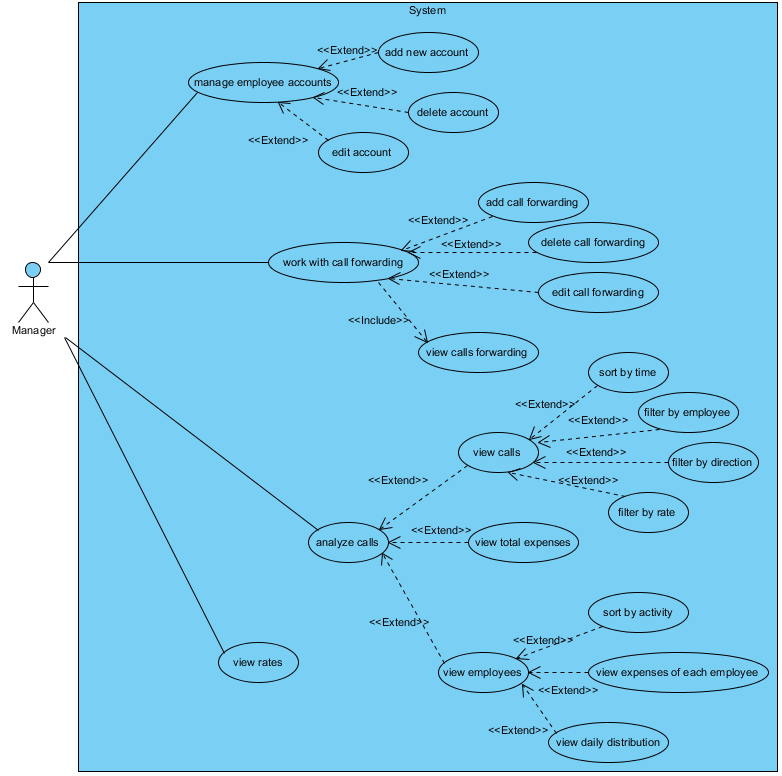
**1. Description of DB**

DB contains 5 tables: Accouts, Call\_logs, Numbers, Rates, Call\_forwarding. This DB can be used in system that manages an automatic telephone station. It describes employees of company (operators): name, number of phone; calls: who called whom and when; rates: how much each of them costs; call forwarding. It can be used to manage accounts, to set up call forwarding and to analyze company calls using statistical data.

**2. Use Case Diagram**

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**3. User Stories**

1) As a manager, I want to know information about most active employees, so I can award them a bonus.

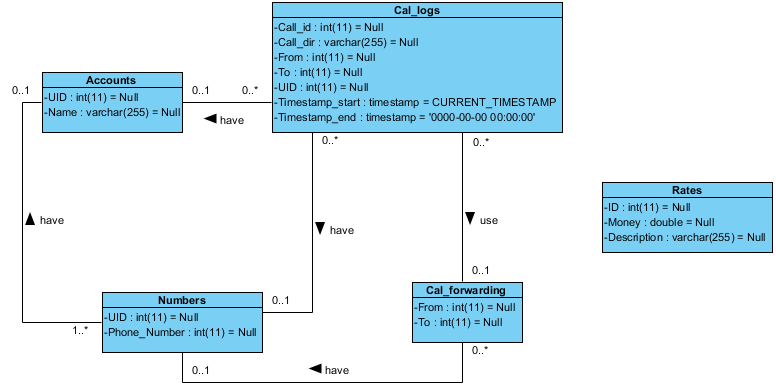
2) As a manager, I want to manage employee accounts, so I can store current data.

3) As a manager, I want to view total expenses for certain period of time , so I can control company finances and analyze statistical data.

4) As a manager, I want to view information about rates, so I can estimate the system payback.

5) As a manager, I want to know count of incoming and outgoing calls, so I can understand how well the new advertising campaign works.

**4. Model of DB: class diagram**



**5. SQL queries**

**1) Total expenses**

SELECT round(SUM(timestampdiff(second, Timestamp\_start, Timestamp\_end)\*money),2) AS 'total expenses'

FROM Rates, Call\_logs LEFT JOIN Call\_forwarding ON Call\_logs.To=Call\_forwarding.From

WHERE ((Call\_logs.To NOT IN (SELECT Call\_forwarding.From FROM Call\_forwarding)) AND (Call\_logs.To IN (SELECT Numbers.Phone\_Number FROM Numbers)) OR (Call\_logs.To IN (SELECT Call\_forwarding.From FROM Call\_forwarding)) AND (Call\_forwarding.To IN (SELECT Numbers.Phone\_Number FROM Numbers))) AND Call\_logs.Call\_dir='out' AND money=(SELECT Rates.Money FROM Rates WHERE Rates.ID='1') OR

Call\_logs.Call\_dir='in' AND money=(SELECT Rates.Money FROM Rates WHERE Rates.ID='2') OR

((Call\_logs.To NOT IN (SELECT Call\_forwarding.From FROM Call\_forwarding)) AND (Call\_logs.To NOT IN (SELECT Numbers.Phone\_Number FROM Numbers)) OR (Call\_logs.To IN (SELECT Call\_forwarding.From FROM Call\_forwarding)) AND (Call\_forwarding.To NOT IN (SELECT numbers.Phone\_Number FROM Numbers))) AND Call\_logs.Call\_dir='out' AND money=(SELECT Rates.Money FROM Rates WHERE Rates.ID='3')

**Results for Query 1:**



**2) Top 10: most active users**

SELECT Call\_logs.UID, Accounts.Name, SUM(timestampdiff(second, Timestamp\_start, Timestamp\_end)) AS 'total\_time, sec'

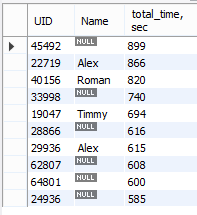
FROM Call\_logs LEFT JOIN Accounts ON Accounts.UID=Call\_logs.UID

GROUP BY Call\_logs.UID

ORDER BY SUM(timestampdiff(second, Timestamp\_start, Timestamp\_end)) DESC

LIMIT 10

**Results for Query 2:**



**3) Top 10: users with highest chargers and daily distribution for each of them**

SELECT Call\_logs.UID, round(SUM(timestampdiff(second, Timestamp\_start, Timestamp\_end)\*money),2) AS 'charges', SUM(timestampdiff(second, Timestamp\_start, Timestamp\_end)) AS 'total\_time'

FROM Rates, Call\_logs LEFT JOIN Call\_forwarding ON Call\_logs.To=Call\_forwarding.From

WHERE ((Call\_logs.To NOT IN (SELECT Call\_forwarding.From FROM Call\_forwarding)) AND (Call\_logs.To IN (SELECT Numbers.Phone\_Number FROM Numbers)) OR (Call\_logs.To IN (SELECT Call\_forwarding.From FROM Call\_forwarding)) AND (Call\_forwarding.To IN (SELECT Numbers.Phone\_Number FROM Numbers))) AND Call\_logs.Call\_dir='out' AND money=(SELECT rates.Money FROM Rates WHERE Rates.ID='1') OR

Call\_logs.Call\_dir='in' AND money=(SELECT Rates.Money FROM Rates WHERE Rates.ID='2') OR

((Call\_logs.To NOT IN (SELECT Call\_forwarding.From FROM Call\_forwarding)) AND (Call\_logs.To NOT IN (SELECT Numbers.Phone\_Number FROM Numbers)) OR (Call\_logs.To IN (SELECT Call\_forwarding.From FROM Call\_forwarding)) AND (Call\_forwarding.To NOT IN (SELECT Numbers.Phone\_Number FROM Numbers))) AND Call\_logs.Call\_dir='out' AND money=(SELECT rates.Money FROM Rates WHERE Rates.ID='3')

GROUP BY Call\_logs.UID

ORDER BY round(SUM(timestampdiff(second, Timestamp\_start, Timestamp\_end)\*money),2) DESC

LIMIT 10

**Results for Query 3:**

