



Expense Calculator

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Project Overview



Expense Calculator using a Python GUI and MySQL Database

Intended functionality

- Allow users to log into/create a user and an account for tracking expenses
- Allow users to create transactions and store them appropriately in the database
- Allow users to retrieve a history of all transactions related to that account
- Allow users to visualize their account activity using graphing windows

Project Implementation

Python Version: 3.9.9

Project Dependencies

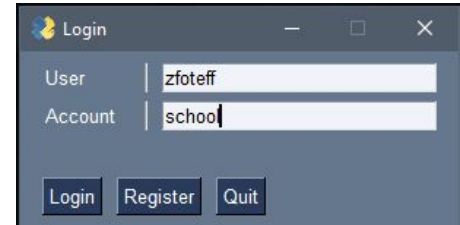
- PySimpleGUI
- Matplotlib
- Logging
- Os

Running the project:

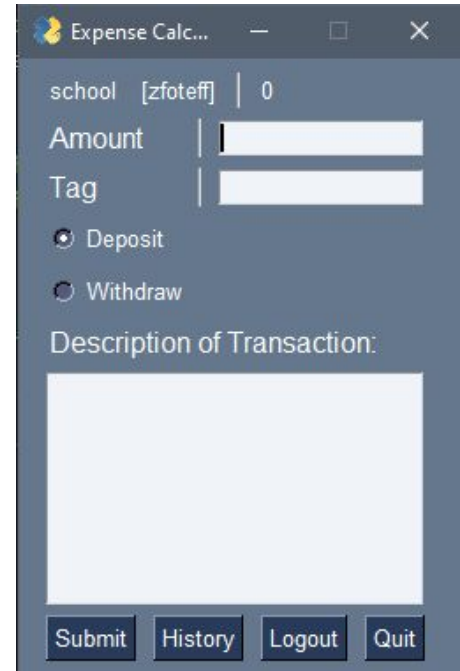
```
<user>@<project_dir> $ python3 ExpenseCalculator.py
```

Running the tests:

```
<user>@<project_dir>/tests $ python3 test_db.py
```

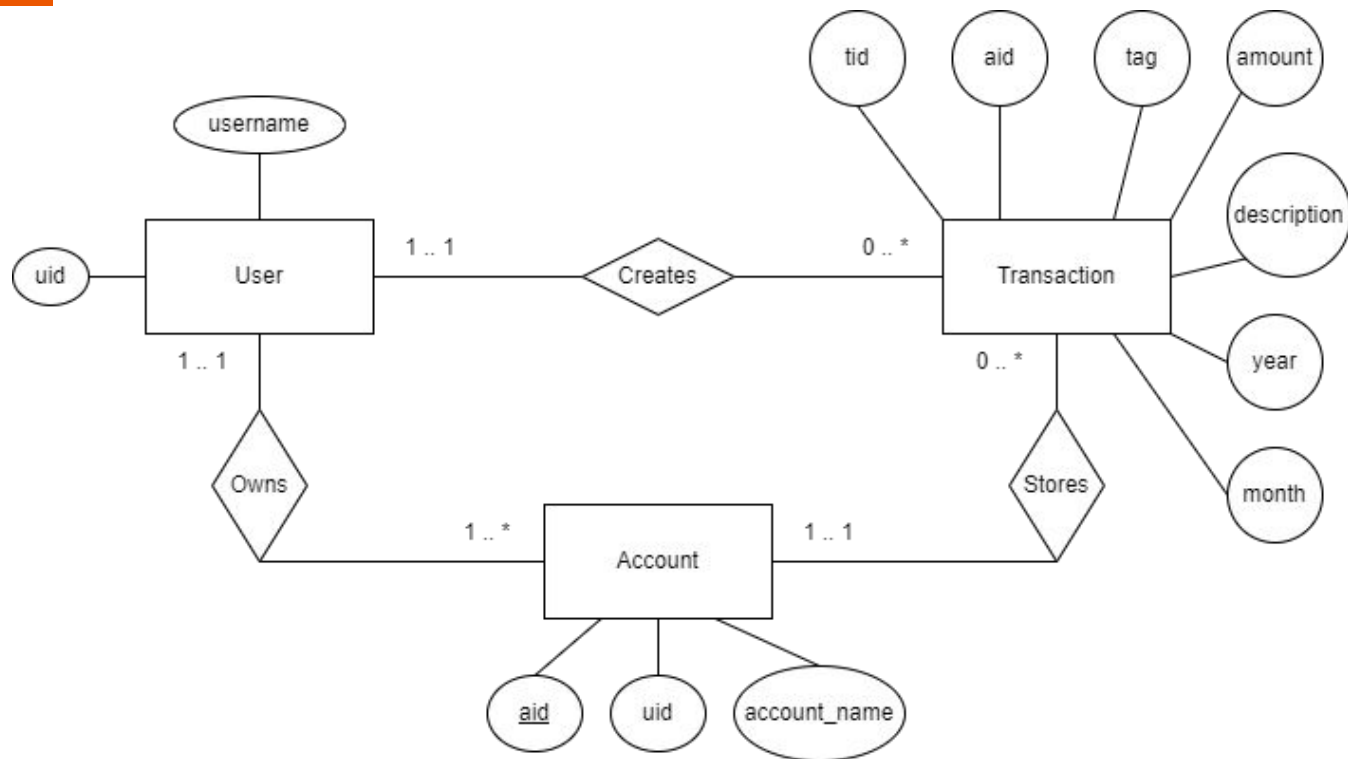


A screenshot of a 'Login' window. It has a title bar with a yellow icon, a minus sign, a maximize button, and a close button. The window contains two input fields: 'User' with the text 'zfoteff' and 'Account' with the text 'school'. Below the input fields are three buttons: 'Login', 'Register', and 'Quit'.



A screenshot of an 'Expense Calc...' window. It has a title bar with a yellow icon, a minus sign, a maximize button, and a close button. The window contains a label 'school [zfoteff]' followed by a vertical bar and the number '0'. Below this are two input fields: 'Amount' and 'Tag'. There are two radio buttons: 'Deposit' (selected) and 'Withdraw'. Below the radio buttons is a label 'Description of Transaction:' followed by a large empty text area. At the bottom are four buttons: 'Submit', 'History', 'Logout', and 'Quit'.

Final ERD Diagram



OLTP Functions



- Deposit funds into account and store record of transaction in database
- Withdraw funds from account and store record of transaction in database
- Allow users to register a new user
- Allow users to register accounts for an existing user

OLAP Features



- Retrieve the total number of transactions by month for a given account
- Retrieve the account balance by month for a given account
- Retrieve the the total account balance and update it on the GUI screen after every new transaction
- Allow users to retrieve a history of previous transactions (max 50)

OLAP Queries

1. Get Account History

```
SELECT
    t.tag, t.amount, t.description
FROM
    account as a JOIN
    transactions as t USING (aid)
WHERE
    a.aid= {AID}
ORDER BY
    t.tid DESC
LIMIT 50
```

2. Get transactions by month

```
SELECT
    t.month, COUNT(t.amount)
FROM
    transactions as t JOIN
    account as a USING (aid)
WHERE
    a.aid={AID} and
    t.year={YEAR}
GROUP BY
    t.month;
```

3. Get total expenses by month

```
SELECT
    t.month, SUM(t.amount)
FROM
    transactions as t JOIN
    account as a USING (aid)
WHERE
    a.aid={AID} and
    t.year={YEAR}
GROUP BY
    t.month;
```

DEMO

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