Use Case Forms
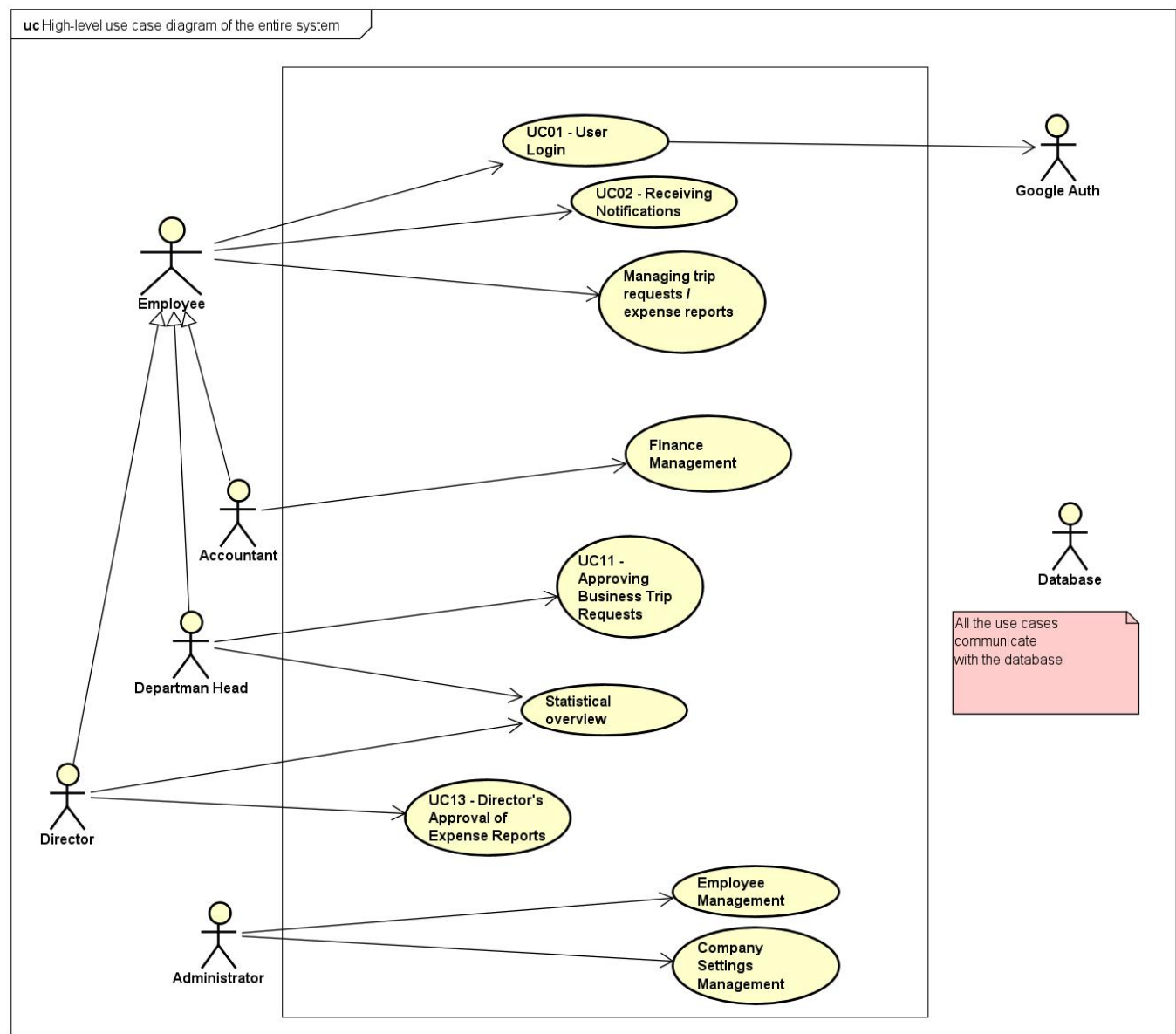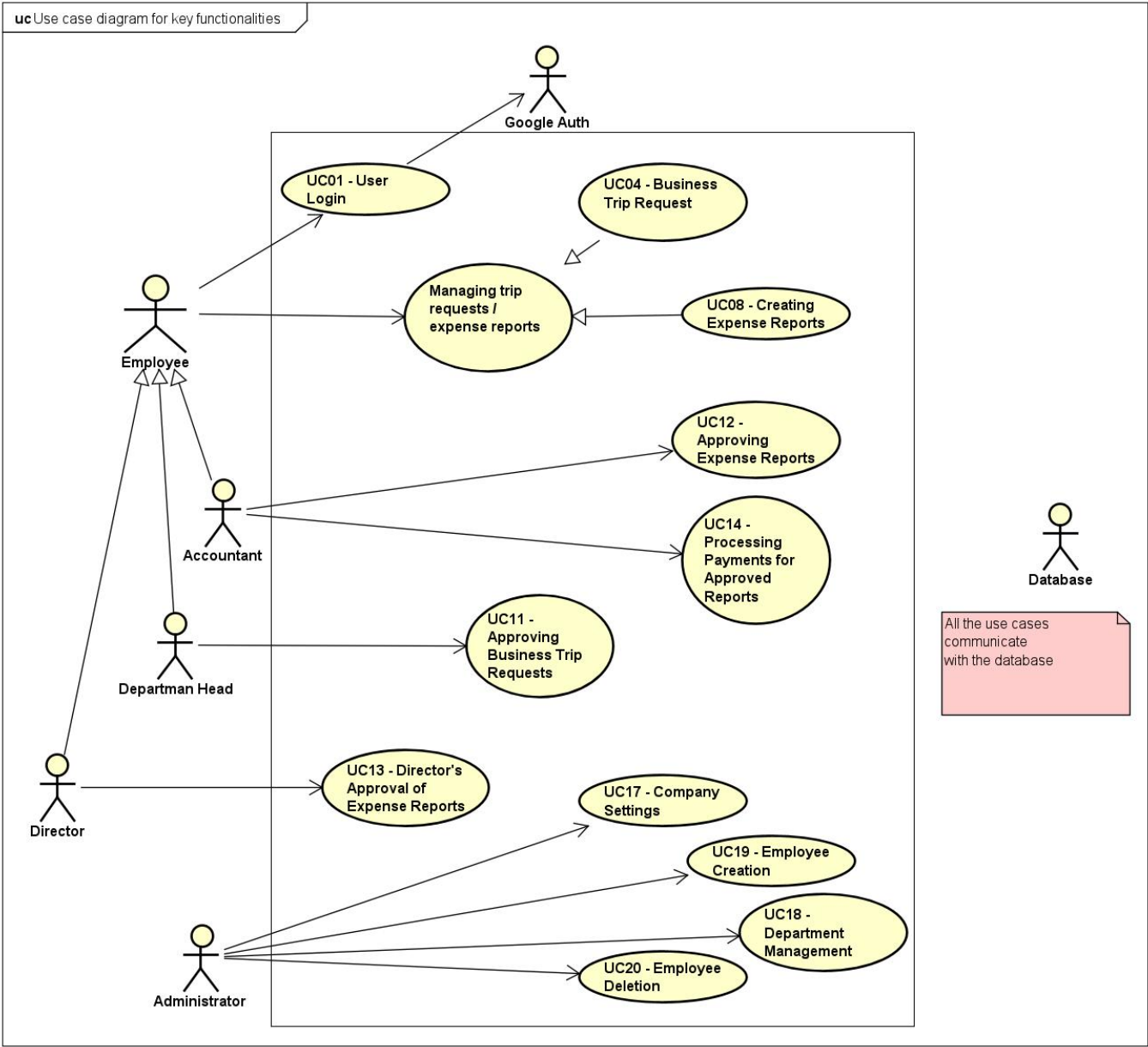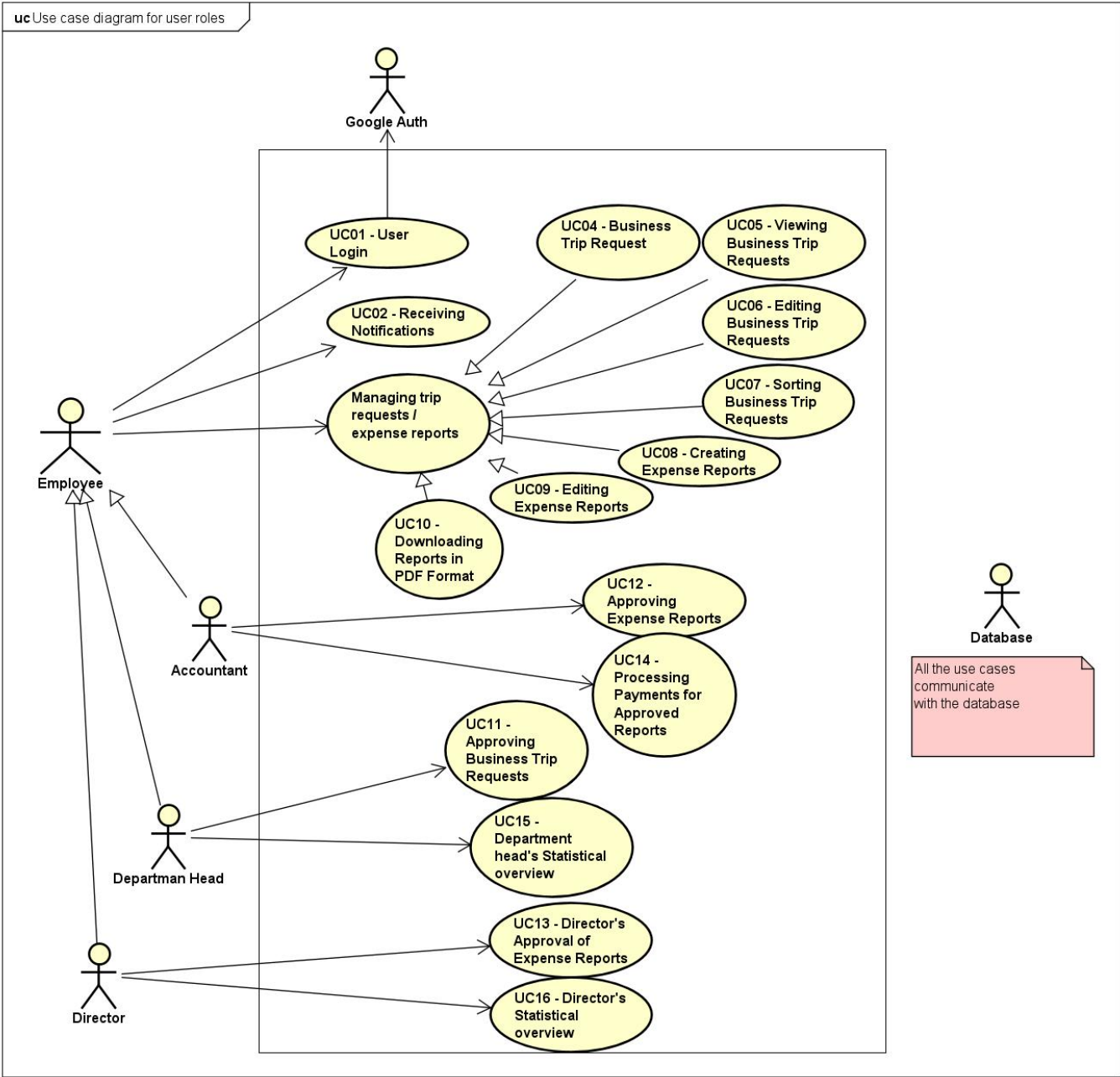
Use Case Diagrams

1. High-level use case diagram of the entire system
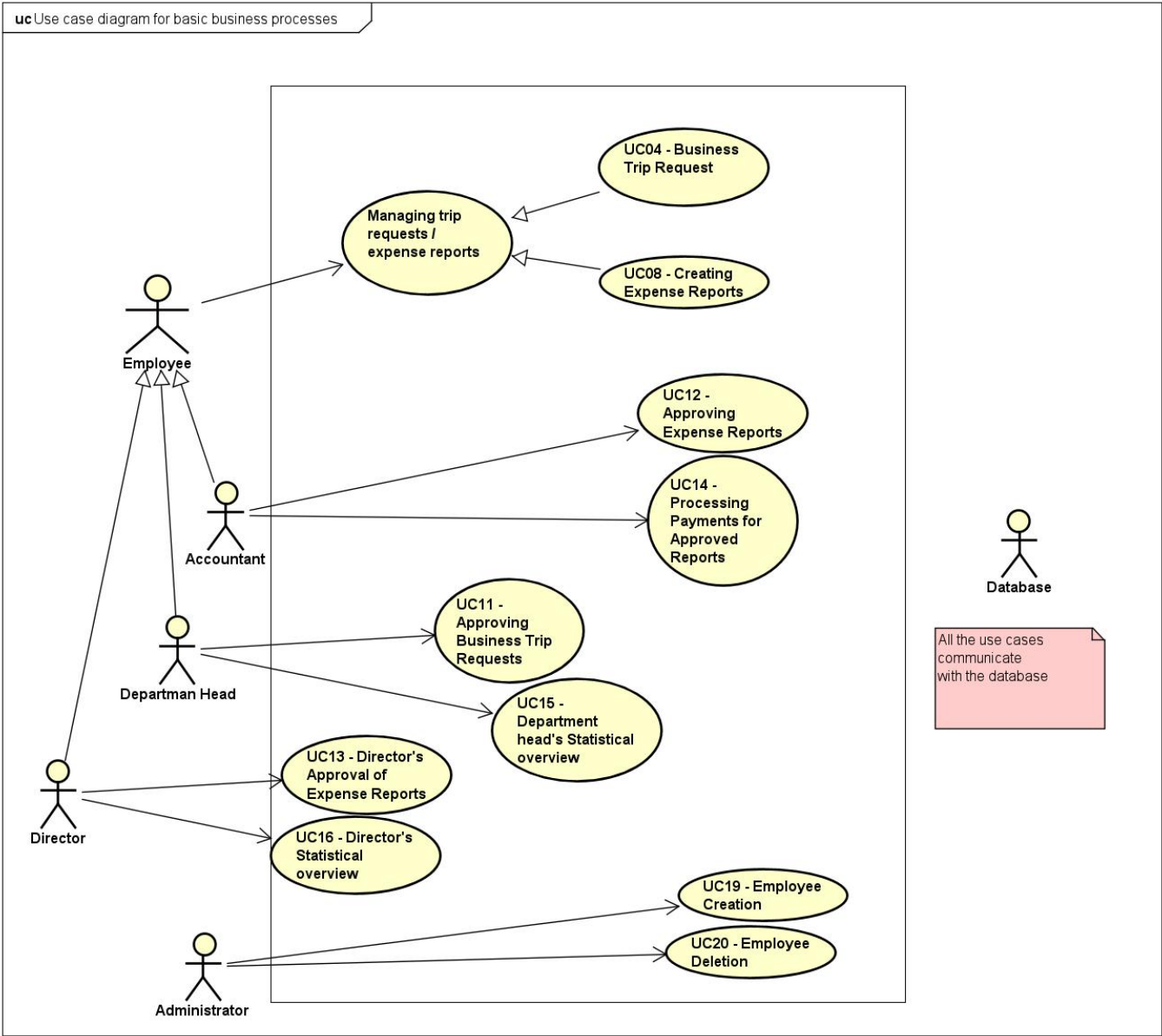

2. Use case diagram for key functionalities

## 3. Use case diagram for user roles

uc Use case diagram for user roles

Google Auth

UC01 - User Login

UC02 - Receiving Notifications

UC04 - Business Trip Request

UC05 - Viewing Business Trip Requests

UC06 - Editing Business Trip Requests

UC07 - Sorting Business Trip Requests

Managing trip requests / expense reports

UC08 - Creating Expense Reports

UC09 - Editing Expense Reports

UC10 - Downloading Reports in PDF Format

Employee

UC12 - Approving Expense Reports

UC14 - Processing Payments for Approved Reports

Accountant

UC11 - Approving Business Trip Requests

UC15 - Department head's Statistical overview

Departman Head

UC13 - Director's Approval of Expense Reports

UC16 - Director's Statistical overview

Director

Database

All the use cases communicate with the database

4. Use case diagram for basic business processes

5. Use case diagram for critical systems and integrations
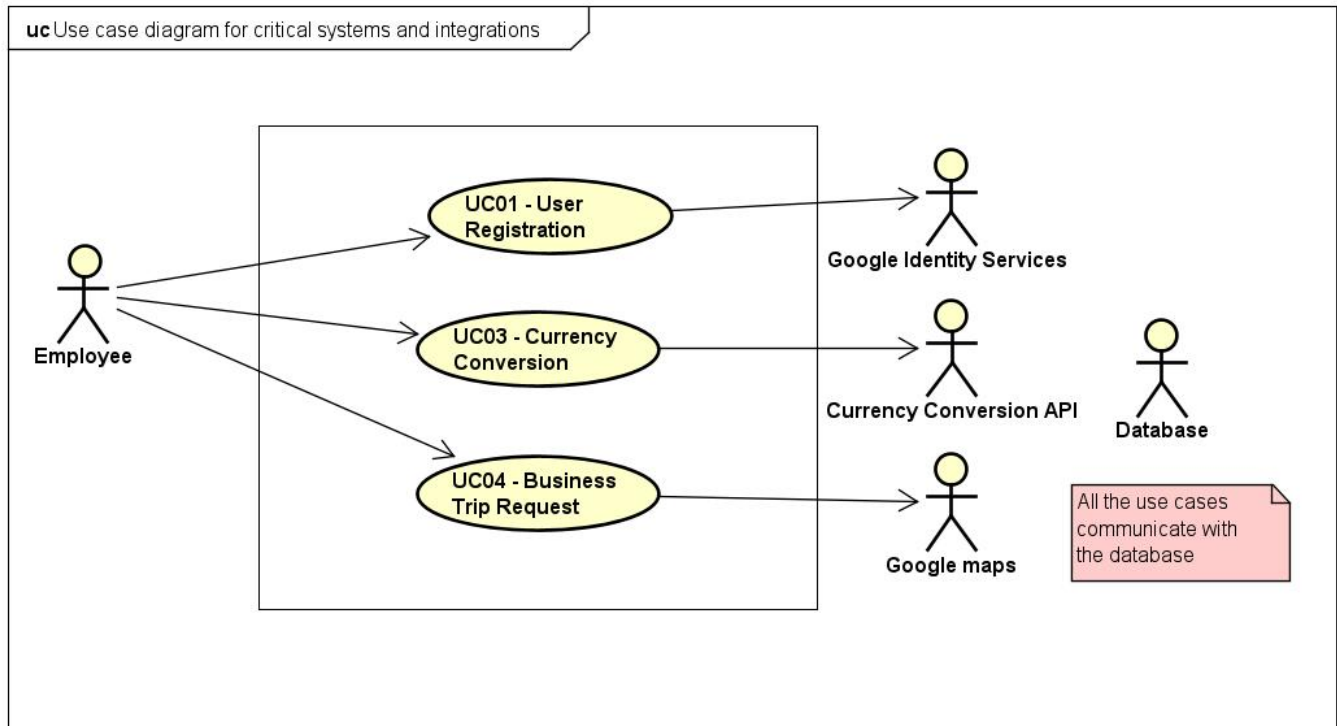
Description of Use Case Forms

UC01 - User Login

Main Actor: Employee (Department Head, Accountant, Director)
Objective: To let a user access the system.
Participants: Database, Google Identity Services API
Condition: The user has received an email link to access the login page, where all data is pre-filled.

Main Flow

1. The user follows the login link in the email.
2. The system displays the login page with pre-filled data (email, role, department).
3. The user logs in with his Google e-mail.
4. The user is redirected to the application's main page.

UC02 - Receiving Notifications

Main Actor: Employee (Department Head, Accountant, Director)
Objective: Provide status notifications for business trip requests and expense reports.
Participants: Database
Condition: The user is logged in.

Main Flow

1. **Employee Notifications**:

- When the business trip request changes to "Travel Approved," the system notifies the employee.
- When the request status changes to "Pending Director Approval," the system notifies the employee.
- As the request progresses to "Awaiting Payment," the system sends the updated status.
- Upon payment, the employee is notified of the transaction.

2. **Department Head Notifications**:

- A notification is sent when a new business trip request requires approval.

3. **Accountant Notifications**:

- Upon "Travel Approved" status, the accountant receives a notification to review expenses.
- When director approval is pending, the accountant is notified.

4. **Director Notifications**:

- A notification is sent when expense reports await director approval.

Possible Deviations

- **For Employee**:
  - If the department head rejects the trip request:
    - Status changes to "Department Approval Rejected."
    - The system notifies the employee.
  - If the accountant rejects the expense approval:
    - Status changes to "Expense Approval Rejected."
    - The system notifies the employee.
  - If the director rejects the expense report:
    - Status changes to "Director Approval Rejected."
    - The system notifies the employee.

UC03 - Currency Conversion

Main Actor: Employee
Objective: Convert currencies to euros for business trip expenses.
Participants: Currency Conversion API, Database
Condition: User is logged in and has a receipt with foreign currency values.

Main Flow

1. The employee navigates to the "Trip Requests" section.
2. The employee creates an expense report.
3. The employee adds an expense item.
4. The employee selects the currency from a dropdown.
5. The system retrieves the exchange rate from the API.
6. The system converts the foreign currency amount to euros.

Deviation

- If the API is unavailable, the system prompts the user to retry.

UC04 – Business Trip Request

Main Actor: Employee
Objective: Submit a business trip request.
Participants: Database
Condition: The user is logged in.

Main Flow

1. The employee navigates to the "Trip Requests" page.
2. The employee selects "Create Request."
3. The employee enters trip details (destination, date, time, reason).
4. The system displays the route via Google Maps.
5. The employee submits the request.
6. The system saves the request in the database.

Deviation

- If the Google Maps API fails, the system allows submission without route information.

UC05 – Viewing Employee's Business Trip Requests

Main Actor: Employee
Objective: View submitted trip requests.
Participants: Database
Condition: User is logged in, and requests exist.

Main Flow

1. The employee navigates to the "Trip Requests" section.
2. The system displays a list of the employee's submitted requests.
3. The employee views details of each request.

UC06 – Editing Employee's Business Trip Requests

Main Actor: Employee
Objective: Edit submitted trip requests.
Participants: Database
Condition: User is logged in, and the request exists.

Main Flow

1. If the status is "Department Approval Rejected," the employee can edit.

2. The employee navigates to "Trip Requests" and selects "Edit."

3. The employee can modify trip details.

4. If the location changes, the system updates the route.

5. The system saves the updated request.

6. Status changes to "Pending Department Approval."

UC07 – Sorting Employee's Business Trip Requests

Main Actor: Employee

Objective: Sort trip requests by status.

Participants: Database

Condition: User is logged in, and requests exist.

Main Flow

1. The employee navigates to "Trip Requests."

2. The employee sorts requests by status.

UC08 – Creating Expense Reports

Main Actor: Employee

Objective: Create expense reports.

Participants: Database, Currency Conversion API

Condition: Business trip status is "Travel Approved."

Main Flow

1. The employee navigates to the "Trip Requests" page.

2. The employee selects "Create Expense Report."

3. The employee uploads receipts and fills in expense details.

4. The employee submits the report.

UC09 – Editing Expense Reports

Main Actor: Employee

Objective: Edit expense reports.

Participants: Database, Currency Conversion API

Condition: Status is "Expense Approval Rejected."

Main Flow

1. The employee selects "Edit Expense Report."

2. The employee modifies necessary details and resubmits.

UC10 – Downloading Reports in PDF Format

Main Actor: Employee (Department Head, Accountant, Director)

Objective: Download business trip or expense reports.

Participants: Database

Condition: User is logged in, and reports exist.

Main Flow

1. The user selects a report type (trip or expense).
2. The system generates and prompts the user to download a PDF.

UC11 - Approving Business Trip Requests

Main Actor: Department Head

Objective: Approve or reject business trip requests.

Participants: Database

Condition: Department Head is logged in, and requests require approval.

Main Flow

1. Department Head navigates to "Pending Trip Requests."
2. Department Head reviews each request.
3. Department Head selects "Approve" or "Reject."
4. System updates request status (to "Travel Approved" or "Department Approval Rejected").

Deviation

- If rejected, the system prompts for a rejection reason.

UC12 - Approving Expense Reports

Main Actor: Accountant

Objective: Approve or reject submitted expense reports.

Participants: Database

Condition: Accountant is logged in, and reports require approval.

Main Flow

1. Accountant navigates to "Pending Expense Reports."
2. Accountant reviews each report and associated receipts.
3. Accountant selects "Approve" or "Reject."
4. System updates report status (to "Awaiting Director Approval" or "Expense Approval Rejected").

Deviation

- If rejected, the system prompts for a rejection reason.

UC13 - Director's Approval of Expense Reports

Main Actor: Director
Objective: Approve or reject expense reports requiring final approval.
Participants: Database
Condition: Director is logged in, and reports are in "Awaiting Director Approval."

Main Flow

1. Director navigates to "Expense Reports."
2. Director reviews each report.
3. Director selects "Approve" or "Reject."
4. System updates report status (to "Awaiting Payment" or "Director Approval Rejected").

Deviation

- If rejected, the system prompts for a rejection reason.

UC14 - Processing Payments for Approved Reports

Main Actor: Accountant
Objective: Process payments for director-approved expense reports.
Participants: Database
Condition: Accountant is logged in, and reports are in "Awaiting Payment."

Main Flow

1. Accountant navigates to "Reports Awaiting Payment."
2. Accountant confirms payment.
3. System updates status to "Paid."
4. System notifies the employee of payment completion.

UC15 - Department head's Statistical overview

Main Actor: Department head
Objective: The department head is able to see statistical overviews of their department.
Participants: Database
Condition: The department head is logged in.

Main Flow:

1. The department head navigates to the "Statistics" page.
2. The department head has the option to:
    - Select one of the following statistics: - "Cost per month" - "Trips per month" - Specify the year for the selected statistics.
    - Choose the statistic Per employee and define the desired data range for that statistic.

UC16 - Director's Statistical overview

Main actor: Director
Objective: The director is able to see statistical overviews of the whole firm.
Participants: Database
Condition: The director is logged in.

Main Flow:

1. The director navigates to/is on the "Statistics" section.
2. a) The director chooses the following statistics: "Cost per month", "Trips per month" and the year for that statistics.
   b) The director chooses a statistic "Per employee" and the data range for that statistic.

UC17 - Company Settings

Main Actor: Administrator
Objective: Modify the company's configuration settings.
Participants: Database
Precondition: The administrator has access to the company settings.

Main Flow

1. The administrator accesses the company settings.
2. The administrator modifies configurable fields, including:
   - Company address
   - Price per km
   - IBAN
   - Daily wage per country
3. The administrator selects **Save** to confirm changes.

UC18 - Department Management

Main Actor: Administrator
Objective: Create, edit, or delete departments within the company.
Participants: Database
Precondition: The administrator has access to the company settings.

Main Flow

1. The administrator selects **Create Department.**
2. The system prompts the administrator to enter the department name.
3. The administrator selects **Save** to confirm the new department or **Cancel** to discard.
4. Once created, the administrator can:
   - Edit the department (e.g., change the name).
   - Delete the department, provided it has no assigned employees.

UC19 - Employee Creation

Main Actor: Administrator

Objective: Create a new employee profile.

Participants: Database

Precondition: The administrator has access to company settings, and at least one department exists.

Main Flow

1. The administrator selects **Invite Employee.**
2. The system presents a form where the administrator enters the employee's details (e.g., email, first name, last name, IBAN, department, role).
3. The administrator selects **Save** to issue the invitation or **Cancel** to discard.
4. Upon registration, the employee profile is available in the system for further management by the administrator.

UC20 – Employee Deletion

Main Actor: Administrator

Objective: Remove an employee from the company.

Participants: Database

Precondition: The administrator has access to company settings, and at least one employee exists.

Main Flow

1. The administrator navigates to the **Department** page and selects the relevant department.
2. The system displays all employees in the department.
3. The administrator selects **Delete** next to the chosen employee.
4. The employee's profile is removed from the system.

Deviation

3. a) If the selected employee is the only one in the department:
   - The system displays an alert indicating that the administrator cannot delete the last remaining employee in a department.

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Sequence Diagrams

1. Business Trip Request Sequence Diagram
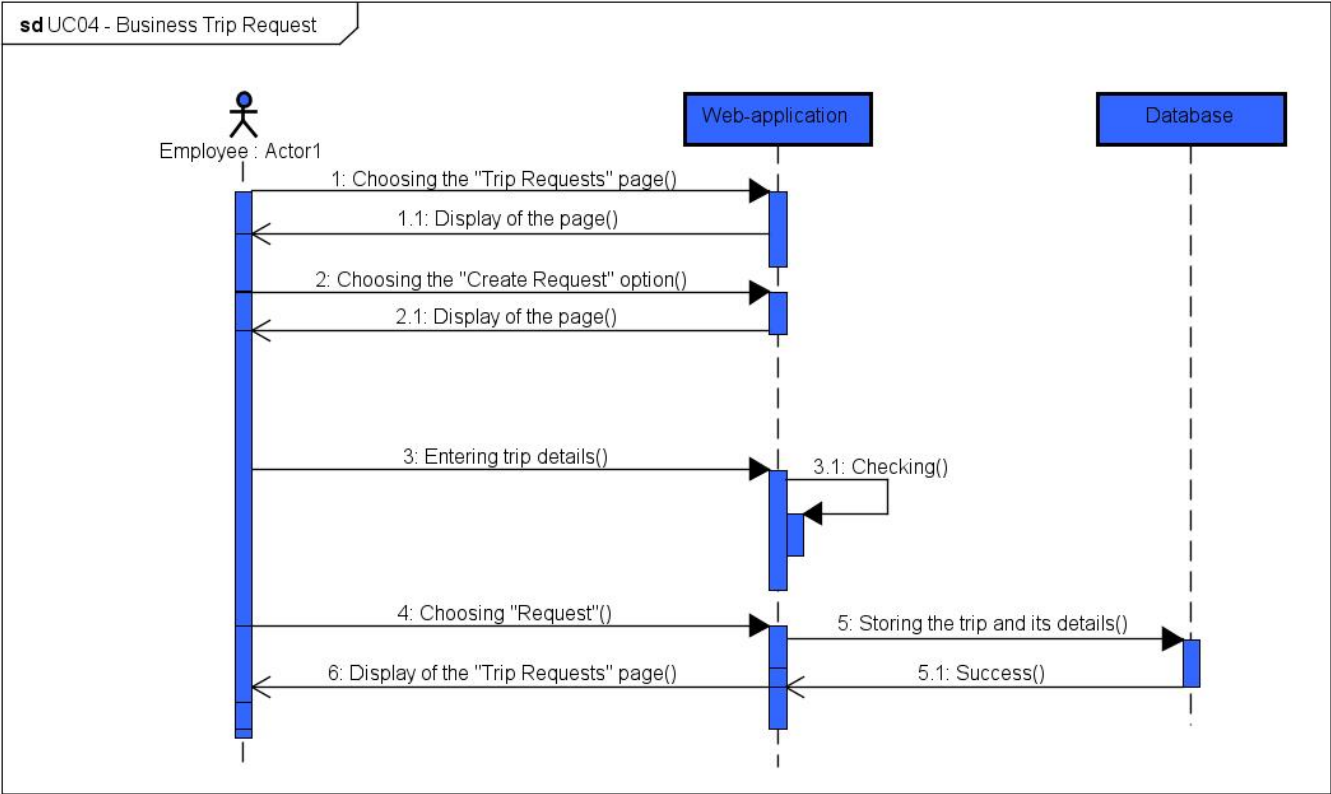
Description:

This diagram shows the process for an employee to submit a business trip request through a web application. The employee begins by navigating to the "Trip Requests" page and selecting the "Create Request" option. They then enter the trip details in a form, such as destination and dates. The application validates each entry to ensure completeness before allowing submission. Once the form is completed and submitted, the system stores the trip request in the database and confirms success to the employee by redirecting them back to the "Trip Requests" page. This sequence captures key interactions, ensuring data accuracy and providing feedback for a smooth user experience.

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2. Creating Expense Reports Sequence Diagram
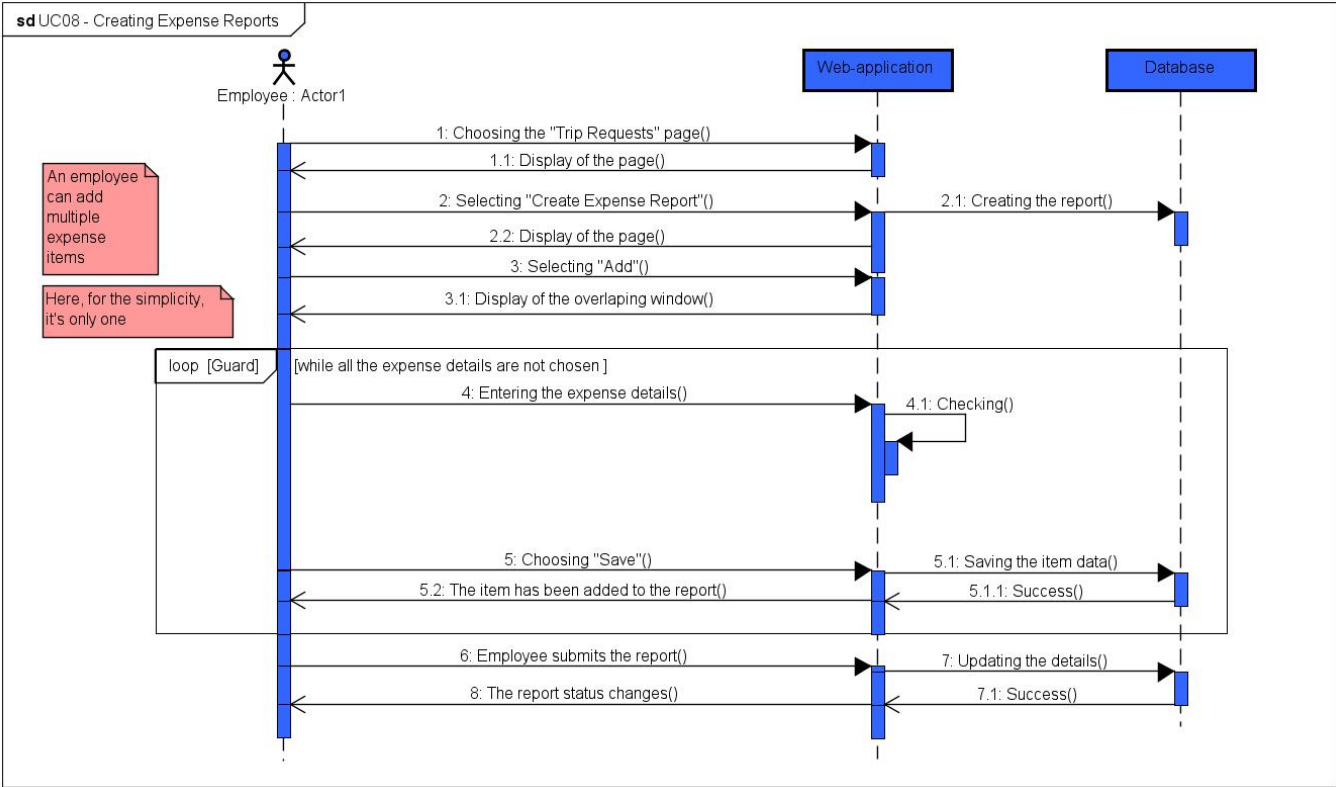
Description:

This diagram outlines the steps an employee takes to create an expense report related to a trip. The employee begins by selecting "Create Expense Report" and adds individual expenses one at a time. The application validates each entry, ensuring required information is provided before adding the expense to the report. Once all expenses are recorded, the employee saves the report, triggering the application to store these details in the database. Upon final submission, the report status is updated, indicating it's ready for approval. This sequence highlights the system's support for detailed, multi-item expense reporting with robust data validation.

3. Director's Approval of Expense Reports Sequence Diagram
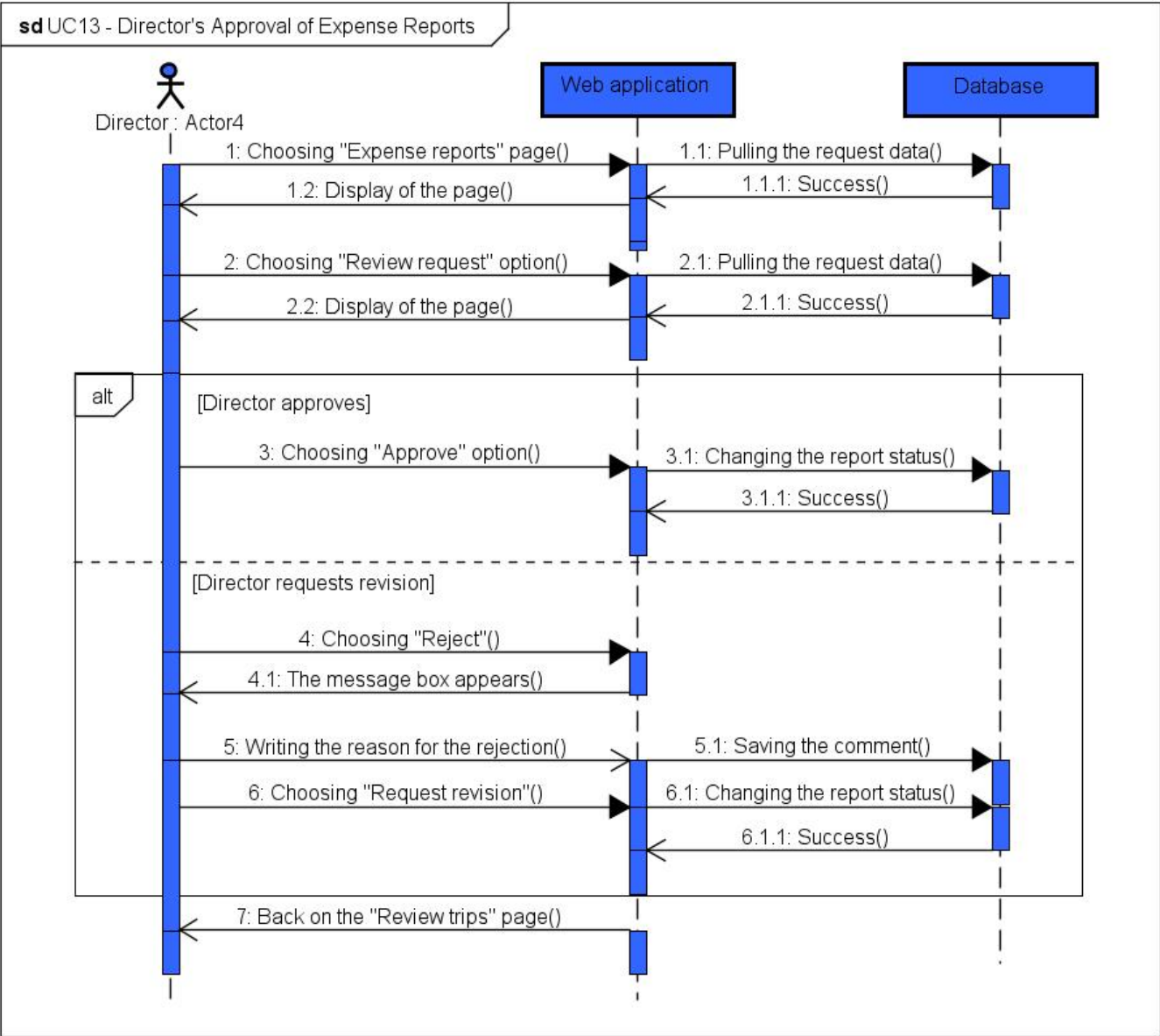
Description:

This diagram represents the director's approval workflow for expense reports. The director reviews the report from the "Expense Reports" page, with options to either approve or request a revision. Upon approval, the application updates the report status to reflect its new state in the database. If a revision is required, the director can reject the report, provide a reason, and request changes. The database updates the report's status accordingly. This sequence illustrates the director's review process, providing flexibility to approve or send back reports for adjustment while maintaining an audit trail in the database.

Verification of Inclusion of Key Functionalities in Use Cases

Use Case	Functional Requirements Covered
UC01 - User Login	F-001

Use Case	Functional Requirements Covered
UC02 - Receiving Notifications	F-002
UC03 - Currency Conversion	F-003
UC04 - Business Trip Request	F-004
UC05 - Viewing Employee's Business Trip Requests	F-005
UC06 - Editing Employee's Business Trip Requests	F-005
UC07 - Sorting Employee's Business Trip Requests	F-005
UC08 - Creating Expense Reports	F-006
UC09 - Editing Expense Reports	F-006
UC10 - Downloading Reports in PDF Format	F-007, F-011, F-015, F-018
UC11 - Approving Business Trip Requests	F-009
UC12 - Approving Expense Reports	F-012
UC13 - Director's Approval of Expense Reports	F-016
UC14 - Processing Payments for Approved Reports	F-013, F-014
UC15 - Department Head's Statistical Overview	F-010
UC16 - Director's Statistical Overview	F-017
UC17 - Company Settings	F-020
UC18 - Department Management	F-020
UC19 - Employee Creation	F-020
UC20 - Employee Deletion	F-020