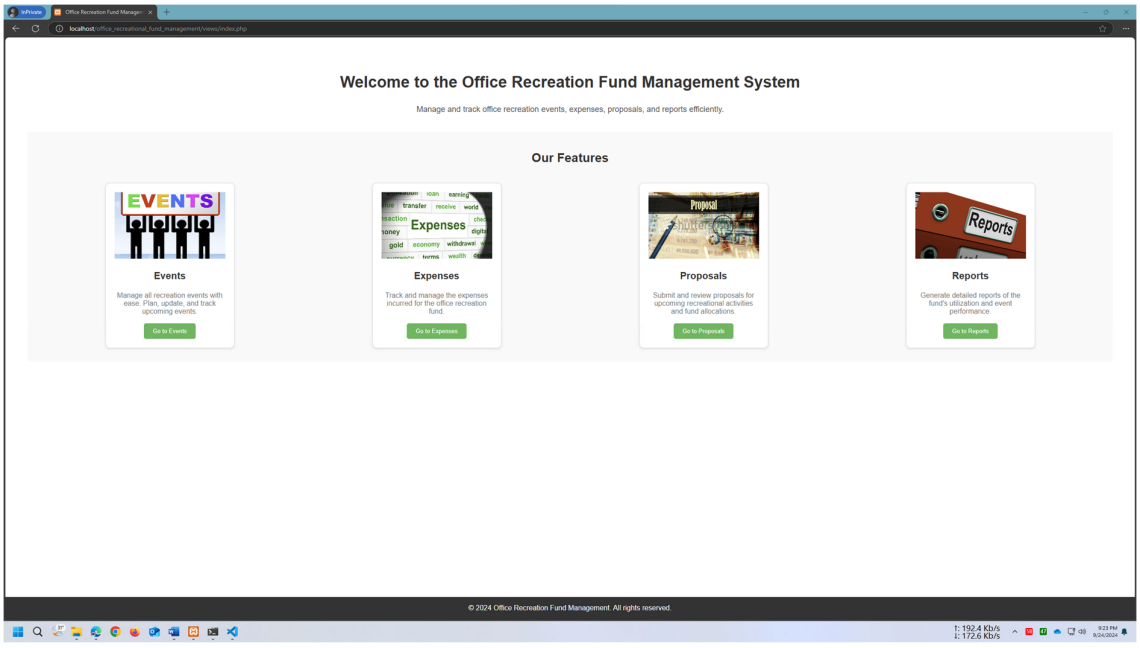
4. **Find the event names where the budget amount and expense amount are the same.**

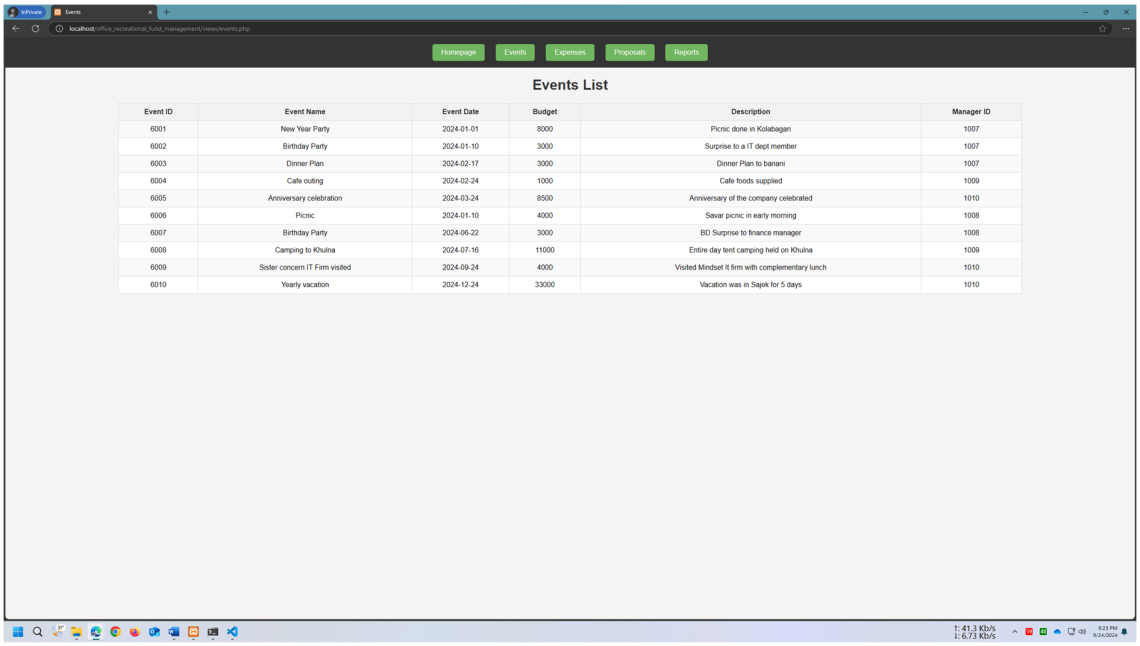
   $\prod_{event\_name}\ (\sigma_{event.budget\ =\ expense.amount}\ (event\ x\ expense))$

5. **Find the department of largest event budget.**

   $\prod_{department\_name}\ (\sigma_{manager\_id\ =}\ (\sigma_{amount\ =\ \mathrm{MAX(budget)}}\ (\mathrm{event\_manager})))$

Interface:




InPrivate
Events
localhost/office_recreational_fund_management/views/events.php
Homepage
Events
Expenses
Proposals
Reports
Events List
Event ID | Event Name | Event Date | Budget | Description | Manager ID
6001 | New Year Party | 2024-01-01 | 8000 | Picnic done in Kolabagan | 1007
6002 | Birthday Party | 2024-01-10 | 3000 | Surprise to a IT dept member | 1007
6003 | Dinner Plan | 2024-02-17 | 3000 | Dinner Plan to banani | 1007
6004 | Cafe outing | 2024-02-24 | 1000 | Cafe foods supplied | 1009
6005 | Anniversary celebration | 2024-03-24 | 8500 | Anniversary of the company celebrated | 1010
6006 | Picnic | 2024-01-10 | 4000 | Savar picnic in early morning | 1008
6007 | Birthday Party | 2024-06-22 | 3000 | BD Surprise to finance manager | 1008
6008 | Camping to Khulna | 2024-07-16 | 11000 | Entire day tent camping held on Khulna | 1009
6009 | Sister concern IT Firm visited | 2024-09-24 | 4000 | Visited Mindset It firm with complementary lunch | 1010
6010 | Yearly vacation | 2024-12-24 | 33000 | Vacation was in Sajek for 5 days | 1010
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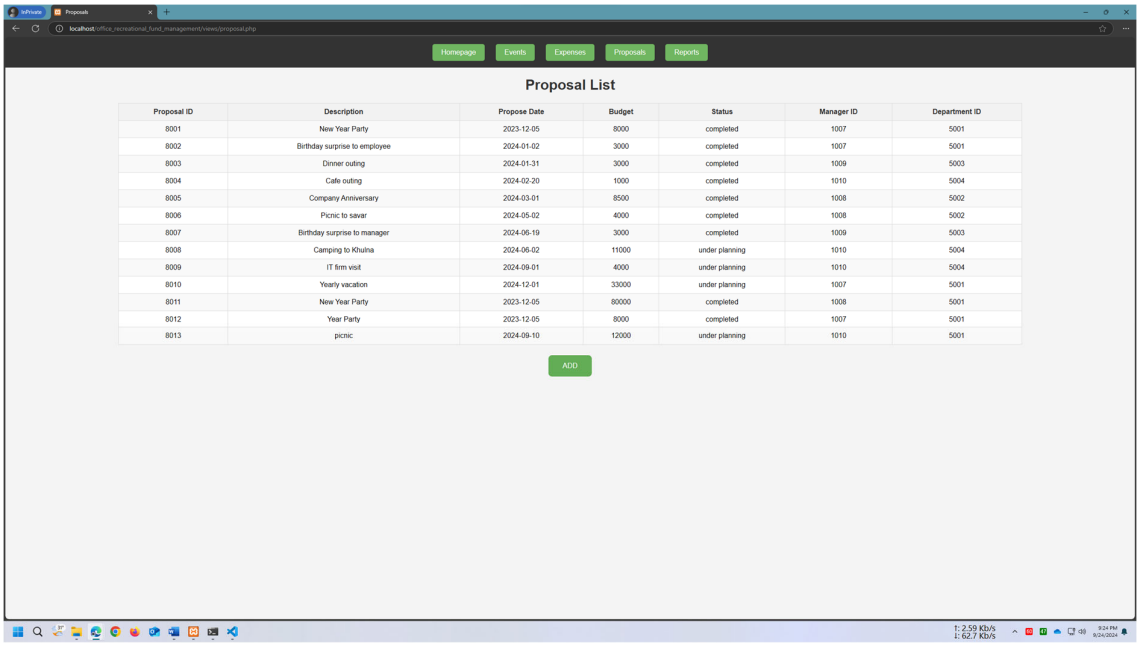
InPrivate
Proposals
localhost/office_recreational_fund_management/views/proposal.php
Homepage
Events
Expenses
Proposals
Reports
Proposal List
Proposal ID | Description | Propose Date | Budget | Status | Manager ID | Department ID
8001 | New Year Party | 2023-12-05 | 8000 | completed | 1007 | 5001
8002 | Birthday surprise to employee | 2024-01-02 | 3000 | completed | 1007 | 5001
8003 | Dinner outing | 2024-01-31 | 3000 | completed | 1009 | 5003
8004 | Cafe outing | 2024-02-20 | 1000 | completed | 1010 | 5004
8005 | Company Anniversary | 2024-03-01 | 8500 | completed | 1008 | 5002
8006 | Picnic to savar | 2024-05-02 | 4000 | completed | 1008 | 5002
8007 | Birthday surprise to manager | 2024-06-19 | 3000 | completed | 1009 | 5003
8008 | Camping to Khulna | 2024-06-02 | 11000 | under planning | 1010 | 5004
8009 | IT firm visit | 2024-09-01 | 4000 | under planning | 1010 | 5004
8010 | Yearly vacation | 2024-12-01 | 33000 | under planning | 1007 | 5001
8011 | New Year Party | 2023-12-05 | 80000 | completed | 1008 | 5001
8012 | Year Party | 2023-12-05 | 8000 | completed | 1007 | 5001
8013 | picnic | 2024-09-10 | 12000 | under planning | 1010 | 5001
ADD
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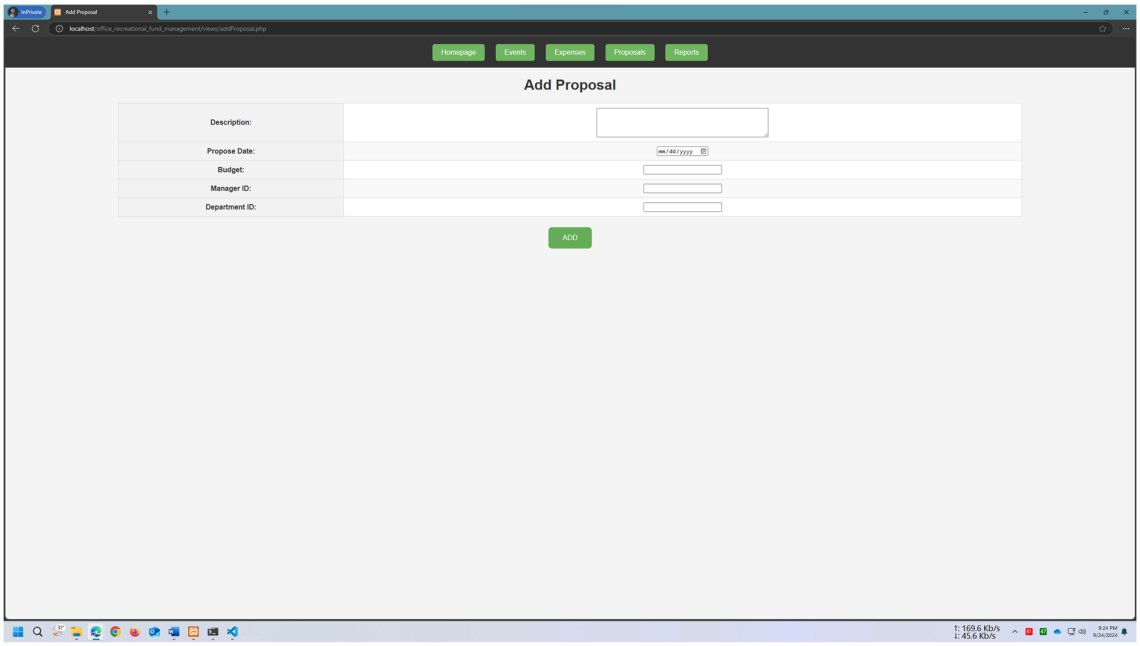
InPrivate
Add Proposal
localhost/office_recreational_fund_management/views/addProposal.php
Homepage
Events
Expenses
Proposals
Reports
Add Proposal
Description:
Propose Date:
mm/dd/yyyy
Budget:
Manager ID:
Department ID:
ADD
↑: 169.6 Kb/s
↓: 45.6 Kb/s
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9/24/2024