PalPay - User Guide

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1. Introduction

PalPay is for those who **prefer to use a desktop app for managing personal finances**. More importantly, PalPay is **optimized for those who prefer to work with a Command Line Interface** (CLI) while still having the benefits of a Graphical User Interface (GUI). If you can type fast, PalPay can get your finance management tasks done faster than traditional GUI apps.

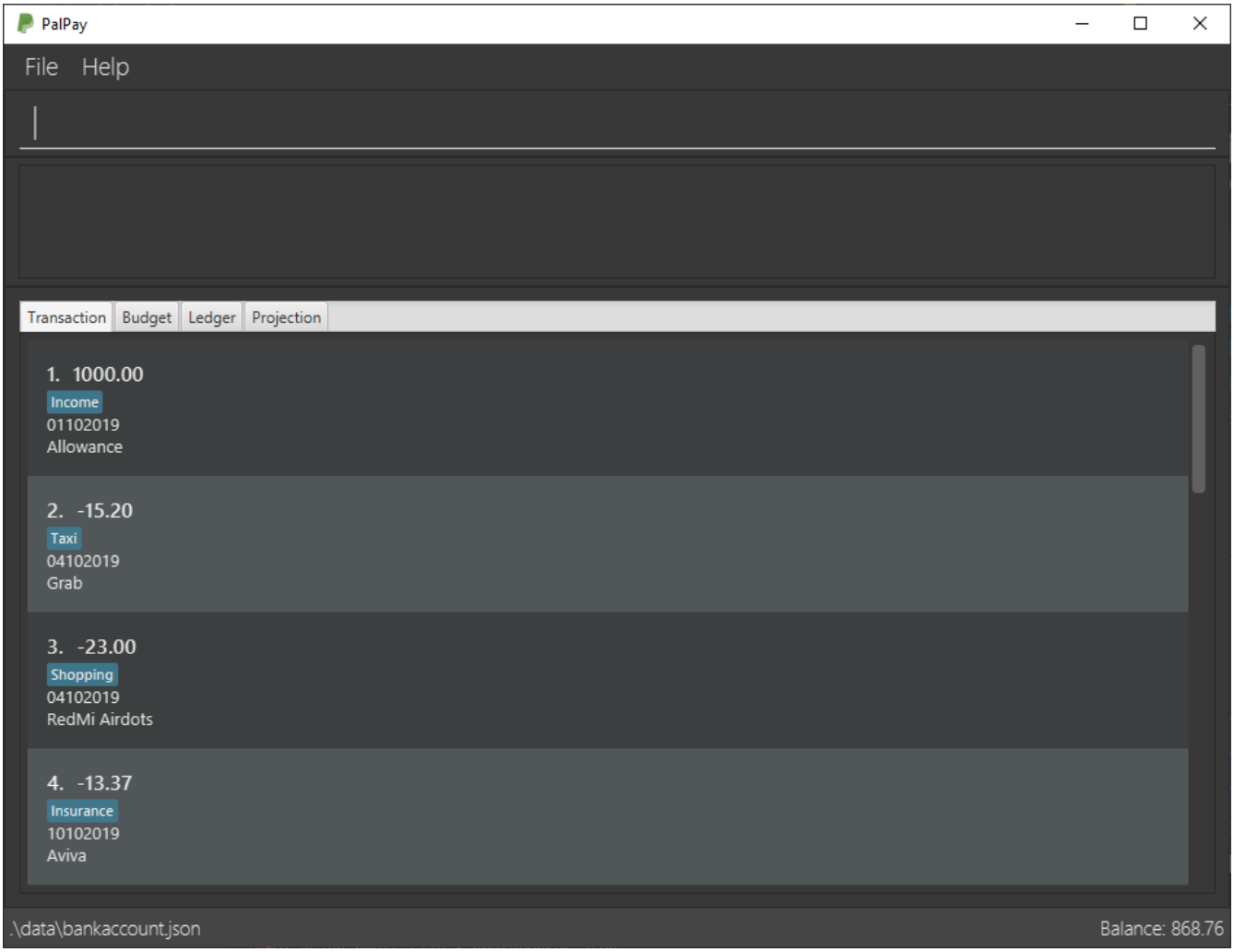


Figure 1. PalPay's Graphical User Interface

This User Guide is written for the users of PalPay as an introductory document of the application. You are strongly encouraged to read this document before using the application to enjoy the full functionality of the application. Ready to start your journey to financial freedom? Jump to Section 2, "Quick Start" to get started. Enjoy!

2. Quick Start

1. Ensure you have Java 11 or above installed in your Computer.
2. Download the latest `PalPay.jar` here.
3. Copy the file to the folder you want to use as the home folder for your finance manager.
4. Double-click the file to start the app. The GUI should appear within a few seconds.
5. Type your command in the command box and press `Enter` to execute it.
   Example: Typing **`help`** and pressing `Enter` will open the help window.
6. Some example commands you can try:
   - `view transaction` : shows list of your transactions.
   - `in $/100 n/allowance d/31102019 c/mother` : adds an allowance from "mother" with value "$100" to PalPay.
   - `out $/3 n/pie d/19112019 c/food` : adds an expenditure to your personal finance of "3"

dollars with the category "food" and the description "pie".

- `exit` : exits the app

7. Refer to Section 4, “Commands” for details of each command.

3. Features

3.1. Transaction

The *Transaction* feature represents the bread and butter logging of incomes and expenditures. PalPay will tabulate and display the overall balance to give users a better insight on their spending and saving habits.

Transactions consists of:

1. `in` : logs an income statement
2. `out` : logs an expenditure statement

3.2. Budgets

The *Budget* feature represent the budget to be set until a stipulated deadline for a certain category. As you make transactions of particular category, the budget with the same category will be adjusted accordingly.

Budget command consists of:

1. `set` : creates a budget for a category

3.3. Ledger

The *Ledger* feature allows you to track outstanding balances when you split a bill with your friends and when they pay you back.

Ledger commands consist of:

1. `split` : splits a bill between friends
2. `receive` : logs a single payment from a friend

3.4. Projection

By using the *Projection* feature, you can project your: The *Projection* feature allows you to project your:

1. Account Balance
2. Budget Deficits / Surpluses

Projection commands consist of:

1. `project`: casts and stores a projection of your future balance and budget states
2. `display`: renders a graphical depiction of a specified projection

These projections are cast upon a specified `DATE`, and optionally, a specified `CATEGORY`. Upon casting a projection, it is automatically stored and thereafter accessible through the *Projection* tab via the `view` command (see **View**).

4. Commands

Command Format :

- Words in `UPPER_CASE` are the parameters to be supplied by the user.
  Example: For `in $/AMOUNT n/ITEM d/DATE`, `AMOUNT`, `ITEM` and `DATE` are parameters which can be used as `in $/300 n/concert d/19112019`.
- Items in square brackets are optional.
  Example: `n/ITEM [c/CATEGORY]` can be used as `n/coke c/drinks` or as `n/coke`.
- Items with ⋯ after them can be used multiple times including zero times.
  Example: `[n/NAME]⋯` can be used as (i.e. 0 times), `n/Amy`, `n/Amy n/Betty` etc.
- Parameters can be in any order.
  Example: If the command specifies `$/AMOUNT n/ITEM`, `n/ITEM $/AMOUNT` is also acceptable.
- Parameters that need to be concatenated together are represented as `PARAM+PARAM`.
  Example: `TYPE+INDEX` refers to joining `TYPE` and `INDEX` together without a space, such as `t1`.
- **Parameter Constraints** :

Parameter	Prefix	Constraints
AMOUNT	$/	- a valid amount between 0 and 1000000 dollars exclusive - a valid amount up to 2 decimal places
DATE	d/	- a valid date with the format DDMMYY in the Gregorian calendar
DESCRIPTION	n/	- a valid description with alphanumeric chacracters
CATEGORY	c/	- a valid category with alphanumeric characters without space
SHARES	s/	- a valid positive integer
TYPE		- a valid type containing one character `t` : Transaction `b` : Budget `l` : Ledger `p` : Projection
INDEX		- a valid entry number in the list

4.1. Logging Income : `in`

Have an income that you need to log down? PalPay accepts all income inputs through the `in` command. Inputting an `in` command will increase the overall balance value. Your income statements have the added option to be tagged under one or more categories. You can do so by including the `[c/CATEGORY]` parameter in your command line. All uncategorized incomes will be tagged under the `GENERAL` category.

4.1.1. Command Syntax

Format: `in $/AMOUNT n/DESCRIPTION d/DATE [c/CATEGORY]…`

- `CATEGORY` accepts the categories for this income. An `in` Transaction can be created without `CATEGORY` inputs.
- `in` updates the user's overall balance with a net positive amount (e.g. `in n/work $/1000 d/10102019` will **increase** overall balance by $1000).

4.1.2. Example Usage

Example 1

```
in $/120 d/31122019 n/work
```

1. Logging income
    - Inputs an income of "$120" with description set to "work" and date set on "31/12/2019".
    - Initial balance (red box in Figure 1) has a value of "$0".

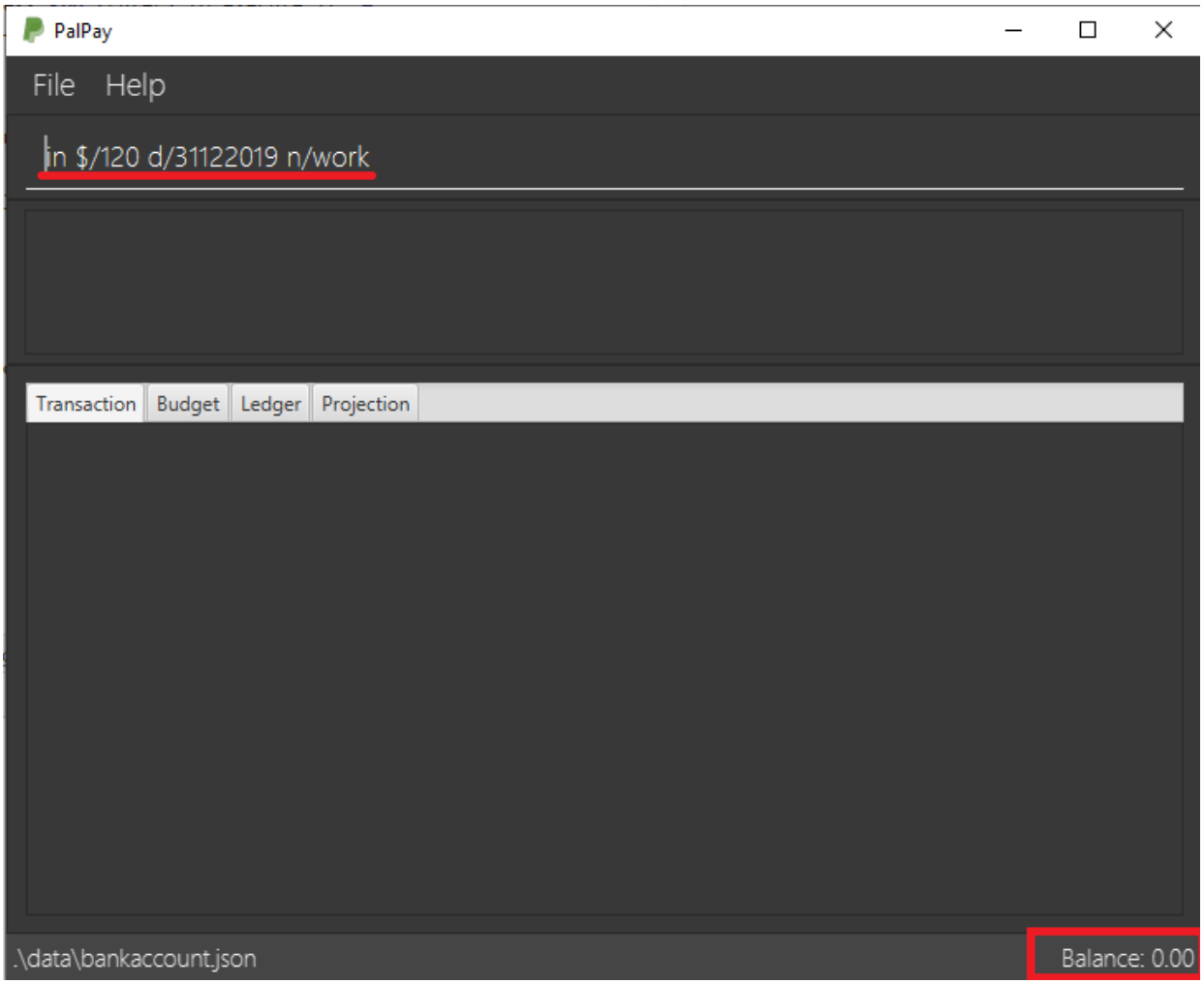


Figure 2. Income Logging Example 1

2. Income added
    - The income is added to the *Transaction* tab.
    - The added income is given a `GENERAL` category.
    - Balance has increased from "$0" to "$120" (red box in Figure 2).

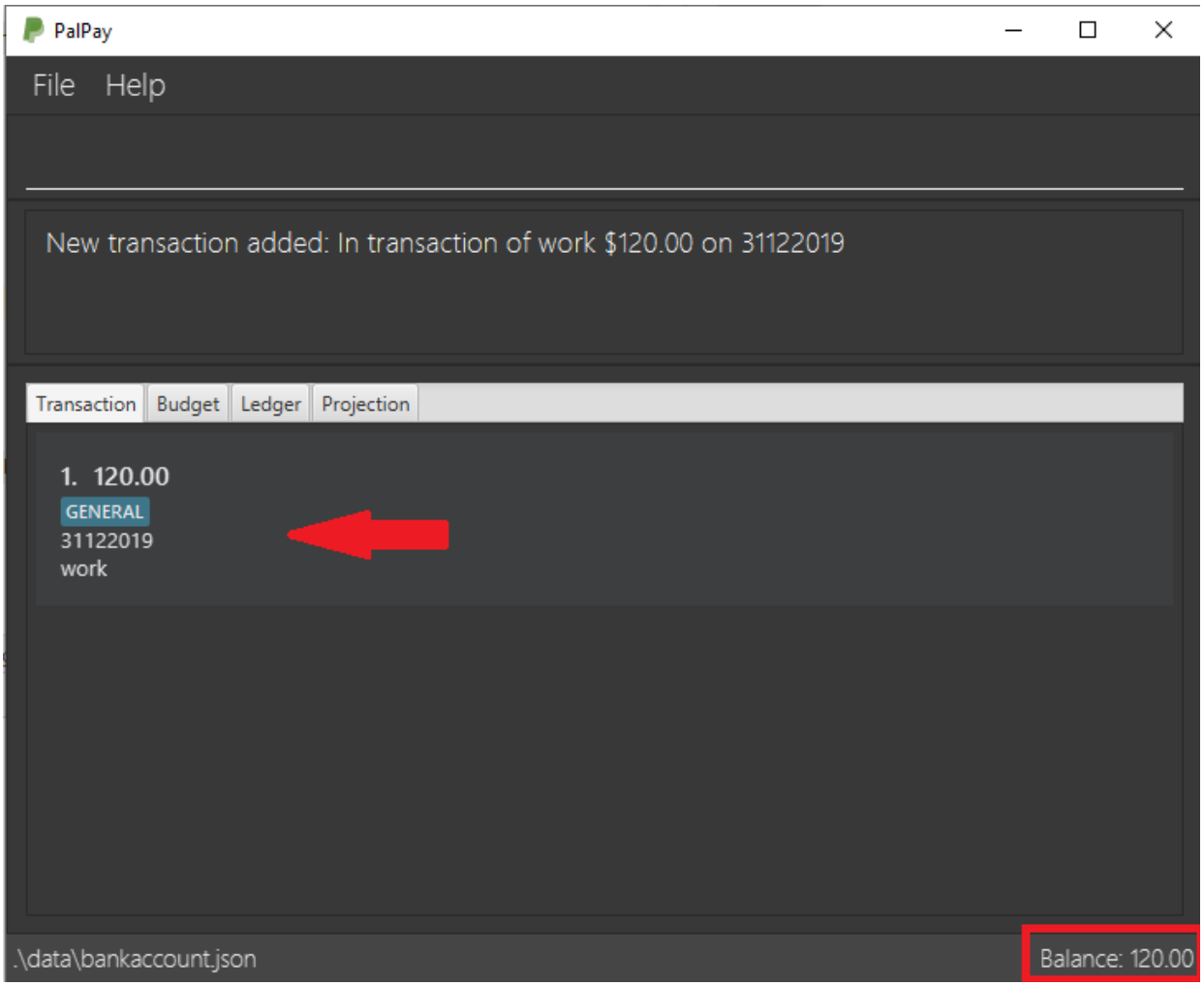


Figure 3. Sample Income 1 Added

Example 2

```
in $/500.50 n/allowance d/01012020 c/parents
```

1. Logging income
    - Inputs an income of "$500.50" with description set to "allowance" and date set on "01/01/2020".
    - The income includes "parents" under the `CATEGORY` field.
    - Initial balance (red box in Figure 3) has a value of "$120".

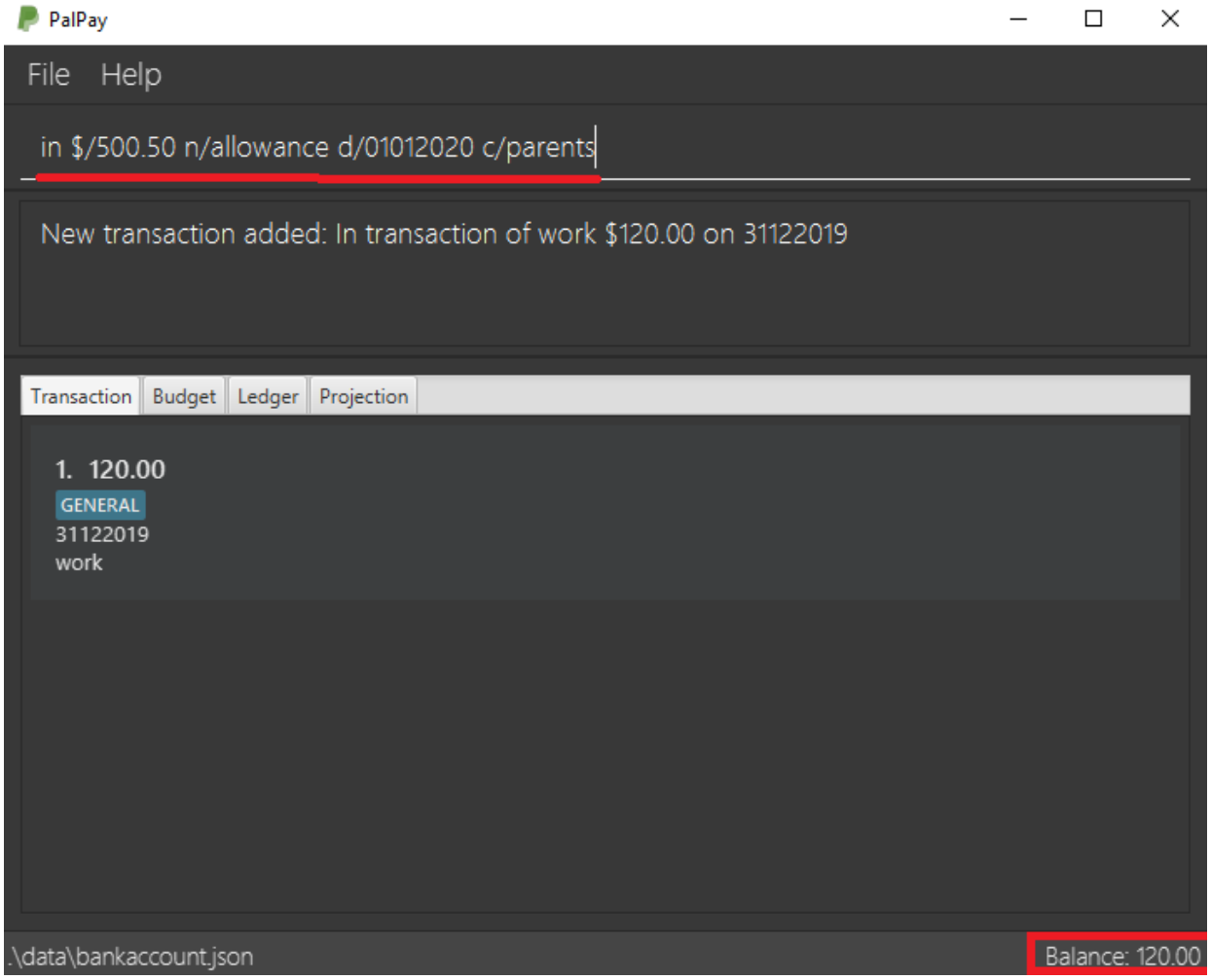


Figure 4. Income Logging Example 2

2. Income added
    - The income is added to the bottom of the *Transaction* tab.
    - The added income is tagged under `parents` category.
    - Balance has increased from "$120" to "$620.50" (red box in Figure 4).

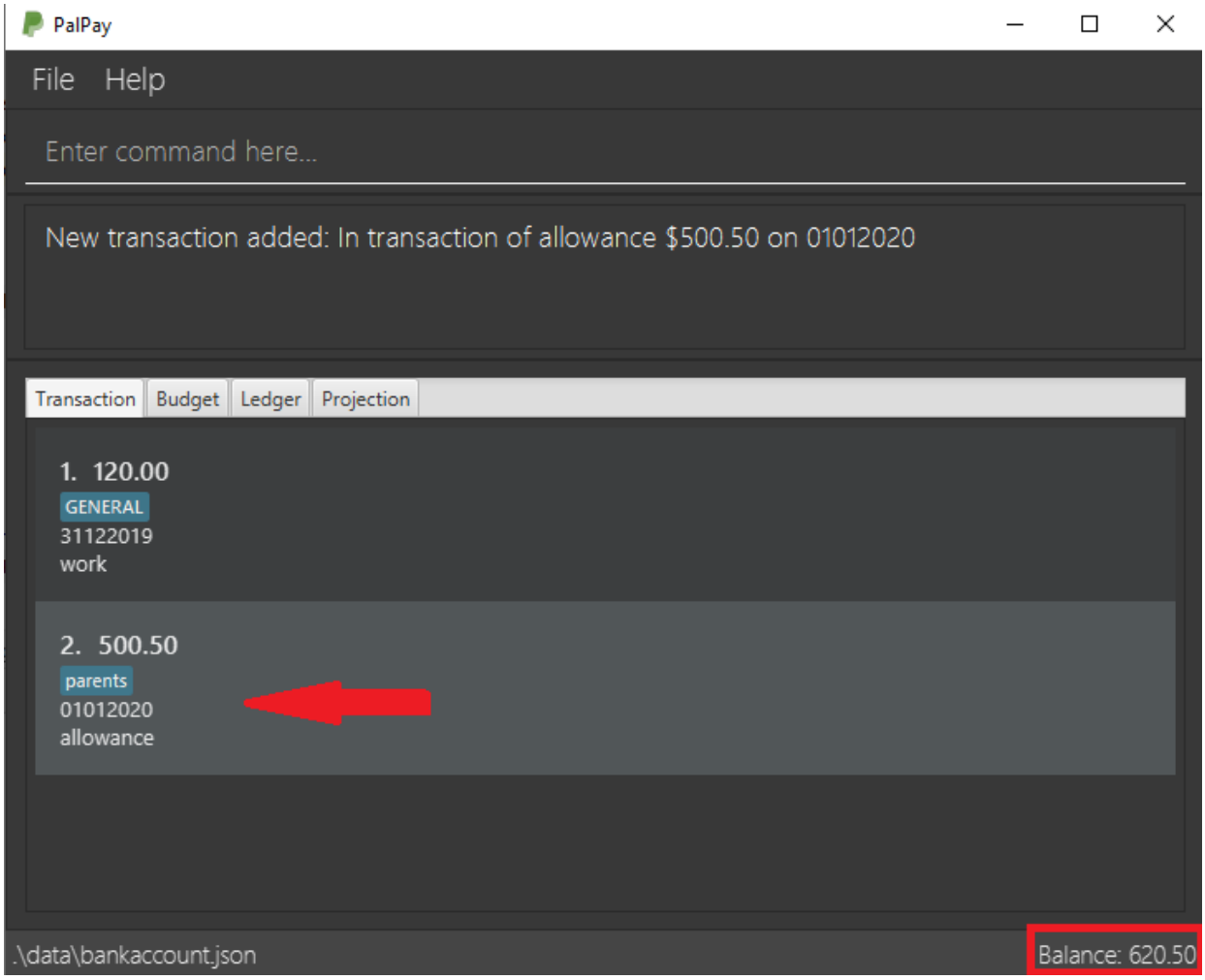


Figure 5. Sample Income 2 Added

Example Commands:

- `in $/100 d/01012019 n/errand c/work c/company`
- `in $/250.50 d/29022020 n/mom c/family`
- `in $/120 d/31122019 n/helping friend`

4.2. Logging Expense : `out`

Have you recently made an expenditure that requires logging down? PalPay accepts all expenditure inputs through the `out` command. Inputting an `out` command will decrease the overall balance value. Your expenditure statements, just like the income statements, have the added option to be tagged under one or more categories. You can do so by including the `[c/CATEGORY]` parameter in your command line. All uncategorized incomes will be tagged under the `GENERAL` category.

4.2.1. Command Syntax

Format: `out $/AMOUNT n/DESCRIPTION d/DATE [c/CATEGORY]…`

- Users should not input negative values into `AMOUNT` (i.e. `out $/-100 ⋯`) as PalPay has already accounted for the difference between incomes and expenditures.
- `CATEGORY` accepts the categories for this expenditure. An `out` Transaction can be created without any `CATEGORY`.
- `out` updates the user's overall balance with a net **negative** amount (e.g. `out n/milk $/2 d/10102019` will **decrease** overall balance by $2)

4.2.2. Important Details

- Note that `out` *Transactions* differ from `in` *Transactions* in the display amount. The `in` entries are characterized by the **positive** value within their display box whilst the `out` entries are characterized by the **negative** values in their display box. The difference can be observed in the example usage below.
- An `out` command will affect the remaining amount of `Budget` entries with similar categories within the same time period (Refer to Section 4.2.3.3, "Example 3").

4.2.3. Example Usages

Example 1

```
out $/5 d/01012020 n/burger
```

1. Expenditure logging
    - Inputs an expenditure of "$5" with description set to "burger" and date set on "01/01/2020".
    - Initial balance (red box in Figure 5) has a value of "$620.50".

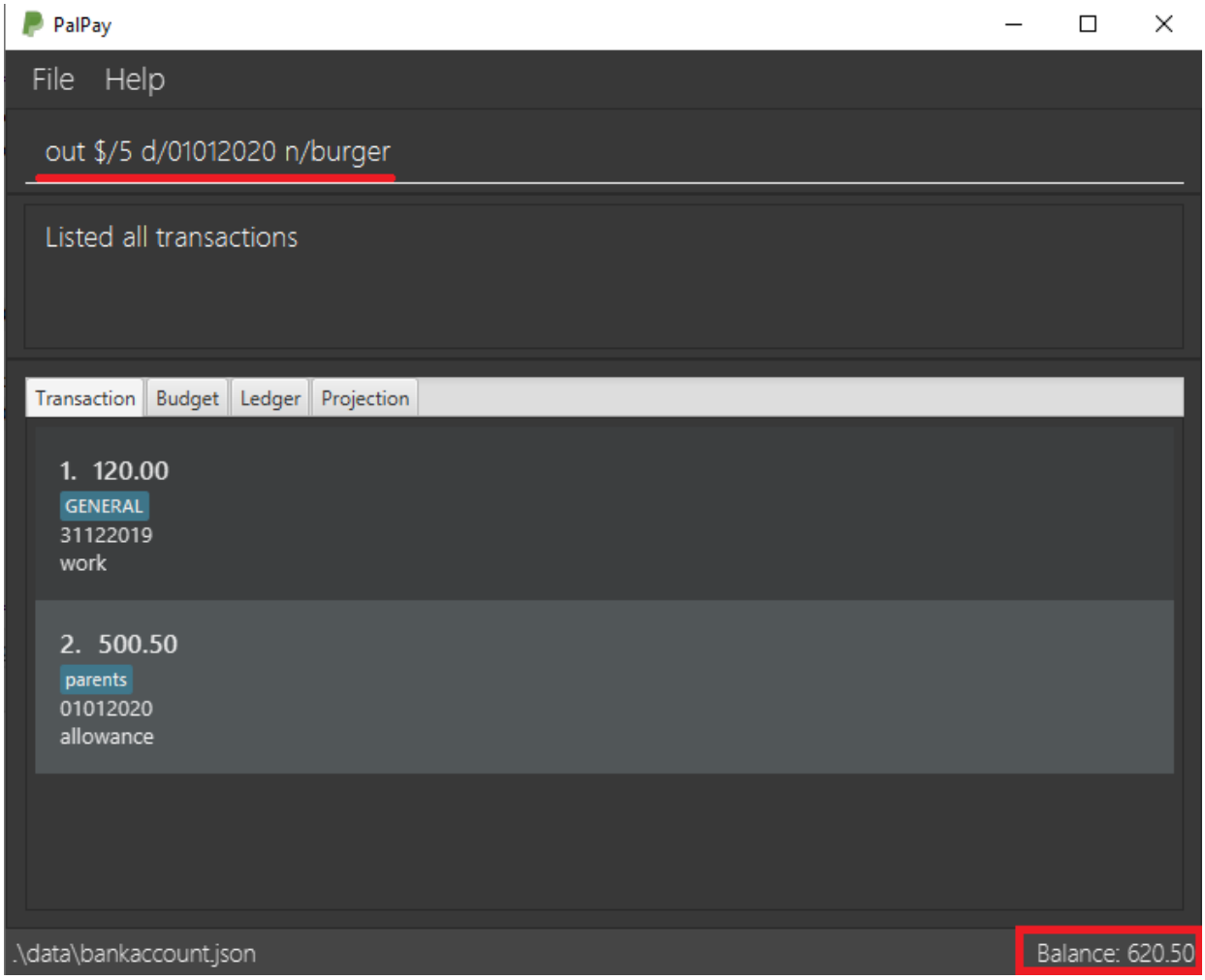


Figure 6. Expenditure Logging Example 1

2. Expenditure added
    - The expenditure is added to the bottom of the *Transaction* tab.
    - The amount value of the expenditure box should display a negative value (see Figure 6 entry 3).
    - The added expenditure is given a "GENERAL" category.
    - Balance has decreased from "$620.50" to "$615.50" (red box in Figure 6).

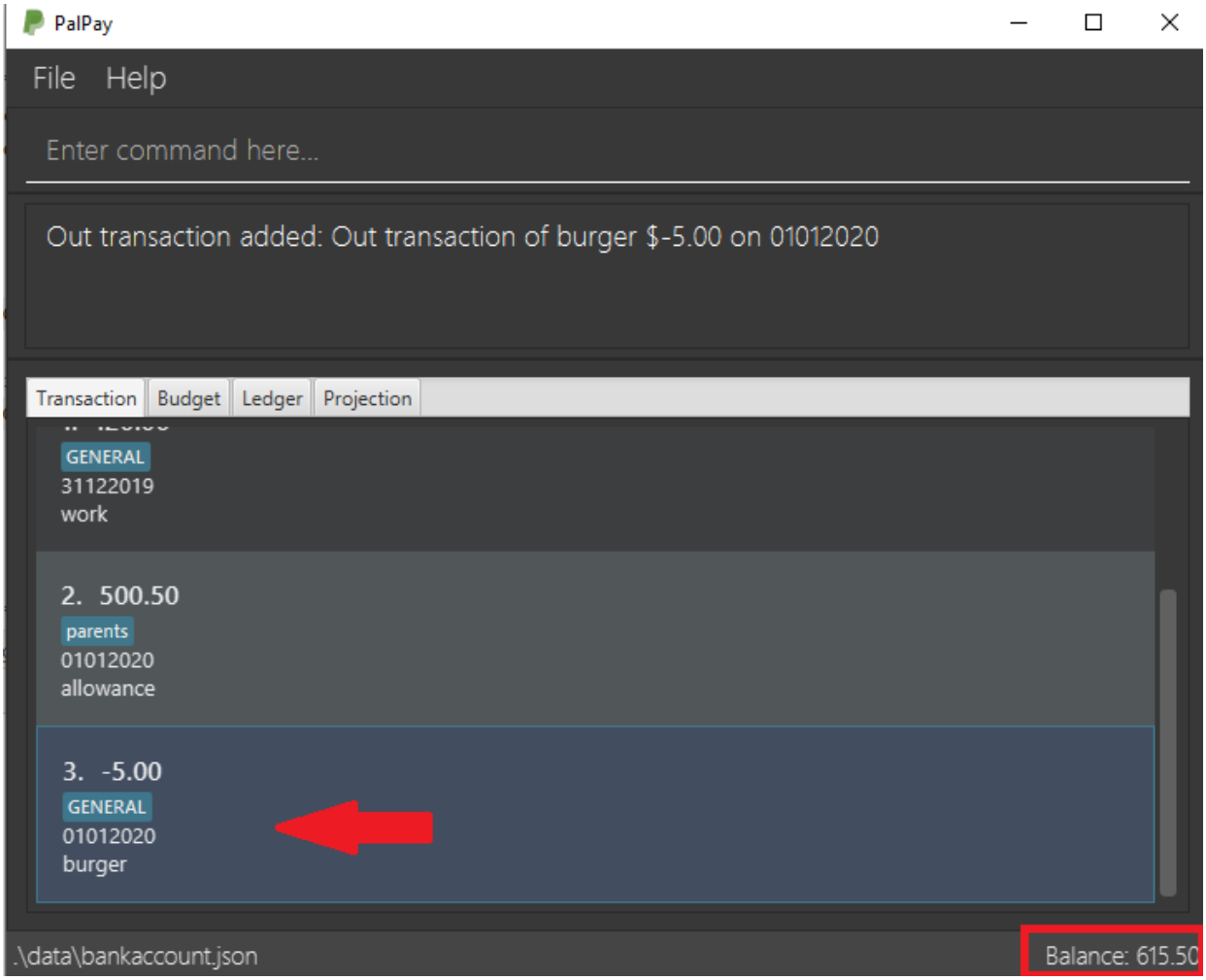


Figure 7. Sample Expenditure 1 Added

Example 2

```
out $/1000 n/maintenance d/02012020 c/car c/transport
```

1. Expenditure logging
    - Inputs an expenditure of "$1000" with description set to 'maintenance' and date set on 02/01/2020.
    - The income includes "car" and "transport" under the `CATEGORY` field.
    - Initial balance (red box in Figure 7) has a value of "$615.50".

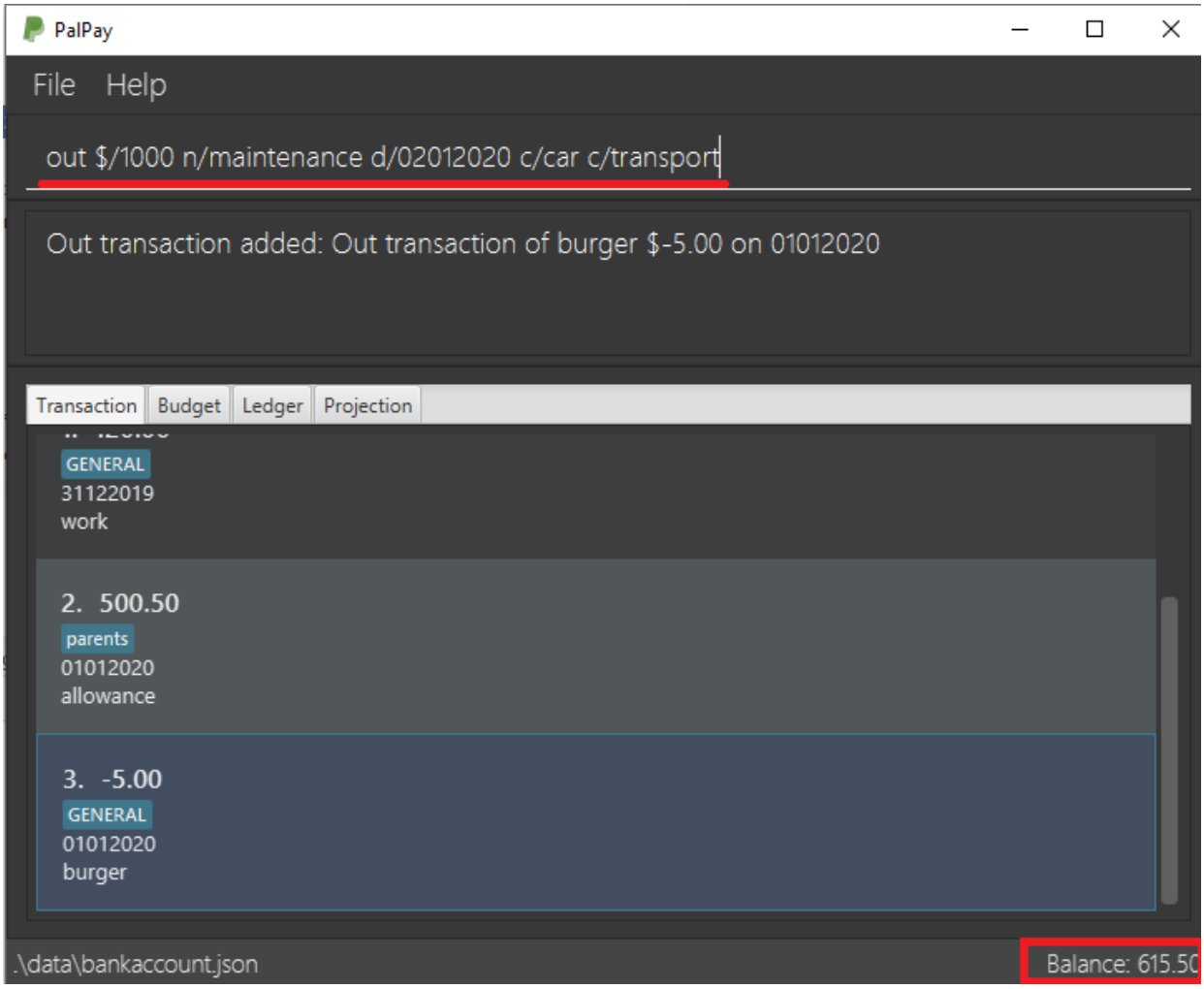


Figure 8. Expenditure Logging Example 2

2. Expenditure added
    - The expenditure is added to the bottom of the *Transaction* tab.
    - The added expenditure is tagged under `car` and `transport` category.
    - Balance has decreased from "$615.50" to "-$384.50" (red box in Figure 8).
    - The negative value of the balance indicates that the total spending amount outweighs the total savings amount.

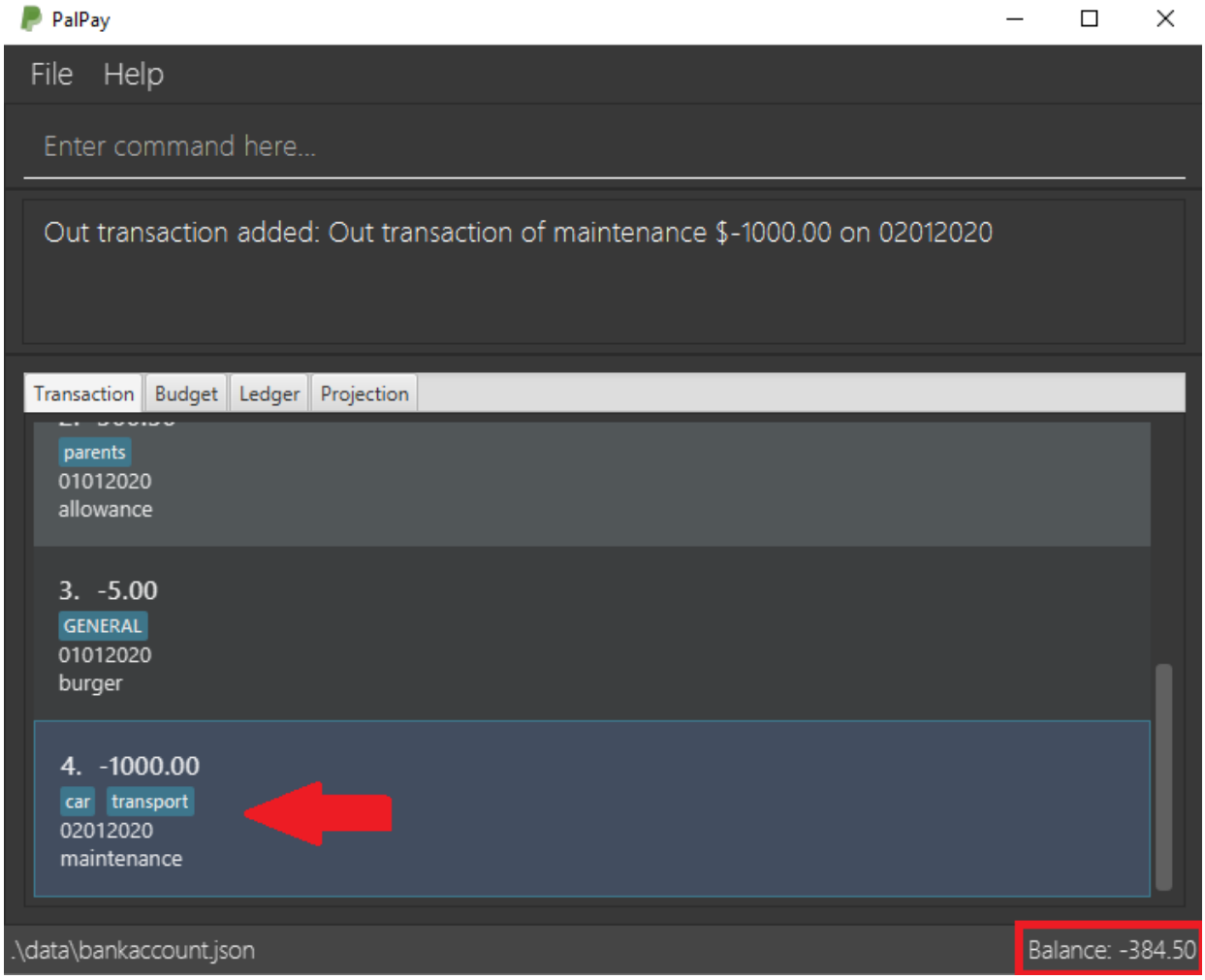


Figure 9. Sample Expenditure 2 Added

Example 3

```
out $/100 n/pants d/02012020 c/clothes
```

1. Expenditure logging
    - Inputs an expenditure of "$100" with description set to "pants" and date set on "02/01/2020".
    - The income includes "clothes" under the `CATEGORY` field.

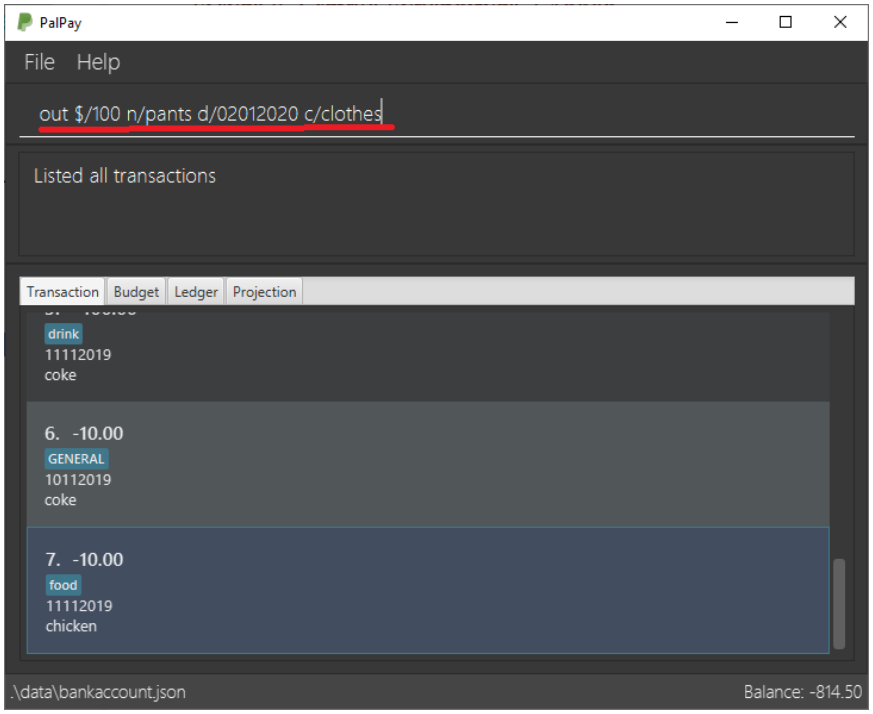


Figure 10. Expenditure Logging Example 3

2. Budget with similar categories and time period.
    - Entry 3 of the *Budget* tab has `clothes` under its `CATEGORY` field.
    - Entry 3 of the *Budget* tab has a deadline set to "01/01/2021".

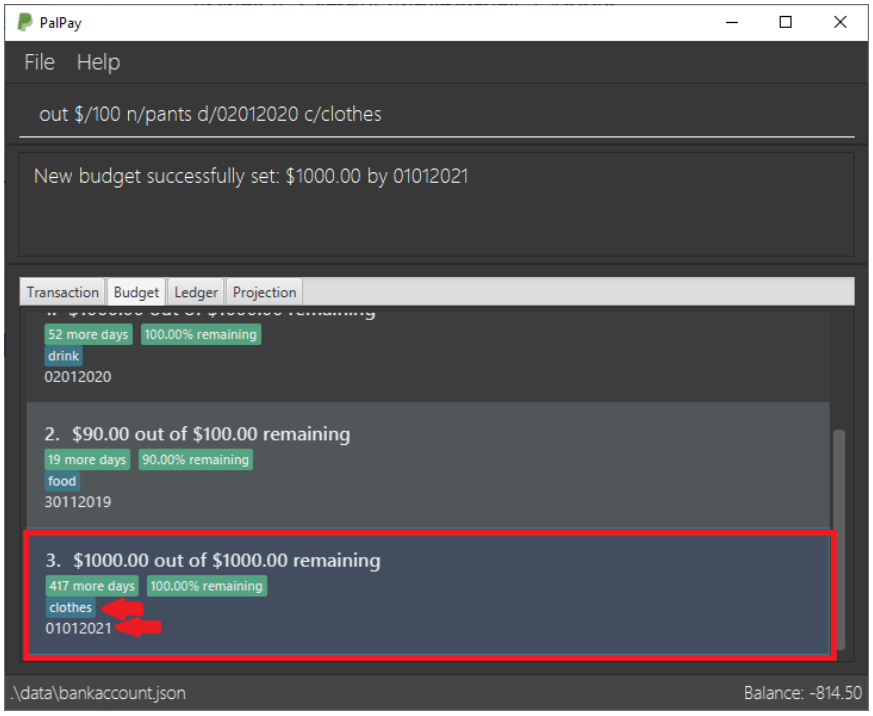


Figure 11. Budget with 'clothes' category

3. Expenditure added
    - The expenditure is added to the bottom of the *Transaction* tab.
    - The added expenditure has a date set to `02/01/2020`.
    - The added expenditure is tagged under the `clothes` category.

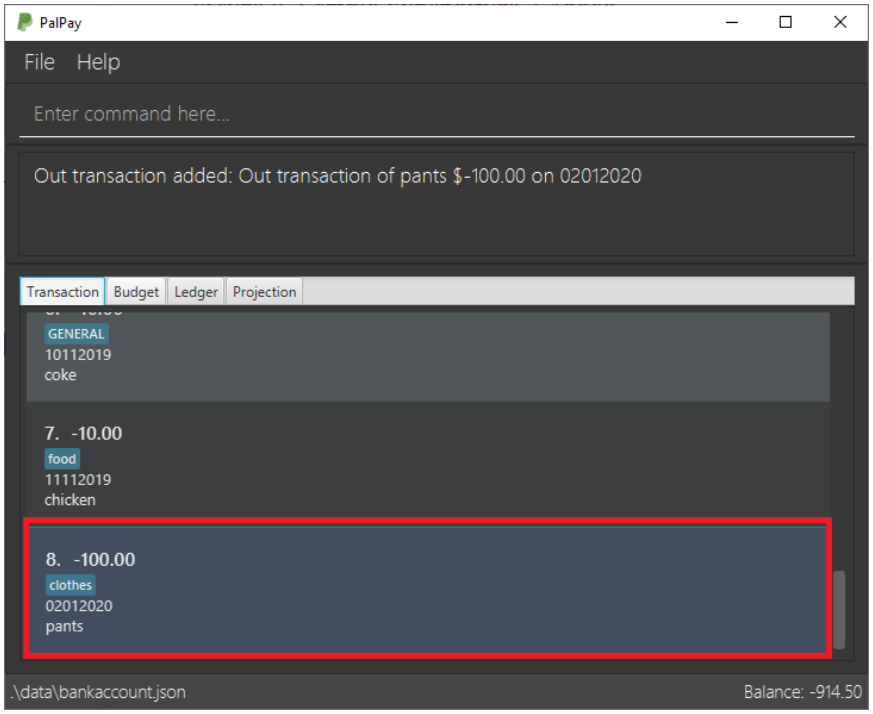


Figure 12. Sample Expenditure 3 Added

4. Budget entry updated
    - The remaining amount of entry 3 of the *Budget* tab has decreased from "$1000" to "$900".

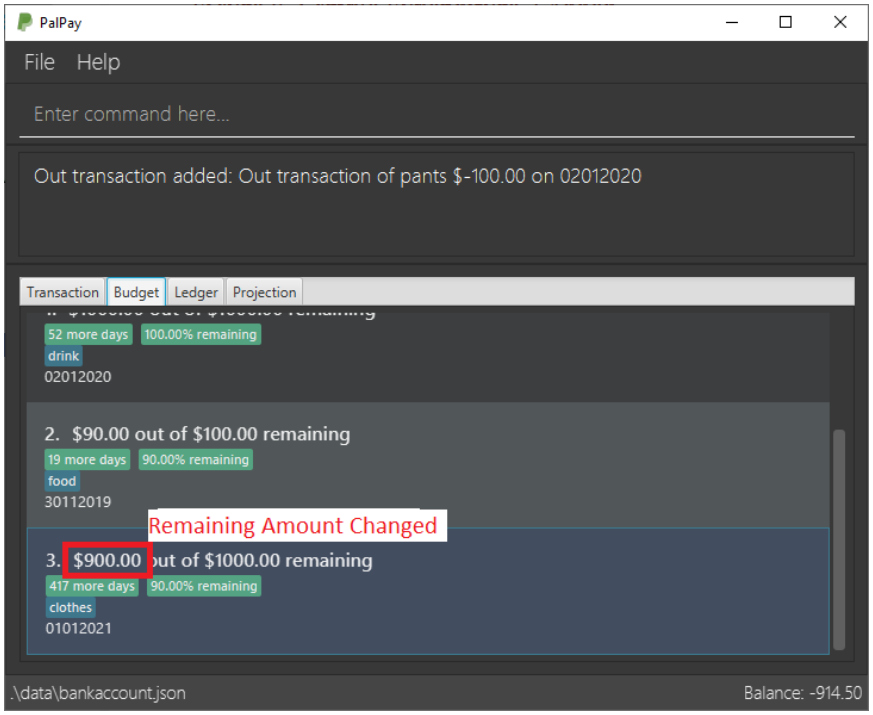


Figure 13. Budget entry updated

Example Commands:

- `out $/100 d/01012019 n/milk c/food c/drinks`
- `out $/29 d/29022020 n/taxi c/transport`
- `out $/12 d/31122019 n/burger`

4.3. Setting a Budget : `set`

You can set a budget for a particular category until a certain date, given it is not already present in the budget list. A duplicate budget is a budget with the same `AMOUNT` and `DATE` and `CATEGORY`.
If you attempt to do so, you will receive an error message: `This budget already exists`.

4.3.1. Command Syntax

Format: `set $/AMOUNT d/DATE [c/CATEGORY]…`

> Parameters follow the same restrictions as highlighted in parameter constraints.
>
> - `AMOUNT` input accepts the budget amount to be set.
> - `DATE` input accepts the deadline to be set. It cannot be a date in the past.
> - `CATEGORY` accepts the CATEGORY for the budget. A budget can be created without `CATEGORY` inputs in which case, the budget will automatically be assigned `GENERAL' category.

4.3.2. Important Details

Let's say you want to restrict your spending for a certain category until a certain deadline. PalPay allows you to set a budget and serve as a reminder to show how much of the budget set you have left until the deadline (inclusive). You will be more self-conscious of your spending and minimise your spending by setting a budget.

To set a new budget:
1. Type `set` and enter the relevant details (amount, deadline, category) in the format given above.
2. The result box will display the message `New budget successfully set`.
3. If the budget already exists in the budget list, the result box will display the message `This budget already exists`.
4. Now you can see the newly set budget in the budget list.

As you log an expenditure of a particular `CATEGORY`, your budgets with the same `CATEGORY` will be adjusted to display the remaining amount of budget. Other budgets in the list belonging to different `CATEGORY` will not be adjusted.

For example, you went out with your friends and bought a cup of Gong Cha. Before you log your spending, your budget list looks like this:

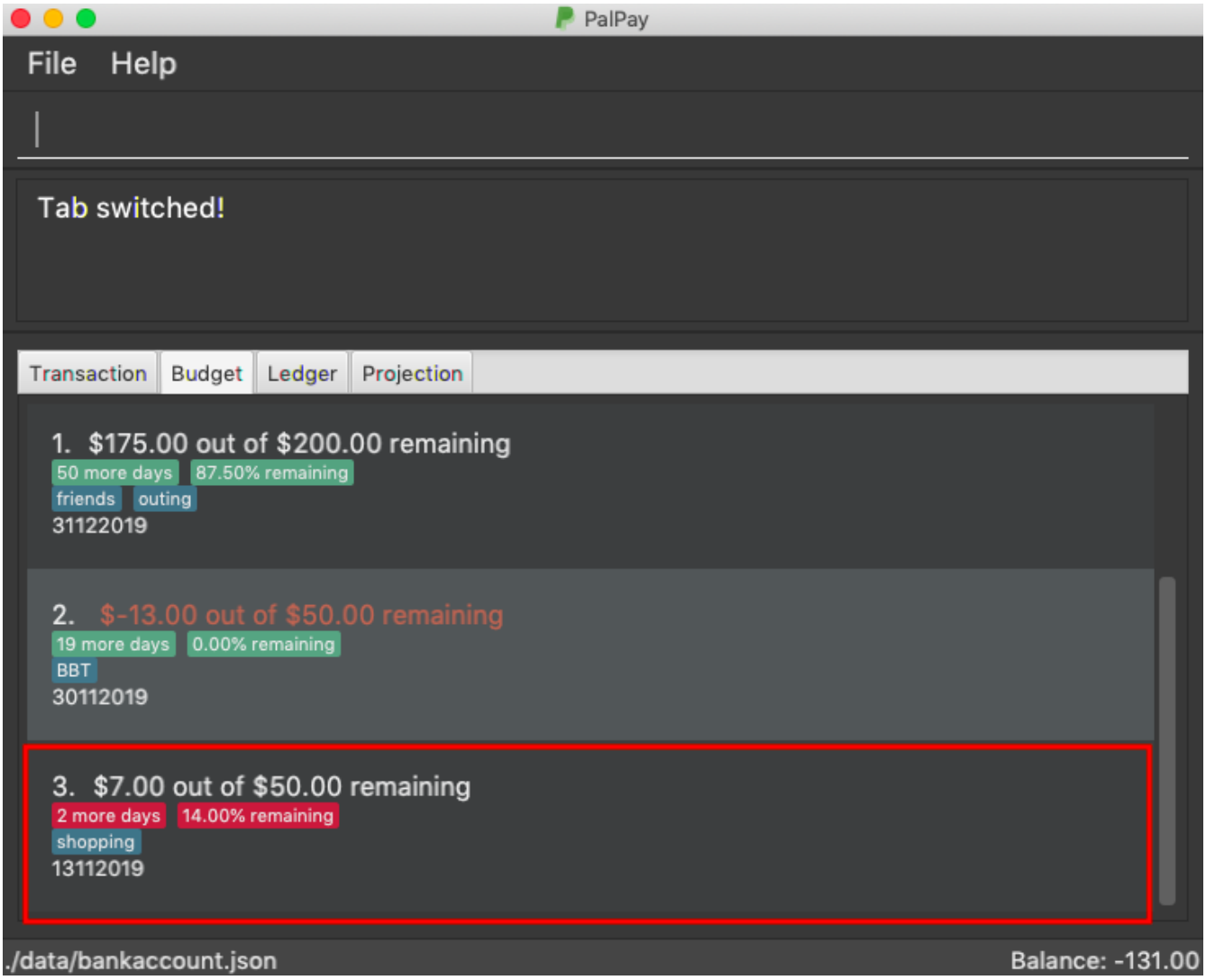


Figure 14. Budget List before Executing OutTransaction

You then type in the command `out $/5 c/BBT c/friends n/gong cha d/11112019`.

Figure 15. New OutTransaction Command

Your budget list now shows the updated budgets. Observe how Budget 3 is not affected because it does not belong to the relevant **category**.

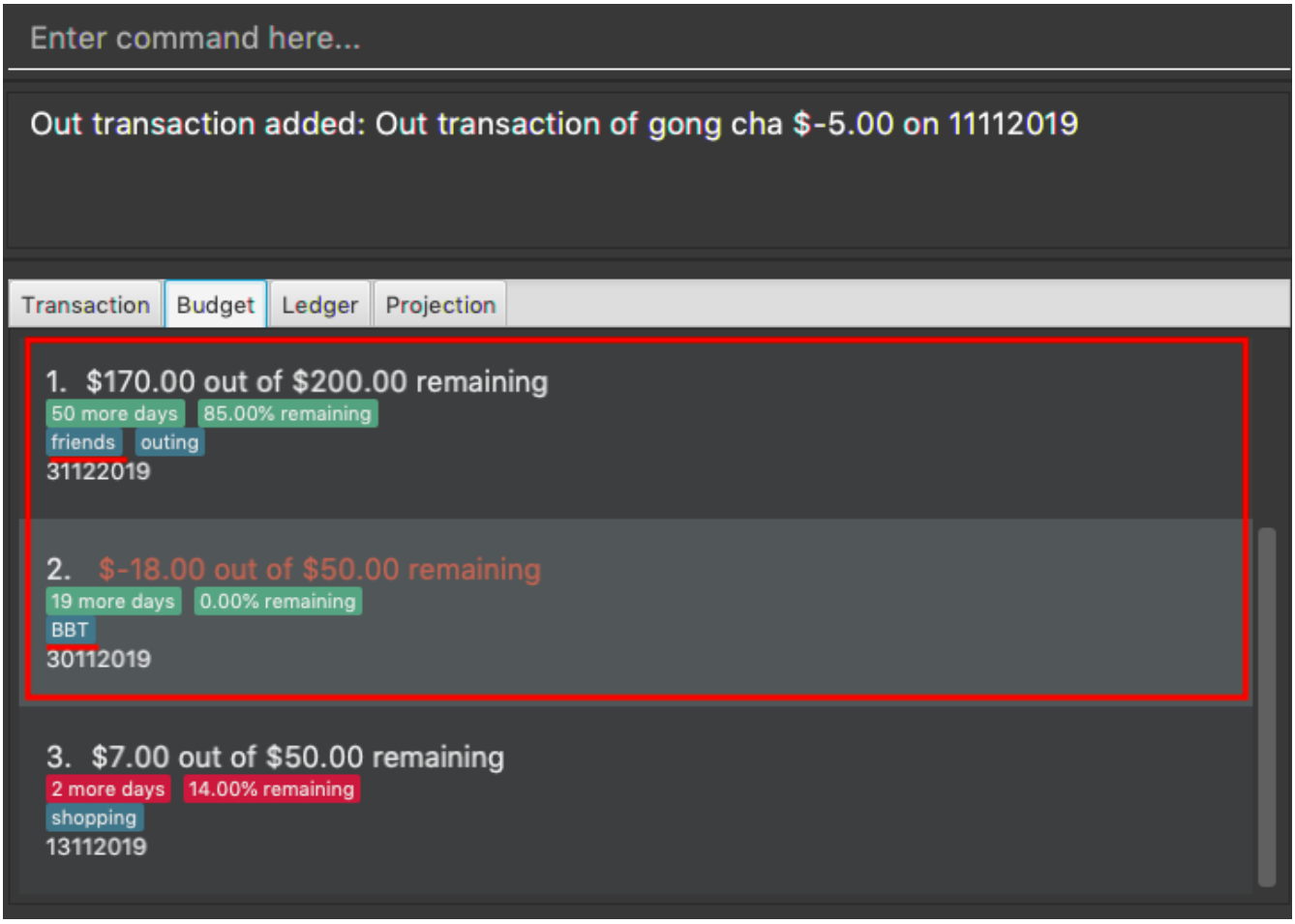


Figure 16. Updated Budget List

Budget will not take into consideration past **OutTransaction** when calculating the remaining budget. Remember, you are setting a budget from TODAY till the stated `DATE` (inclusive)!

If you overspend beyond a set budget, the overspent budget will be displayed in red. Shown below as budget index 3 is an example of an overspent budget:

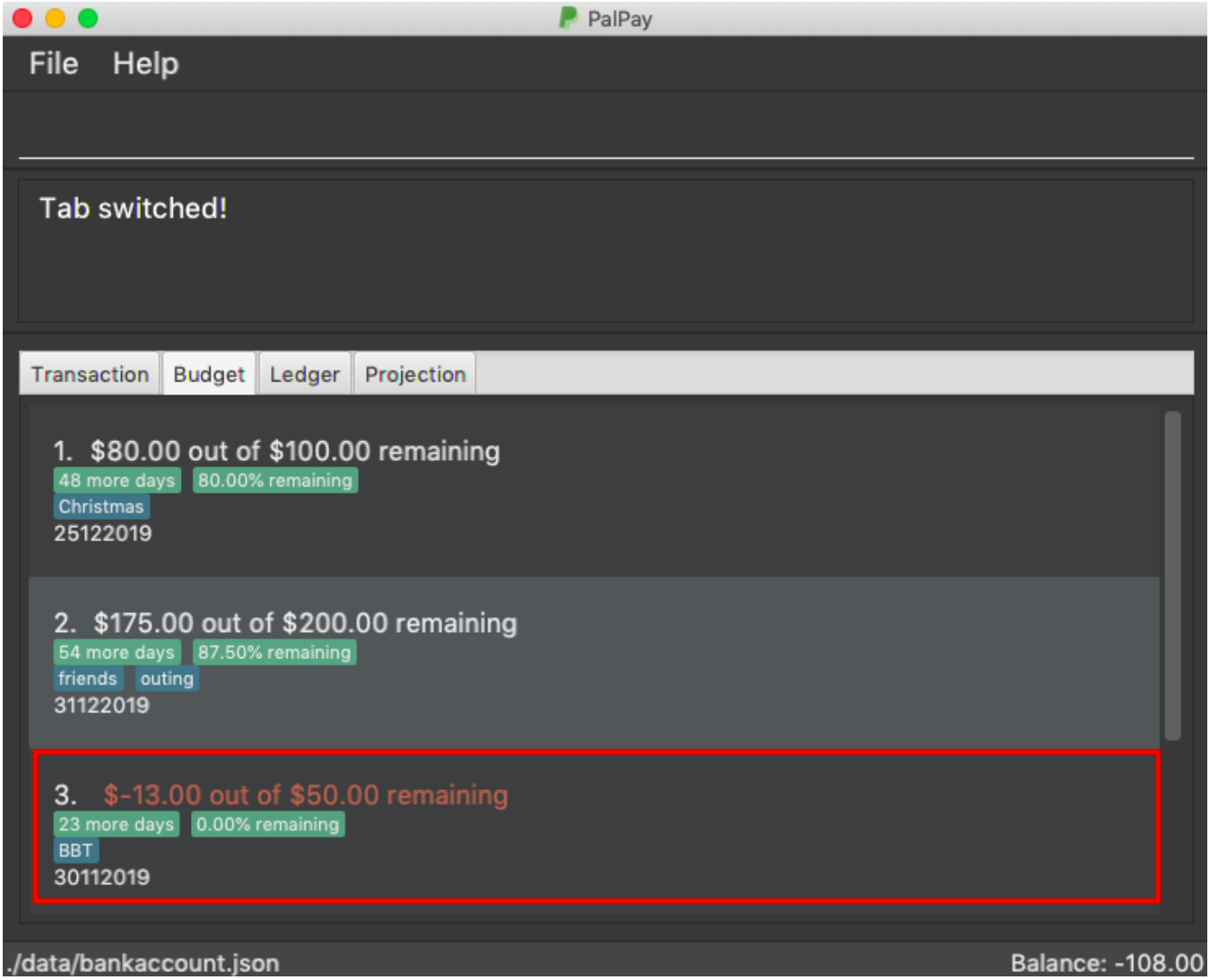


Figure 17. Overspent Budget

As the day you have set for the budget approaches, the countdown placeholder as well as the percentage remaining placeholder will turn to red when the number of remaining days reaches 3 and below. Shown below as budget index 4 is an example of a budget approaching its deadline:

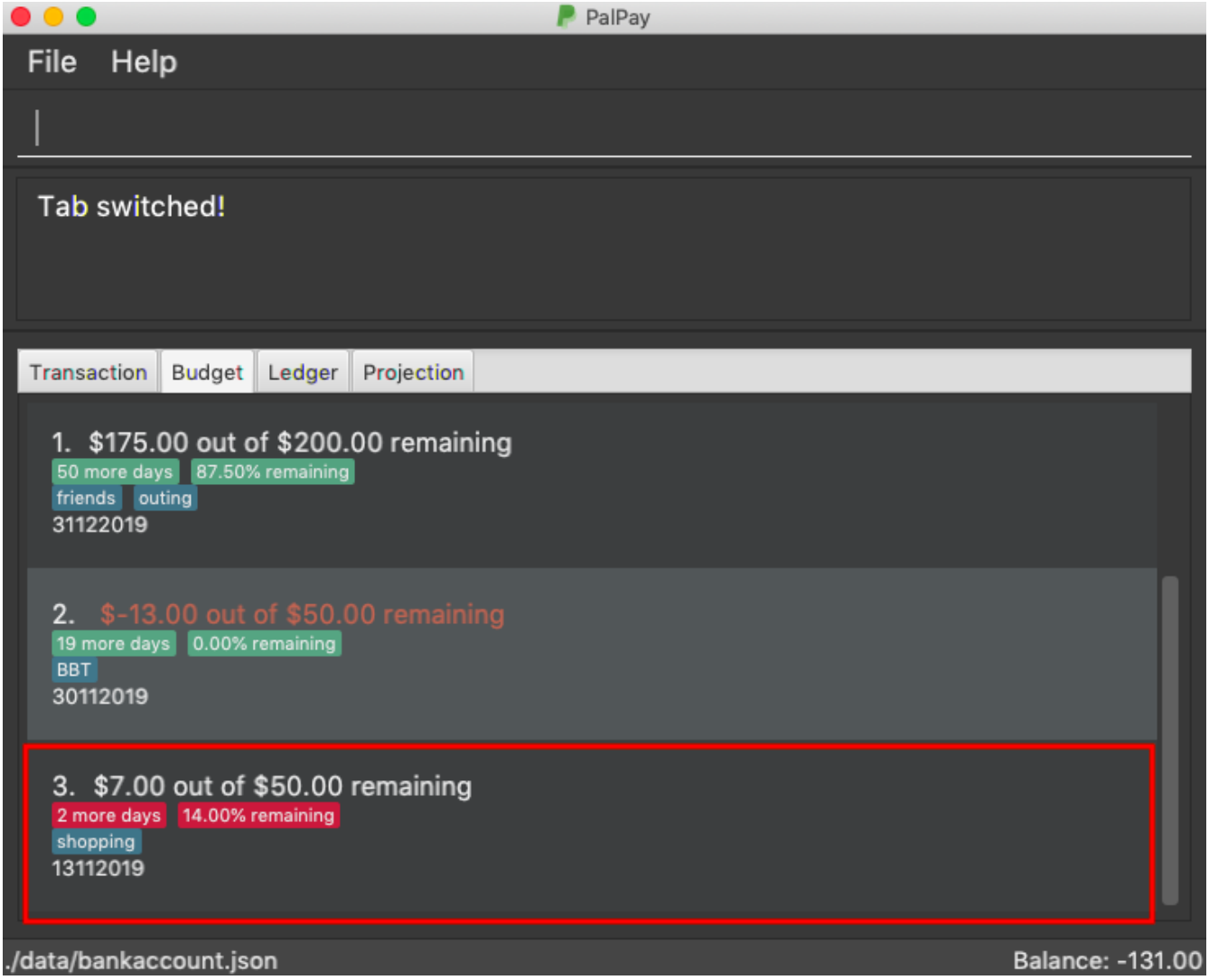


Figure 18. Budget approaching deadline

Examples:

- `set $/100 d/010120120 c/BBT`
- `set $/300 d/29022020 c/shopping`

4.4. Splitting a Bill with Friends : `split`

Split a bill with your friends
Format: `split $/AMOUNT n/NAME1 a/DESCRIPTION [d/DATE] [n/NAME2]… [s/SHARE]…`

- `DESCRIPTION` is prefixed with `a/`, unlike for other commands
- `[SHARE]` defines portion of bill to be paid by each person
  - if no shares are given, `AMOUNT` will be split evenly across all people, including user
  - you are included in the bill if number of shares is **1** more than number of people
    - your share of the bill will be the first listed share
  - each person's share is assigned in order
    - i.e. last person's share is the last share listed

CAUTION	Shares can be 0 but result is not guaranteed to be meaningful

Ledger GUI

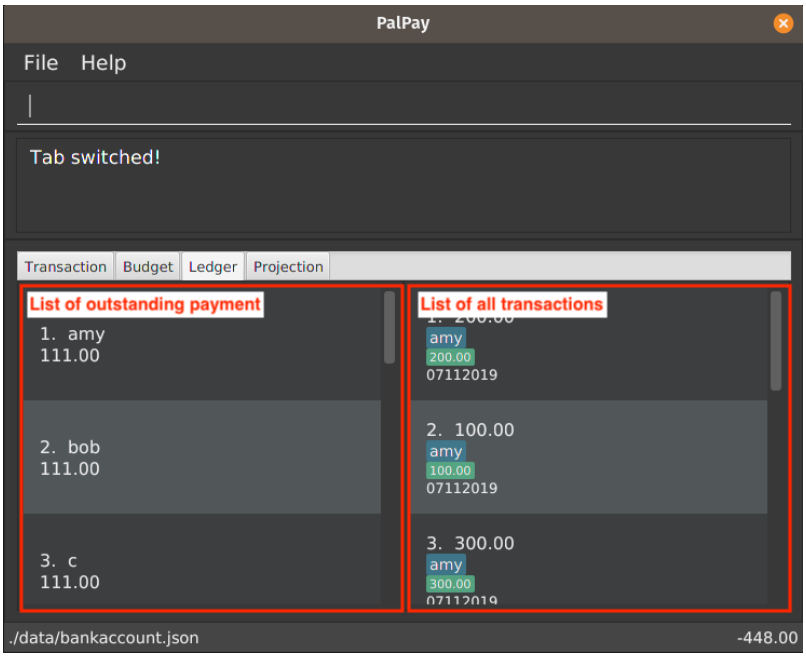


Figure 19. Sample Ledger Graphical User Interface

This is how the *Ledger* looks when you switch to the splits tab.
The left shows the people who has unresolved balances with you, while the right lists all transactions that have to do with the *Ledger*.
Ledger's balance is separate from PalPay's balance. It is displayed in the same position, at the bottom right corner.

NOTE	`split` **does not** include how much you spent into the *Ledger* balance.

4.4.2. Example Usage

- `split $/1000 n/Amy n/Betty n/Catherine n/Dan a/haidilao`

```
$1000 is split equally between Amy, Betty, Catherine, Dan and the user.
```

1. Enter appropriate command into the command line.

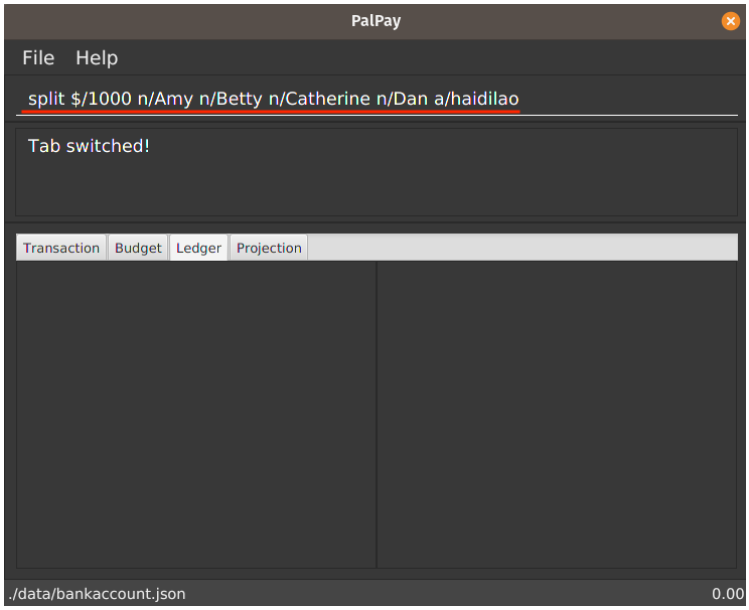


Figure 20. Input for Splitting Evenly

2. Result is displayed accordingly

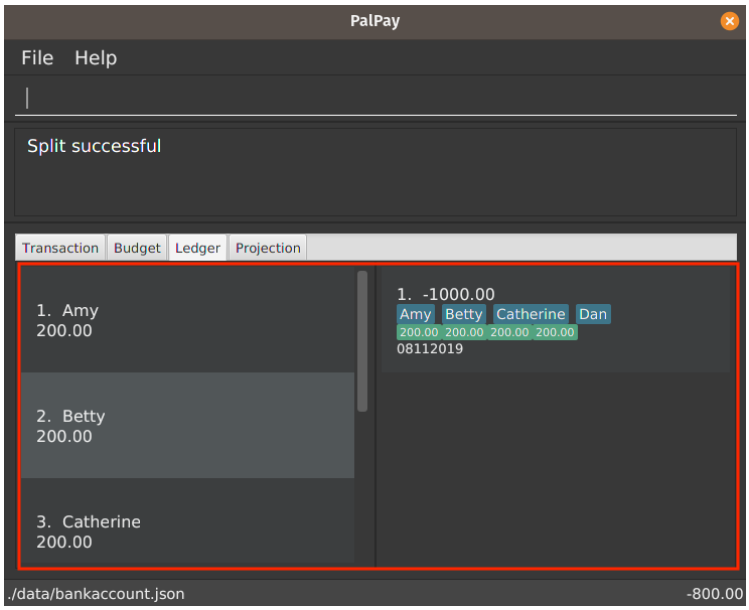


Figure 21. Amy, Betty, Catherine and Dan owes $200 each

For an even split of $1000, each person pays $200. Therefore *Ledger* shows $200 on the tab of each person. *Ledger* balance **does not** include how much you spend. In this bill, one is owed $800 in total from the rest of his friends. Therefore *Ledger* balance is -$800, as shown in the bottom right.

- `split $/100 n/Albert n/Bernard n/Clement s/2 s/1 s/7 a/kbbq dinner`

```
$100 is split with Albert owing $20, Bernard owing $10 and Clement owing $70.
```

1. Enter appropriate command into the command line.

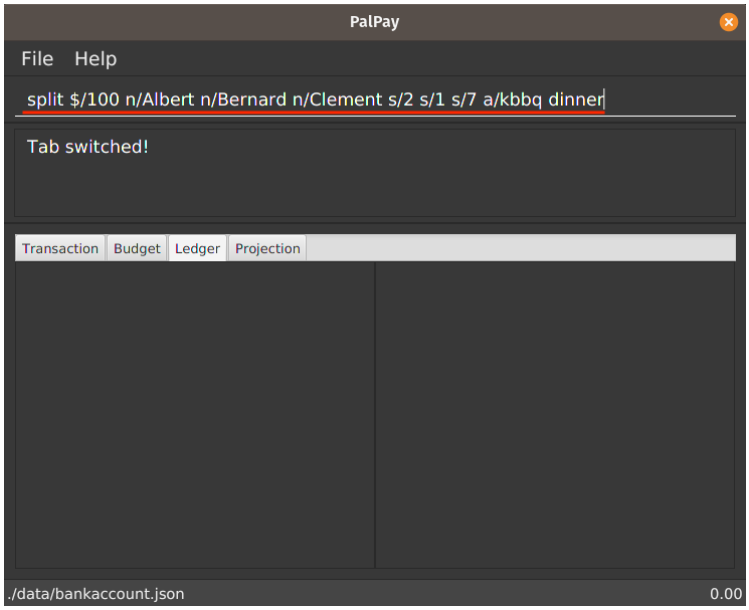


Figure 22. Input for Splitting Unevenly

2. Result is displayed accordingly

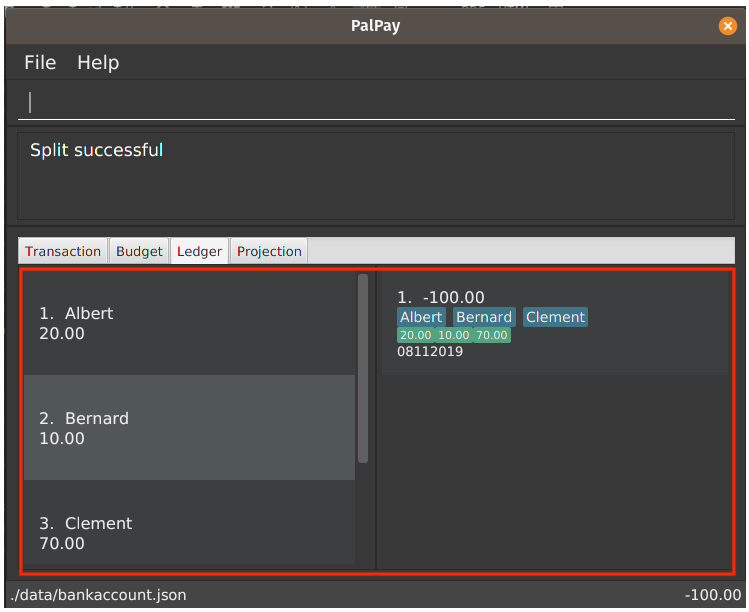


Figure 23. Display of Correctly Assigned Amounts

Since the number of shares is equal to the number of people listed, you are not included in the splitting of the bill.

4.5. Receiving Money from a Friend : `receive`

Receives money from a friend
Format: `receive $/AMOUNT n/NAME1 [d/DATE] [a/DESCRIPTION]`

4.5.1. Example Usage

- `receive $/20 n/Albert`

```
Transfers $20 from Albert to user. If Albert is no longer owe or is owed money, he
will be removed from the Ledger.
```

1. Enter appropriate command into the command line.

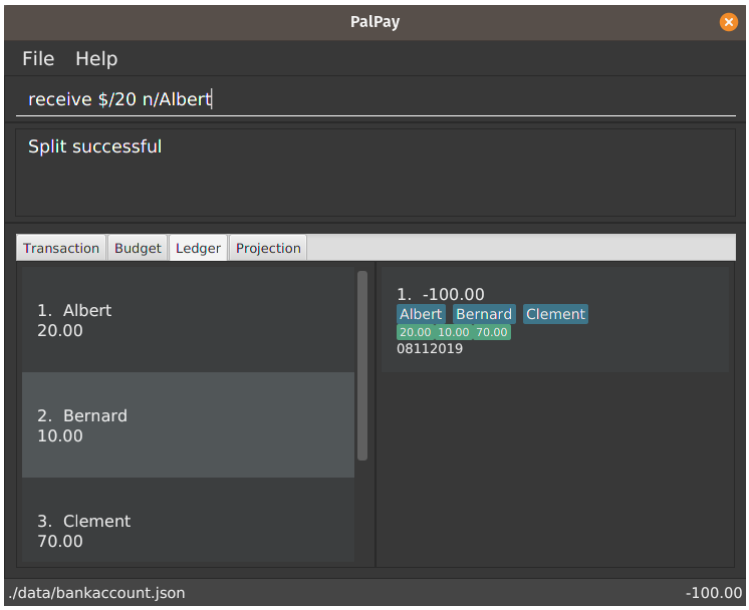


Figure 24. Input for Receiving $20 from Albert

2. Result is displayed accordingly.

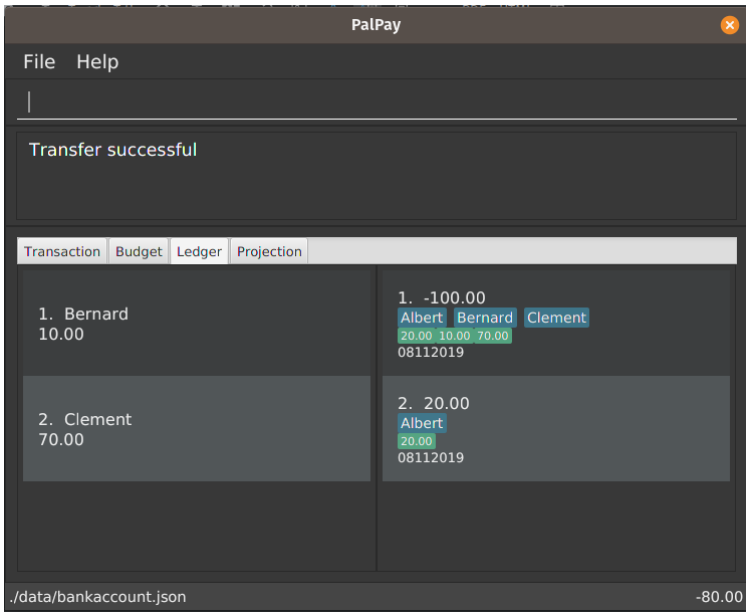


Figure 25. Result of Payment from Albert

Albert is removed from the *Ledger* since he no longer owes any money. *Ledger* balance is also updated accordingly.

4.6. Projecting Future Balance and Budgets : `project`

Cast a projection on your future balance amount and budget statuses based on your transaction history.

Format: `project d/DATE [c/CATEGORY]`

NOTE	If a `CATEGORY` is not specified, it will be set as `GENERAL` by default. `GENERAL` projections project upon **ALL** transactions, regardless of their categories.

4.6.1. Example Usage

1. `project d/22072020`

```
Projected balance: $955.80
```

2. `project d/01012020 c/Food`

```
Projected balance: $188.04
You are on track to meeting your budget of $600 by 08122019, with a surplus of
$484.32!
```

4.6.2. Usage Constraints

Command Format

- `CATEGORY` must be preceded by its tag `c/`. A violation of any of the above will produce the following error message:

```
Invalid command format!
project: Project future balance based on past income/outflow.
Parameters: d/DATE [c/CATEGORY]
Example: project d/12122103 c/Food
```

Date Values

- `DATE` input must be set in the future. A violation of this constraint will produce the following error message:

```
Invalid command usage!
Date must be set in the future.
```

- `DATE` cannot be more than **720** days from the day of projection.
  A violation of this constraint will produce the following error message:

Projections should be a maximum of 2 years (730 days) from now.

Minimum Number of Transactions

- There must be a minimum of **5** transactions in total, or in the specified `CATEGORY` for a projection to be successfully cast. Should the requirement above be unmet, the following error message will be produced:

There are no transactions in [CATEGORY]. It is impossible to cast a projection.

NOTE [GENERAL] will be displayed in place of [CATEGORY] if a `CATEGORY` is not specified. This is due to the auto-casting of uncategorised projections to the `GENERAL` category as explained here.

- Should the number of transactions in a `projection` fall below **5**, it will be automatically deleted, as shown below:

1. Suppose there are **5** transactions, and a `GENERAL` projection, which projects upon them.

Figure 26. Five transactions under the projection tab

Figure 27. A projection which is cast based on the 5 transactions above

2. If a transaction being deleted causes the number of transactions being projected upon to fall below 5, the corresponding projection will automatically be deleted.

Figure 28. The fifth transaction has been deleted.

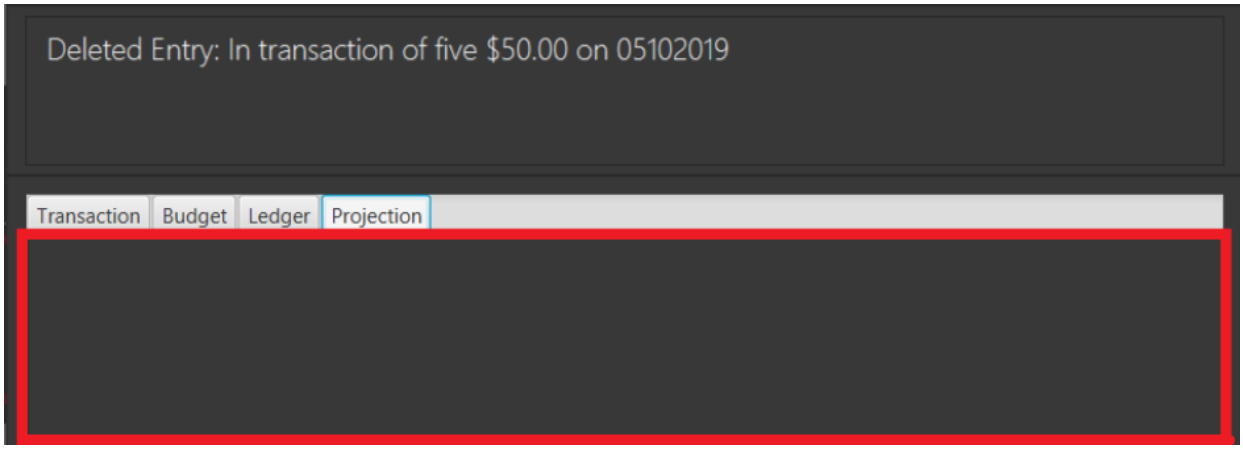


Figure 29. The project earlier seen in Figure 19 has been automatically deleted.

Valid Budget Start Dates and Deadlines

A projection will only project upon budgets with deadlines set before or equal to the projection `DATE`. An example is depicted below:

1. Suppose there is currently a general *Budget* with a deadline set for 28th November 2019

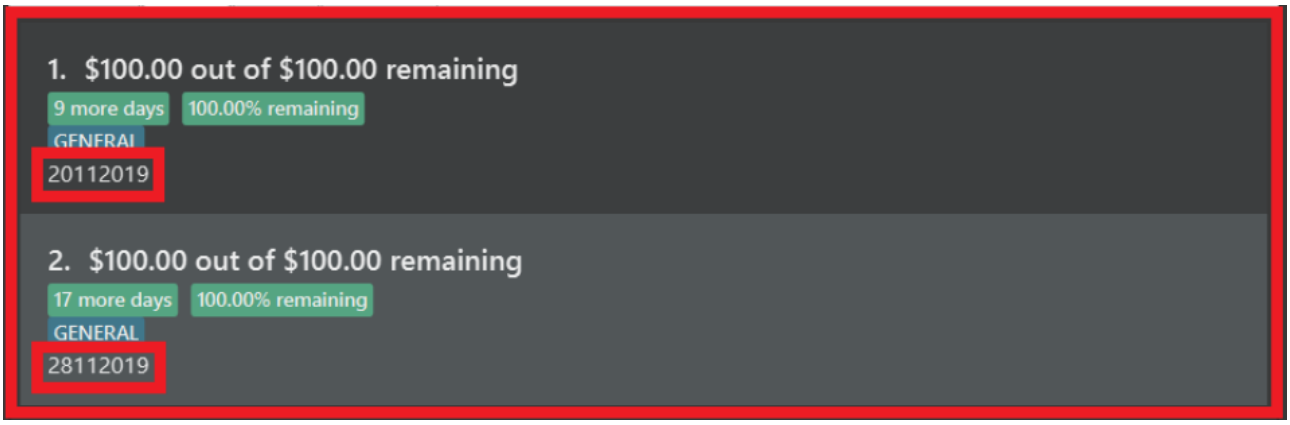


Figure 30. Two Budgets with dates 20112019 and 28112019 in the "GENERAL" category

2. If a general *Projection* is cast to 20th November 2019, it will contain the *Budget* with deadline 20112019 but not 28112019, since the projection's `DATE` is earlier than 28112019.

Figure 31. The Projection only contains the Budget with deadline 20112019

Backward Projections

While it is possible in PalPay, projecting your balance amount backwards in time is not guaranteed to produce sensible results. It is generally not advisable to do so.

4.7. Display a Projection Graph: `display`

Display a graphical representation of a *Projection* in a new window.

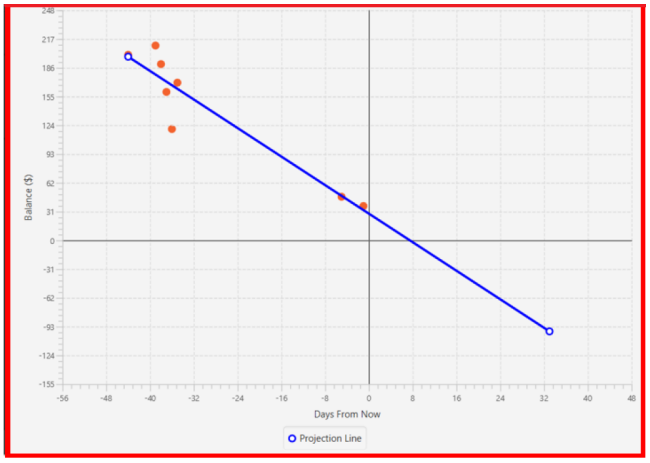
Format: `display PROJECTION_ID`

4.7.1. Example Usage

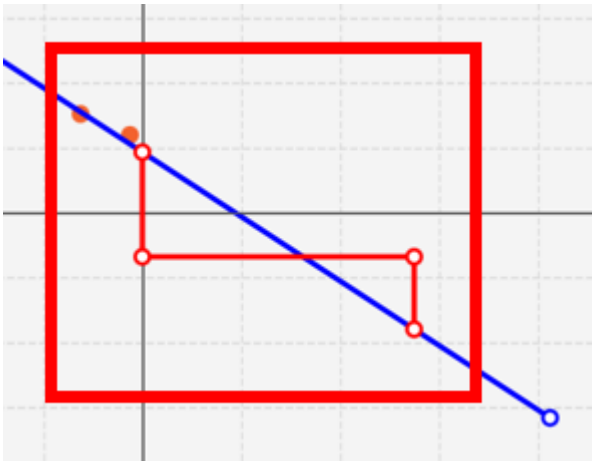
1. Type **display PROJECTION_ID** into the command box and press `Enter`. For instance:

   ```
   display p1
   ```

2. A new window containing a graphical representation of the specified projection will pop up.

   If there are any budgets associated with the projection, a corresponding graphical representation of the budget will be additionally displayed.

4.7.2. Interpreting the Projection graph

Here is a typical projection graph.

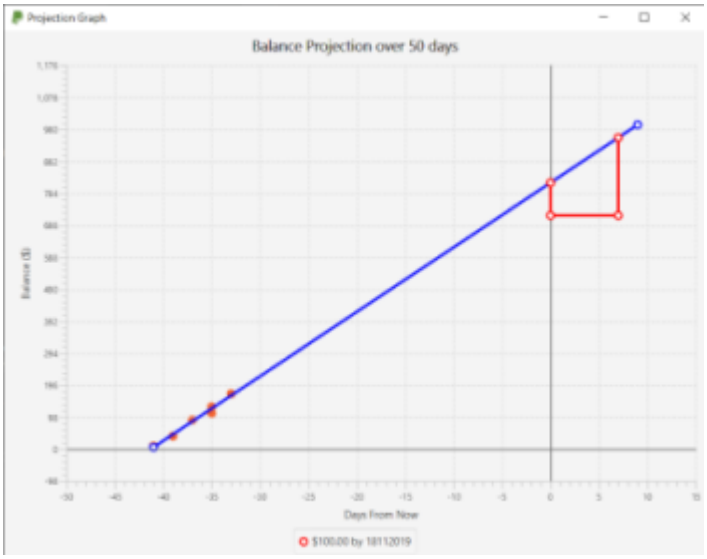


Figure 32. A typical projection graph

- **The X-Axis**
  The X-Axis denotes your balance in dollars ($).
- **The Y-Axis**
  The Y-Axis denotes the number of days from now, with today being Y = 0.
- **Red Points**
  The red points on the graph each represent your account balance (denoted by the X-value) at a particular point of time (denoted by the Y-value).
- **Blue Line Graph**
  The blue line graph represents the projection line, with each point along it representing a prediction of your account balance (denoted by the X-value) at a certain point of time (denoted by the Y-value).
- **All Other Coloured Line Graphs**
  All other coloured line graphs represent various budgets which fall within the `CATEGORY` and `DATE` range of the `PROJECTION`. Each of these line graphs have three parts:

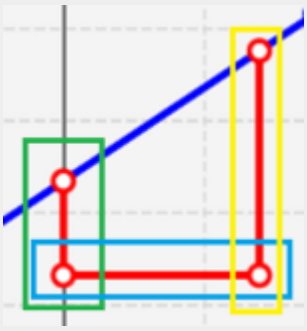


Figure 33. A budget line graph with its parts labelled by a green, blue and yellow box each

1. The line in the green box denotes the budget amount in dollars ($).
2. The line in the blue box denotes the budget's duration lifetime in days.
3. The line in the yellow box denotes the budget's projected deficit or surplus.

4.7.3. Usage Constraints

Valid Projection Index

- A `Projection` with `PROJECTION_ID` must exist. Attempting to display a non-existent `PROJECTION` will result in the following error message:

> The projection index provided is invalid.

Static Graph Rendering

- `Projection` graphs do not update automatically when a new `Transaction` or `Budget` is added or removed. Instead, they are statically rendered upon the `display` command.

NOTE	Due to the static nature of projection graphs, commands should **NOT** be executed while a projection graph is open, lest the behaviour of PalPay become unpredictable. Consequently, a `display` command should **ALWAYS** be followed by closing the projection graph window, before any other actions are performed within *PalPay*.

4.8. Switching Tabs : `view`

Want to switch tabs without using your mouse? You can switch to another tab with the `view` command.

4.8.1. Command Syntax

Format: `view TAB`

- `TAB` input only accepts `transaction`, `budget`, `ledger` and `projection` in v1.4. It is case-insensitive.

4.8.2. Example Usage

You do not have to use your mouse in PalPay to switch tabs anymore.

1. By default, you are in the `transaction` tab.

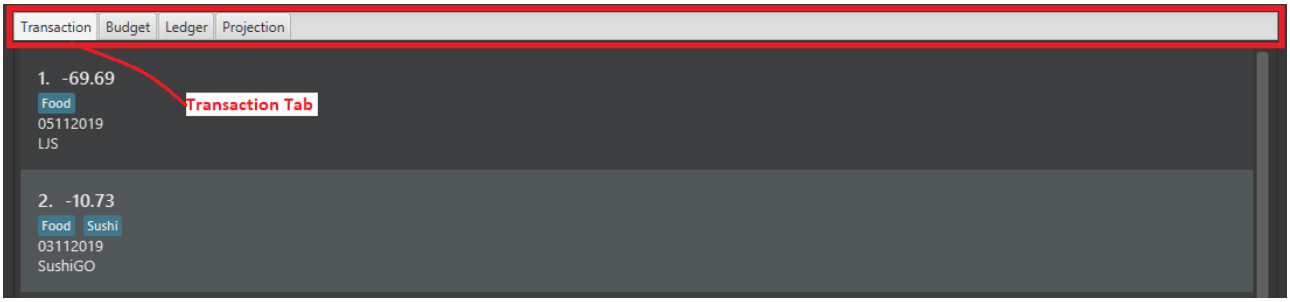


Figure 34. Transaction Tab

2. Simply type **view budget** in the command box and press `Enter`.

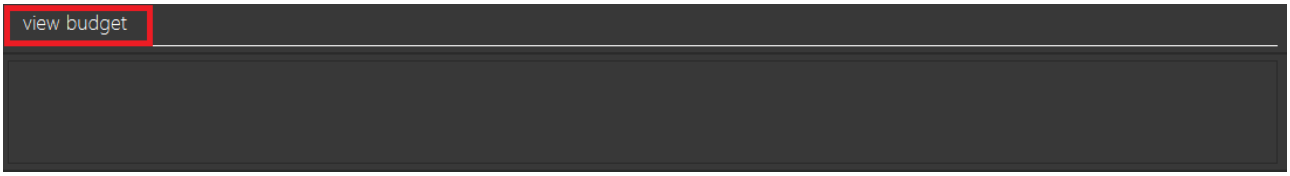


Figure 35. User Input

3. You can now view your budgets. Easy!

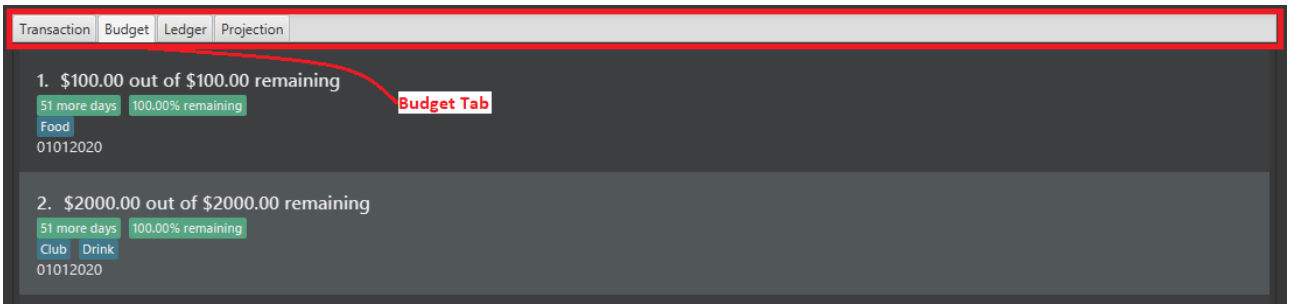


Figure 36. Budget Tab

4.9. Deleting Finance : `delete`

Deletes the specified Transaction, Budget, Ledger or Projection from PalPay.

4.9.1. Command Syntax

Format: `delete TYPE+INDEX`

- `TYPE` accepts either `t` (Transaction), `b` (Budget), `l` (Ledger) or `p` (Projection). (e.g. `delete b1` refers to deleting a *Budget* of index 1).
- `TYPE+INDEX` requires the TYPE and INDEX to be placed in sequential order (e.g. `delete b 1` or `delete 1` or `delete 1b` will not work).
- Example: `delete t1` will delete the first transaction from the list of transactions.

4.9.2. Important Details

- PalPay deletes an item based on the entry index of the target item. You can delete a maximum of 1 entry per command. (i.e. `delete t1 t2 b1` or `delete t1 t2` will not work)
- You can only delete an existing *Transaction* or *Budget*. Nothing will be deleted if the *Transaction* or *Budget* index does not exists.

4.9.3. Example Usage

```
Deleting the 5th entry of the transactions list
```

1. Note the index of the entry you want to delete. In this example, **entry 5** is the field we will be deleting.

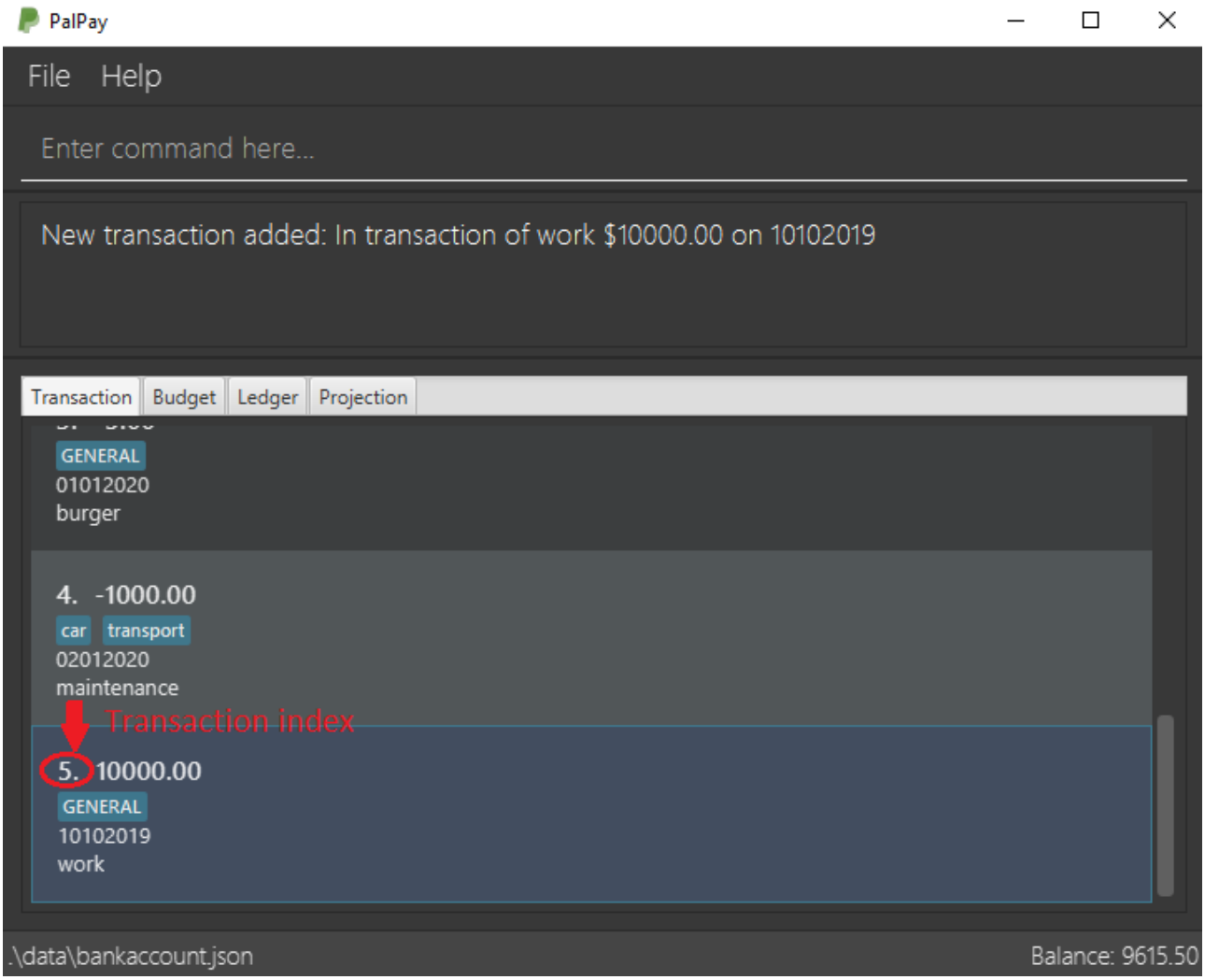


Figure 37. Delete Transaction Command

2. Since we are deleting a *Transaction* entry of index 5, we will input "t" into our `TYPE` field and "5" into our `INDEX` field.

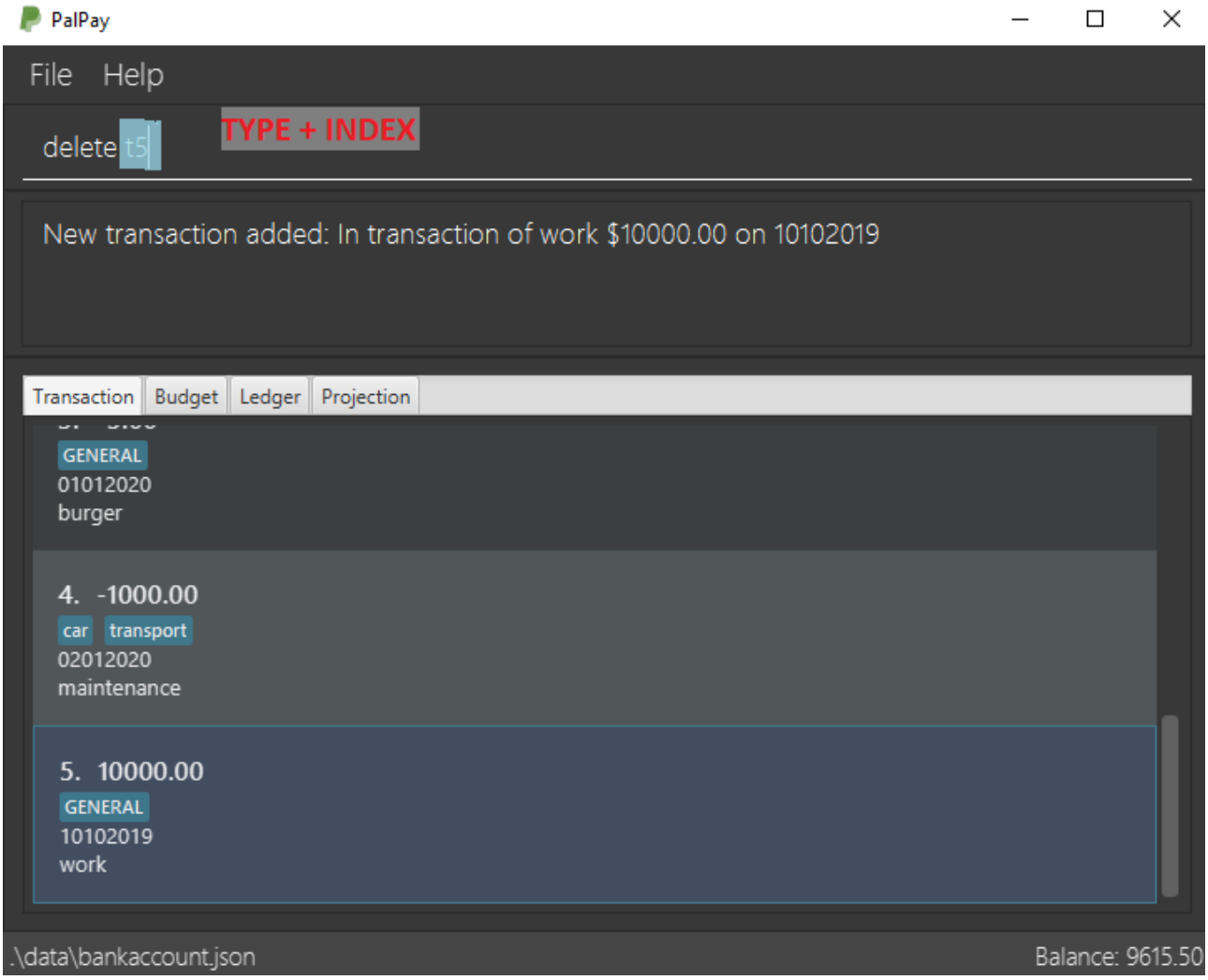


Figure 38. Delete Transaction Input

3. Success message will be displayed upon successful deletion.

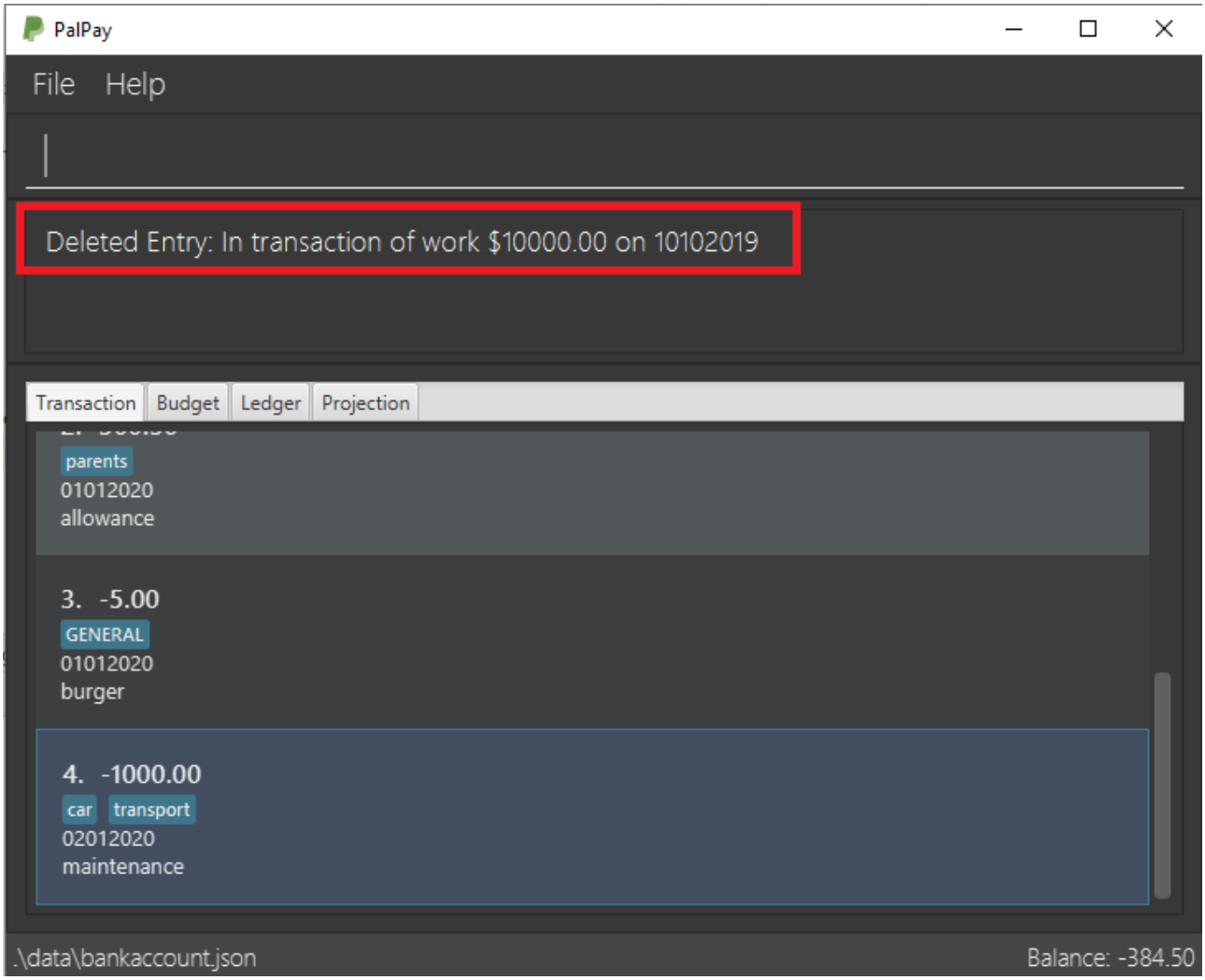


Figure 39. Delete Transaction Successful

Example Commands:

- `delete t1`
- `delete b3`
- `delete l2`
- `delete p4`

4.10. Updating Finance : `update`

Did you make a mistake in one of your entries? Perhaps you over counted that expenditure you made. PalPay provides you with an `update` feature which helps you change specific fields within your entries.

4.10.1. Command Syntax

The `update` feature has different implementations for different entry types. The conditions for the `update` feature is as follows.

Format (Transactions): `update TYPE+INDEX [$/AMOUNT] [d/DATE] [n/ITEM] [c/CATEGORY]…`

Format (Budget): `update TYPE+INDEX [$/AMOUNT] [d/DATE] [c/CATEGORY]…`

Format (Ledger): Cannot be updated

Format (Projections): Cannot be updated

- At least one `AMOUNT`, `DATE`, `ITEM` or `CATEGORY` fields must be entered. You can input more than 1 of the mentioned fields (e.g. `update t1 $/100 n/milk`).
- `TYPE` only accepts either `t` (*Transaction*) or `b` (*Budget*). (e.g. `update t1 ..` refers to updating a *Transaction* of index 1).
- `TYPE+INDEX` requires the TYPE and INDEX to be placed in sequential order (e.g. `update b 1 ..` or `update 1 ..` or `update 1b ..` will not work).
- Example: `update t1 $/3000 d/10102019` will update the first transaction from the list of transactions by changing it's `AMOUNT` to "$1000" and `DATE` to "10/10/2019".

4.10.2. Important Details

- `update` requires at least one field to be updated. (e.g. `update t1 $/20 d/10102019 n/milk` and `update t1 $/10` will both be accepted).
- You can only update an existing transaction, budget or projection. Nothing will be updated if the entry of "index" `INDEX` does not exists.
- `Ledger` and `Projection` do not have an update function. If you need to change specific fields within a ledger or projection entry, you should delete the target entry and recreate a new entry with your desired fields.
- You cannot change an `in` *Transaction* to an `out` *Transaction* or vice versa.
- Changing an expenditure's (`out` *Transaction*) category field to that of a Budget's entry will reflect changes on that particular Budget entry as well. (Further explained in **Example 3** below).

NOTE	Changing the **categories** of an `out` *Transaction* entry with similar categories to that of a *Budget* entry will reflect changes on the budget's remaining amount in version 2.0.

NOTE	Changing an expenditure's (`out` *Transaction*) **date** field to a date within the date period of a *Budget* entry will reflect changes on the budget's remaining amount in version 2.0.

4.10.3. Example Usage

Example 1:

Updating a *Transaction* entry.

1. Identify the **index number** of the entry you want to edit. In this case, we will be using entry 3.

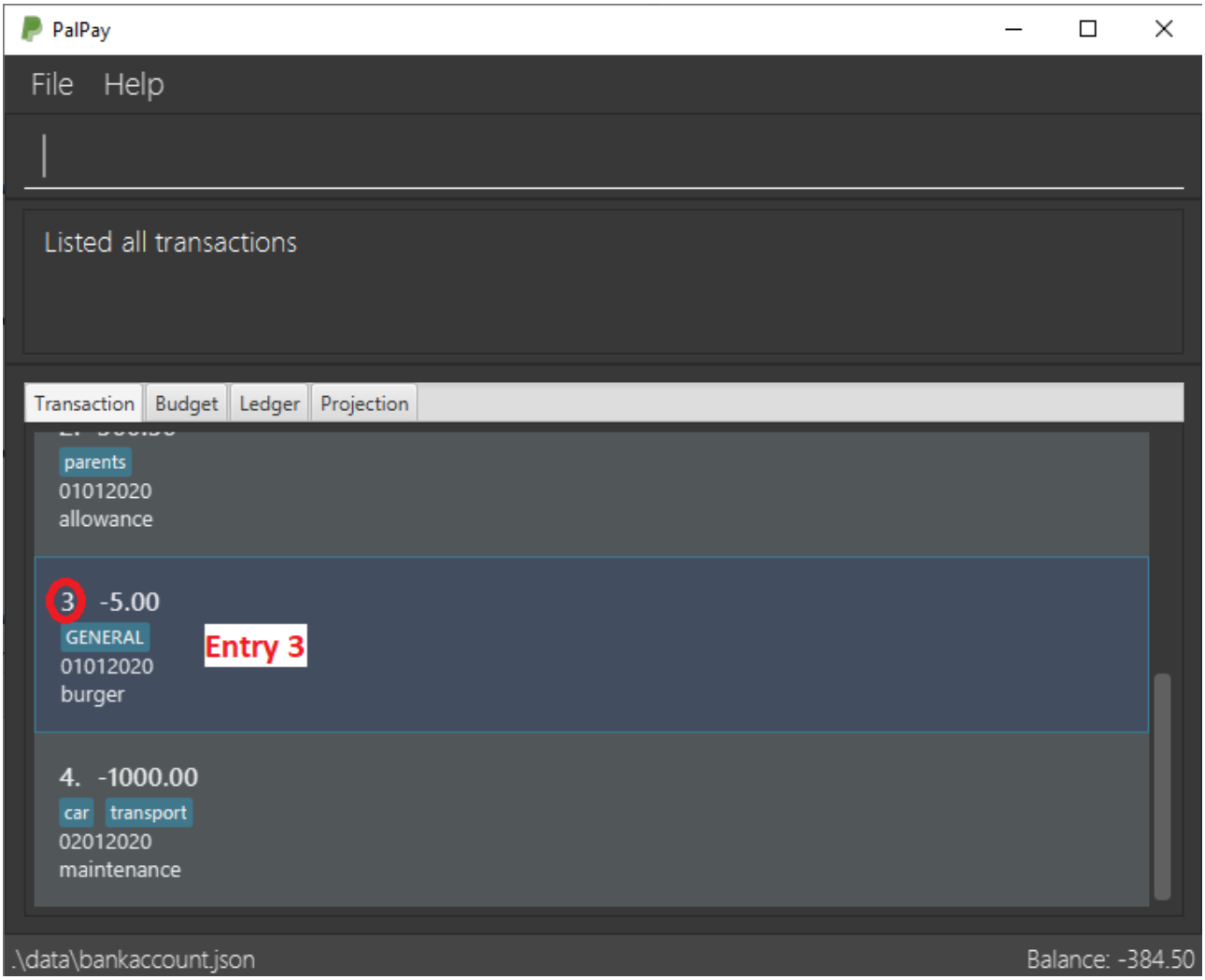


Figure 40. Transaction List Containing Entry 3

2. Put "t" as your `TYPE` input and key in the fields you want to change. In this case, we will only be changing the `AMOUNT` of the transaction.

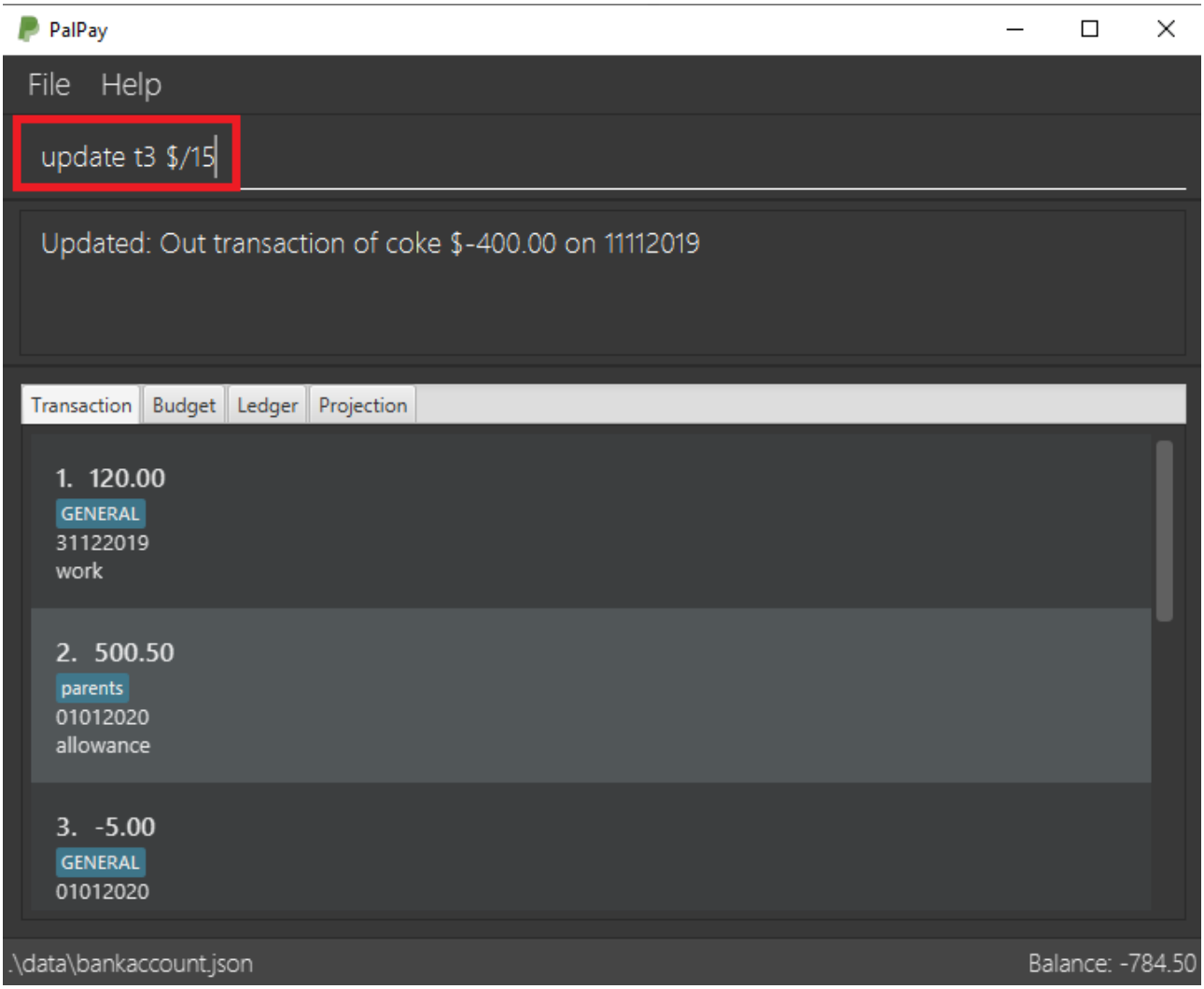


Figure 41. User Input for the Update Example 1

3. Success message will be displayed upon successful update. Fields will now be updated accordingly.

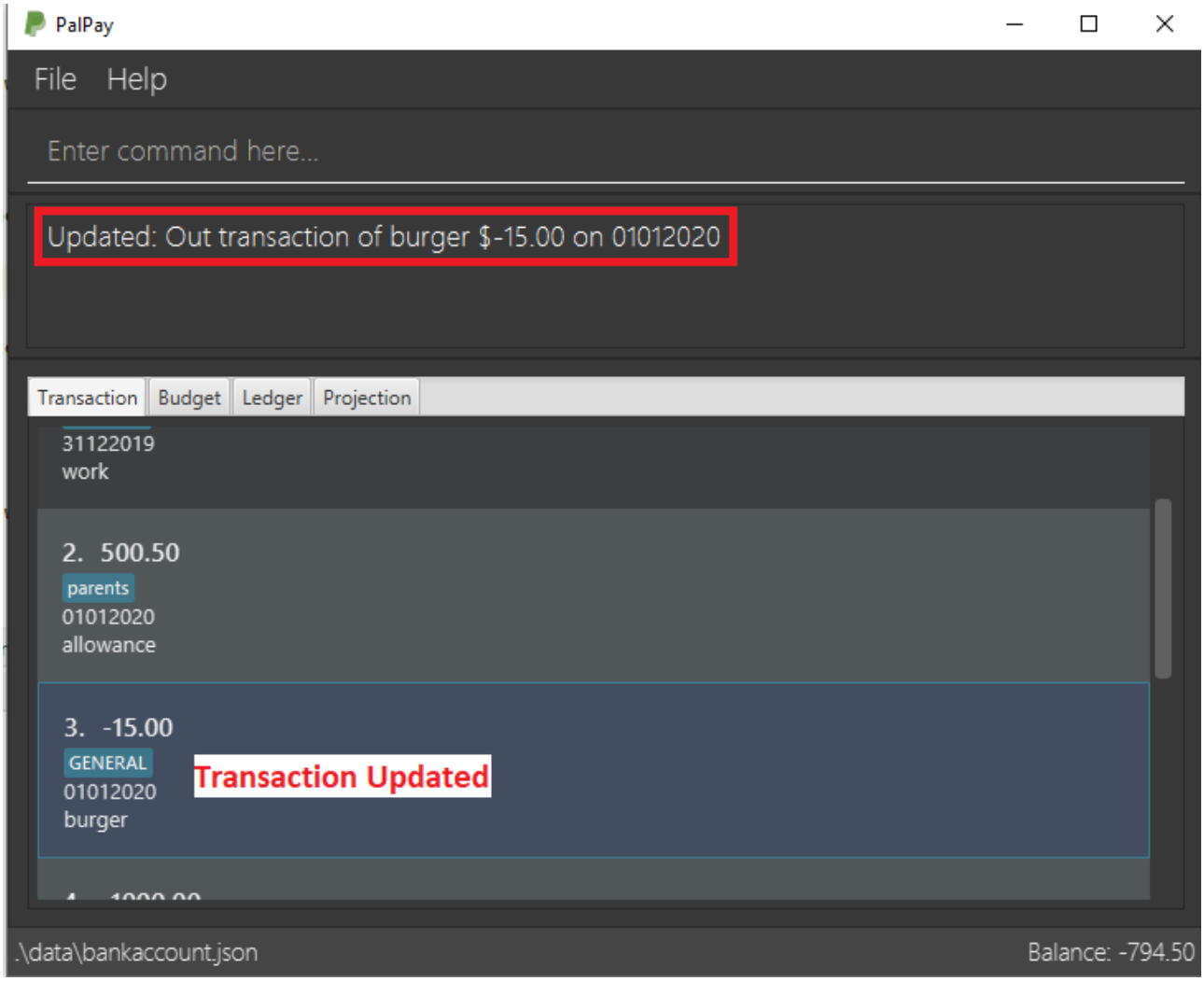


Figure 42. Success Message for the Update Example 1

Example 2:

Updating a *Budget* entry.

1. Identify the **index number** of the entry you want to edit

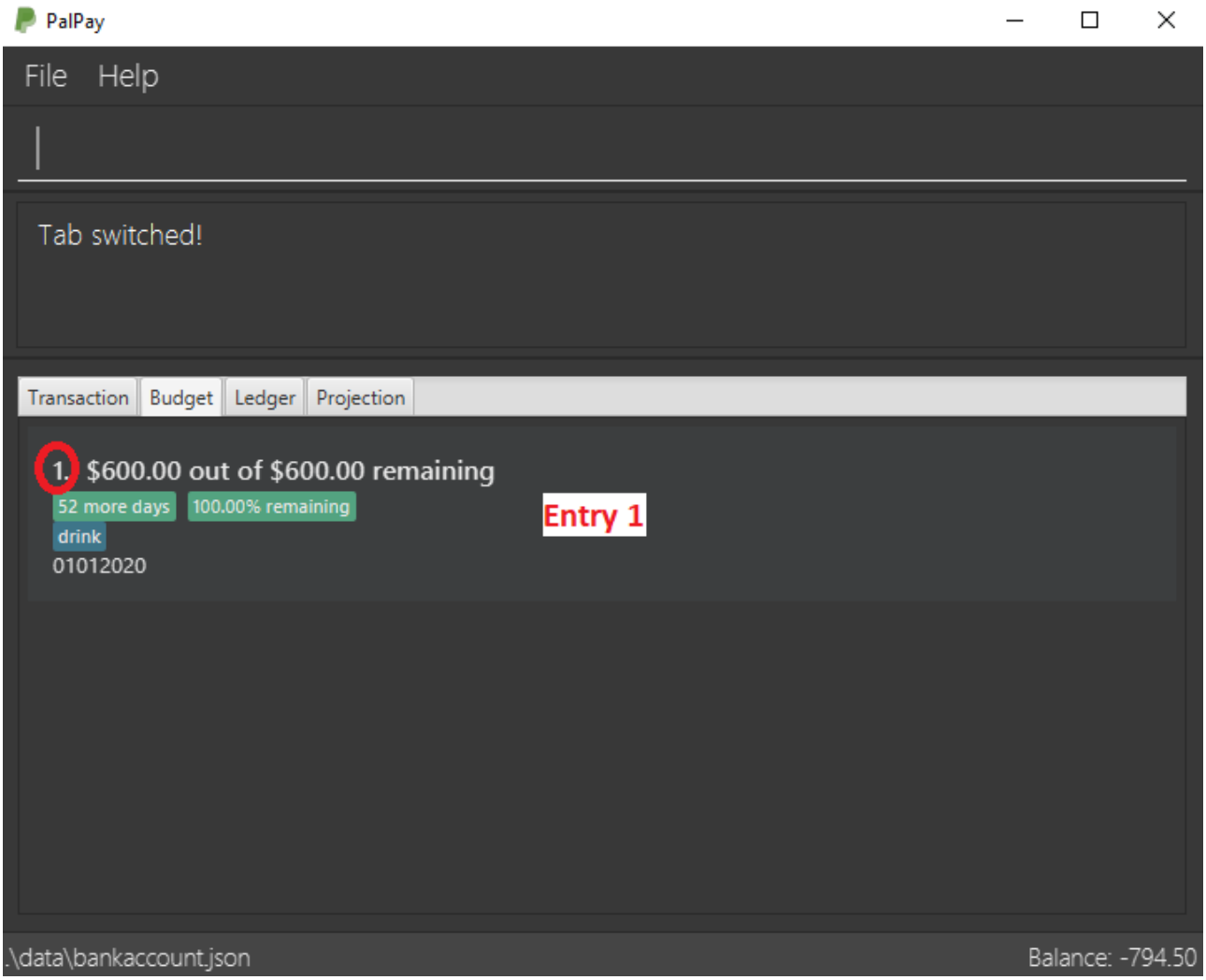


Figure 43. Budget Tab Containing Entry 1

2. Put "b" as your `TYPE` input and key in the fields you want to change. In this case, we will be changing both the `DATE` and `AMOUNT` of this *Budget*. When you update the amount of a budget, the budget will be re-initialised.

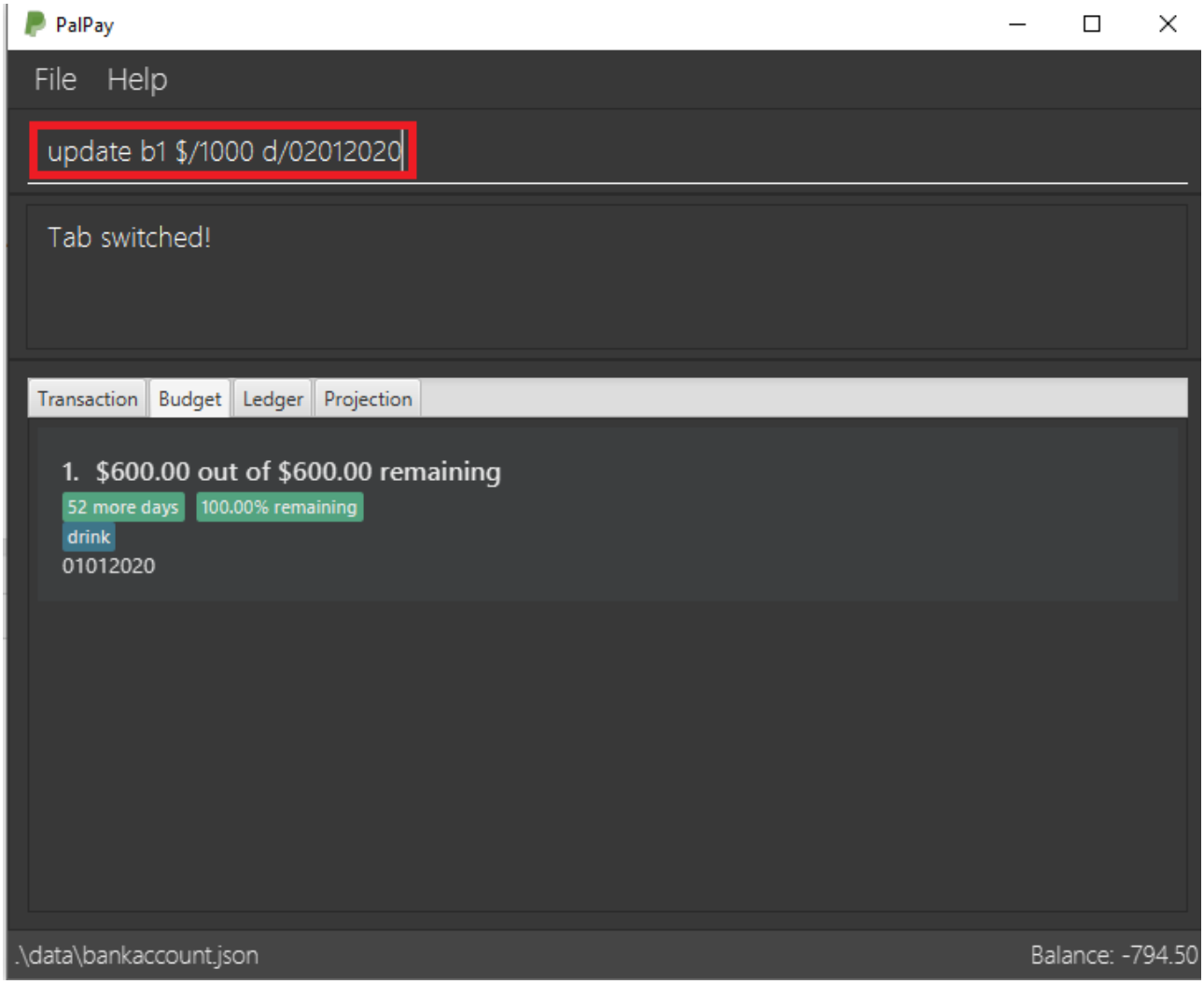


Figure 44. User Input for the Update Example 2

3. Success message will be displayed upon successful update. Fields will now be updated accordingly.

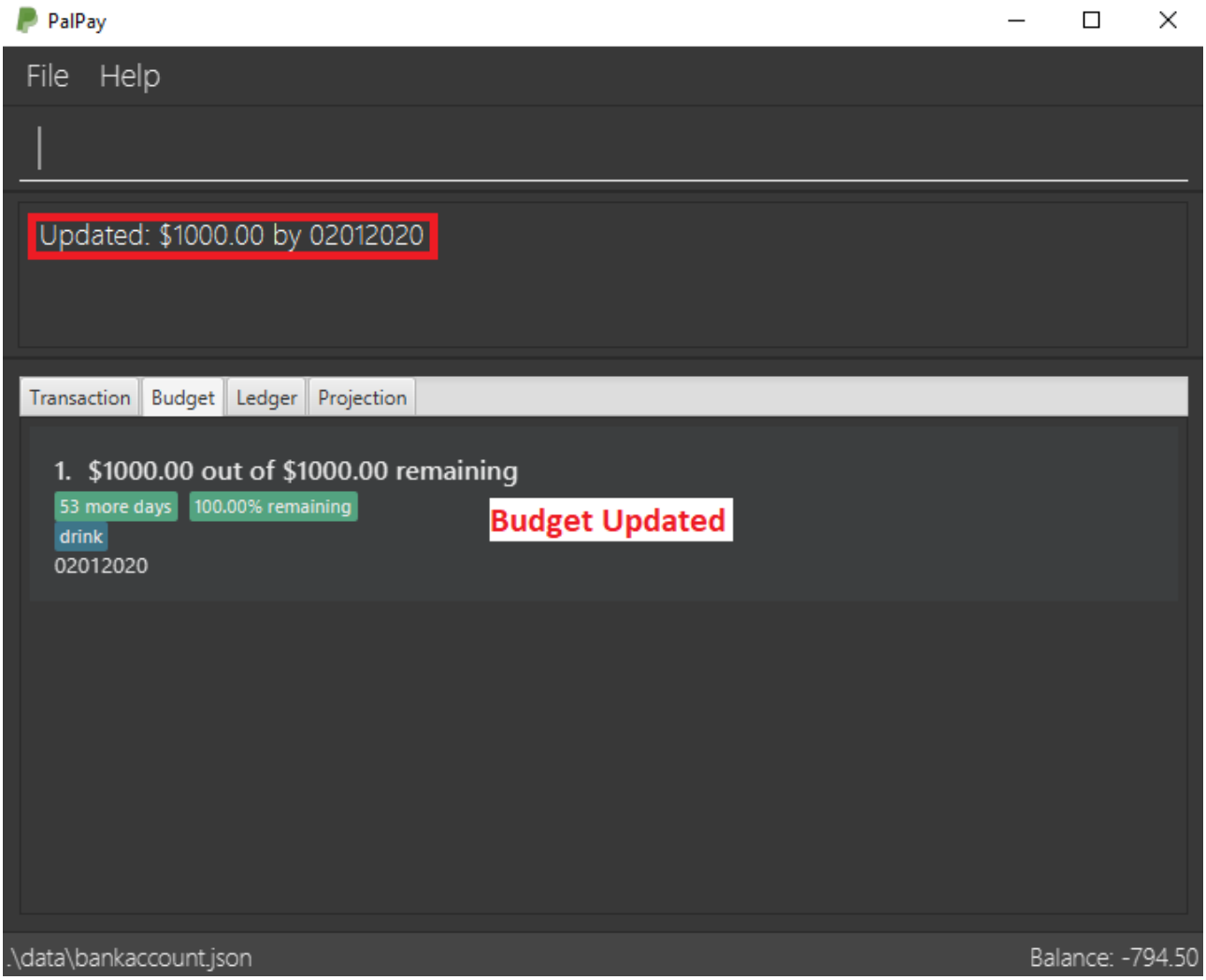


Figure 45. Success Message for the Update Example 2

Example 3:

Updating a *Transaction* entry which has the same category field as a *Budget* entry.

1. Identify the **index number** of the *Transaction* entry you want to edit.

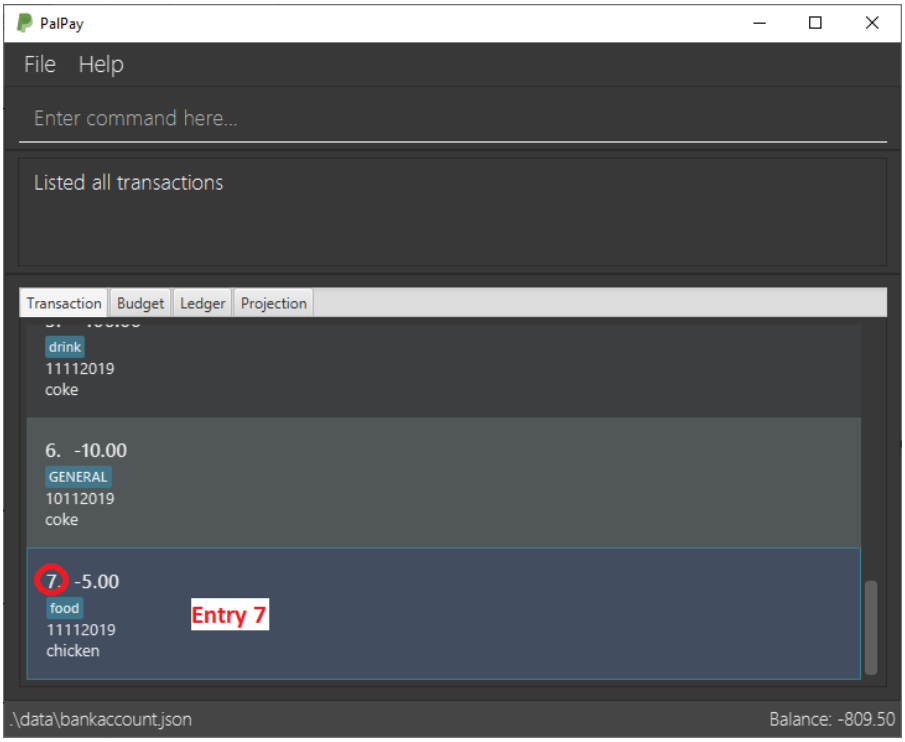


Figure 46. Transaction Sharing a Category with a Budget

2. Notice that a *Budget* entry has the same `CATEGORY` field as the *Transaction* entry mentioned above. (*Budget* entry 2).

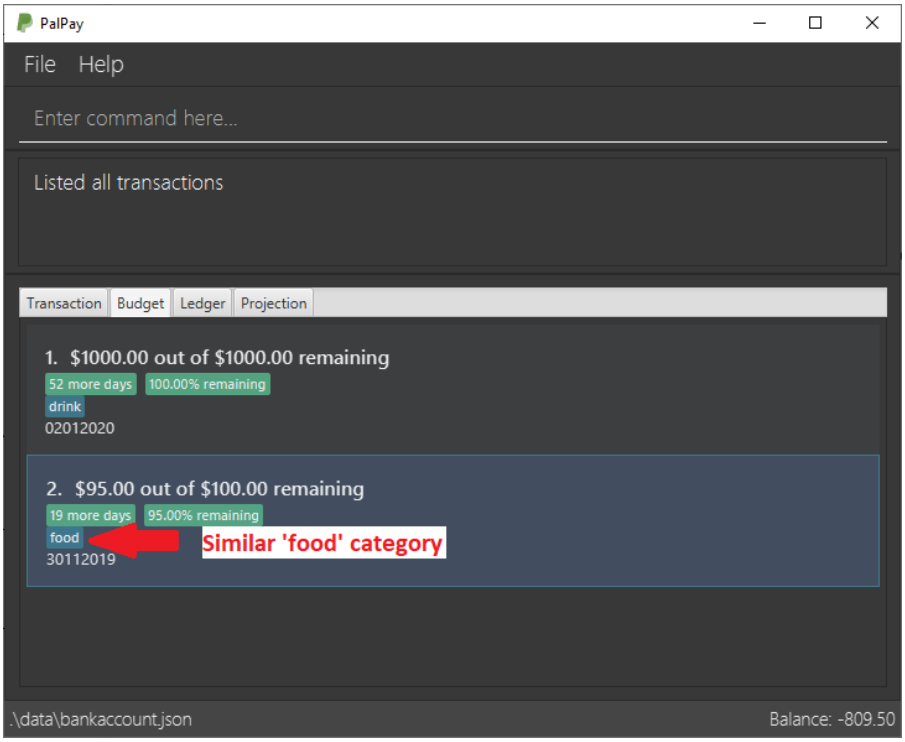


Figure 47. Budget Sharing a Category with the Target Transaction

3. Put "t" as your `TYPE` input and key in the fields you want to change. In this case, we will be changing only the `AMOUNT` of this *Transaction*.

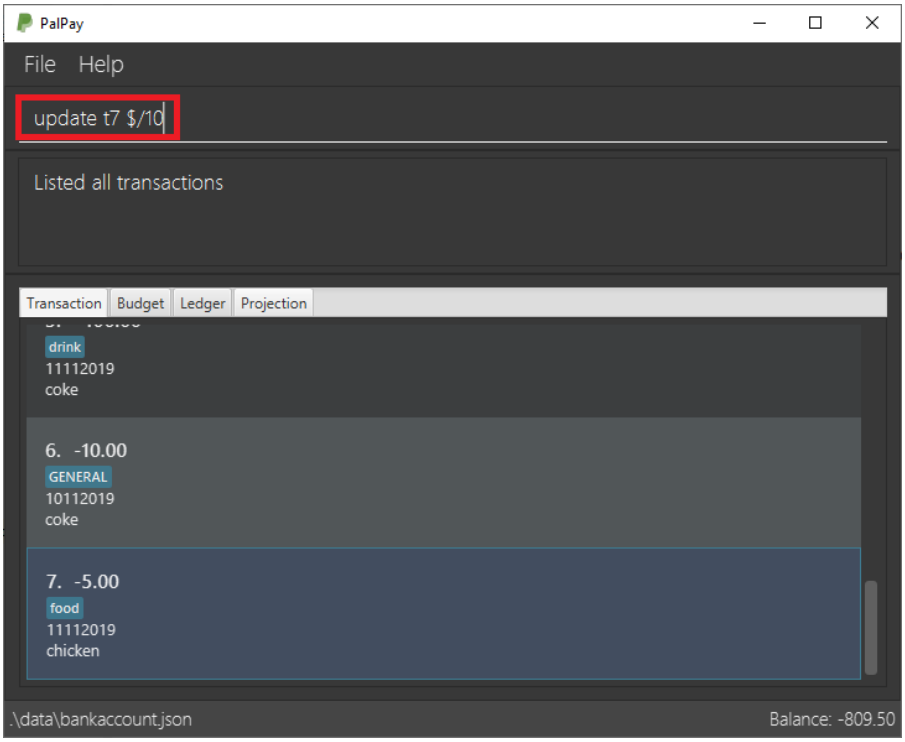


Figure 48. User Input for the Update Example 3

4. Success message will be displayed upon successful update. Fields of the *Transaction* entry will now be updated accordingly.

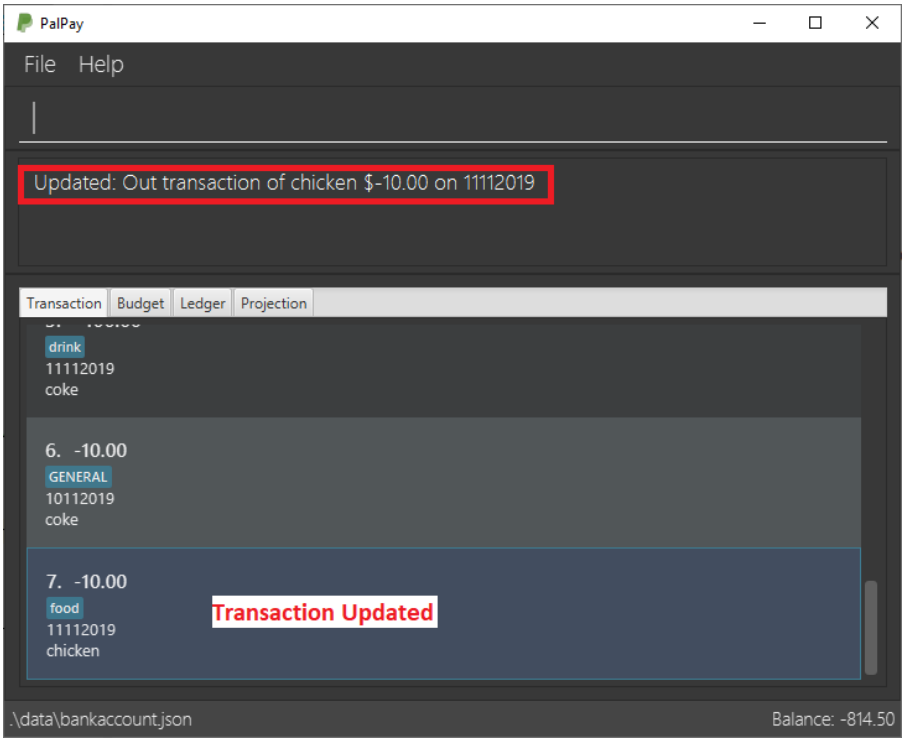


Figure 49. Success Message for the Update Example 3

5. Remaining amount of the *Budget* entry will also be updated accordingly.

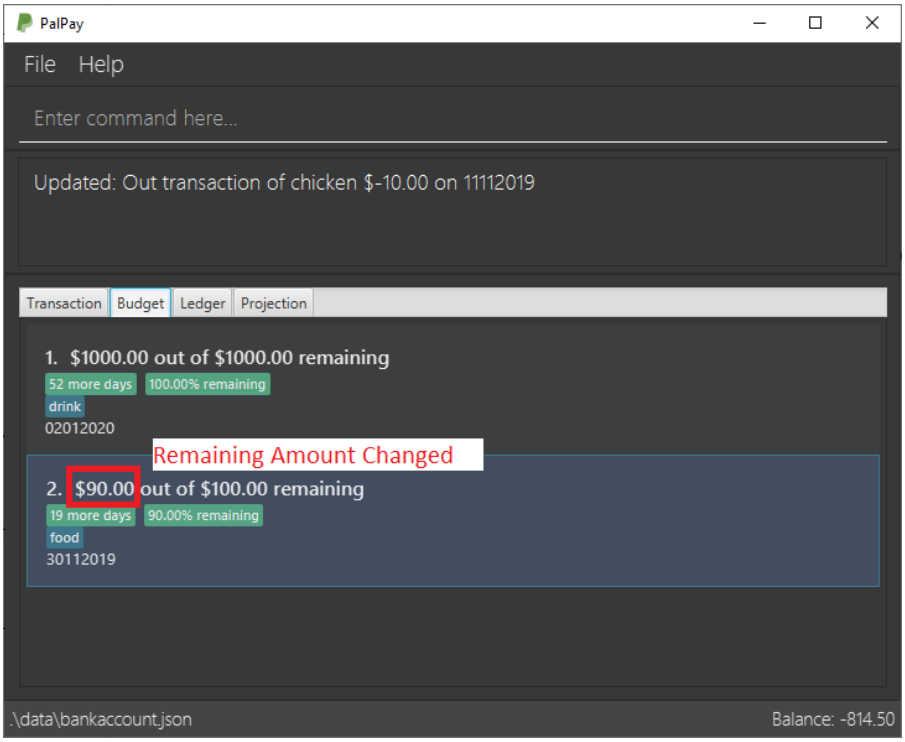


Figure 50. Automatic Update of Relevant Budget

Example Commands:

- `update t1 $/20 n/coke c/drinks d/12122019`
- `update b2 $/300`
- `update t4 $/30 d/12102019`

4.11. Sorting Transactions : `sort`

Have you ever wonder which is the most expensive transaction you ever made? Or which is the latest transaction you made? Fret not! You can now `sort` your transactions according to `date` or `amount`.

4.11.1. Command Syntax

Format: `sort PREDICATE/ORDER`

- `PREDICATE` accepts only `date` or `amount`. It is case-insensitive.
- `ORDER` accepts only `a` or `d` which represents ascending and descending, respectively.

4.11.2. Example Usage

Do you want to know what is the latest transaction you made? No need to scroll all the way down anymore. PalPay has made it simple for you.

1. By default, your transactions are sorted from the earliest transaction you entered to the latest transaction you entered.

Figure 51. Unsorted Transaction List

2. Simply type **sort date/d** in the command box and press `Enter`.

Figure 52. User Input for Sort Command

3. Great! You can now see the latest transactions you made.

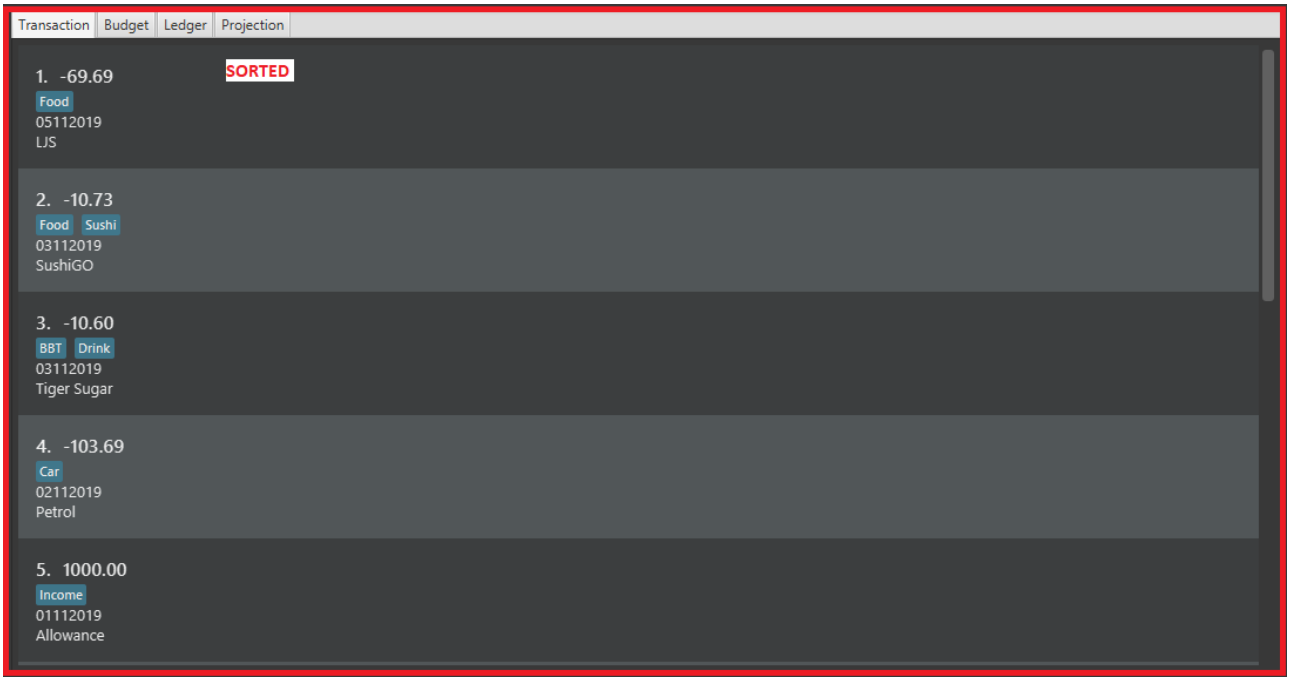


Figure 53. Sorted Transaction List

4.12. Filtering Transactions : `filter`

Here at PalPay, you do not need to scroll through your history of transactions to find out what you spend two months ago. PalPay gives you the power to filter your transactions to solve that problem.

4.12.1. Command Syntax

Format: `filter [n/DESCRIPTION] [y/YEAR] [m/MONTH] [c/CATEGORY]…`

- `YEAR` accepts only integers from 1900 to 9999.
- `MONTH` accepts only integers from 1 to 12.
- All transactions with at least one `CATEGORY` in the `[c/CATEGORY]…` input will be displayed.
- Example: `filter c/transport c/allowance y/2019` will display transactions with `transport`, `allowance`, or `transport` and `allowance` that occurred in 2019.

4.12.2. Example Usage

Imagine that you wanted to find out what you spent on shopping in October 2019.

1. By default, PalPay shows your all your transactions you have made.

Figure 54. Unfiltered Transaction List

2. Simply type **filter c/Shopping m/10 y/2019** in the command box and press `Enter`.

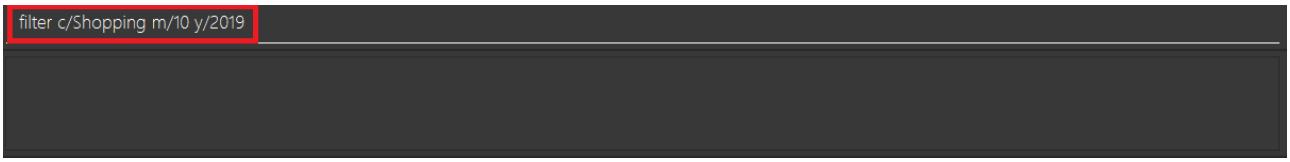


Figure 55. User Input for Filter Command

3. You will now see the list of transactions you have made while shopping in October 2019. Hurray!

Figure 56. Filtered Transaction List

4.13. Undoing the Last Command : `undo`

Did you accidentally delete a transaction? Do not panic! PalPay lets you undo your previous commands with just one word, `undo`.

4.13.1. Command Syntax

Format: `undo`

- Once you exit PalPay, you cannot undo the previous commands.
- Below are the commands that are undoable:
  - `in` / `out` / `set` / `split` / `receive` / `project` / `sort` / `filter` / `update` / `delete` / `clear` / `list`

4.13.2. Example Usage

Suppose you want to update your allowance you received in October 2019 to $800 but you accidentally update the GrabTaxi ride instead. Without going through the trouble of updating the same transaction again, you can simply perform the `undo` command. Just follow these three simple steps.

1. Here, you can see the wrong update you just made.

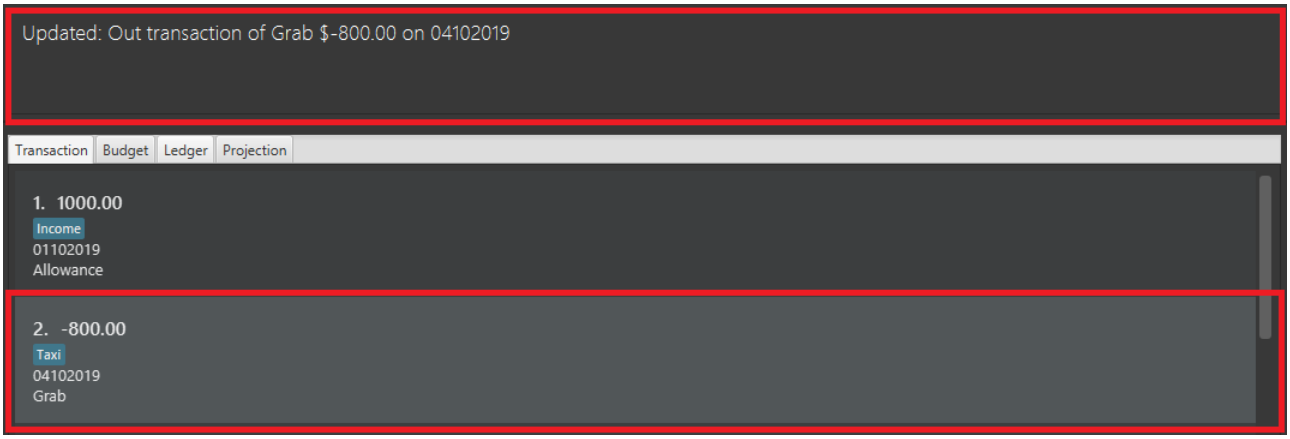


Figure 57. Transaction List Containing Erroneous Transaction

2. Simply type **undo** in the command box and press `Enter`.

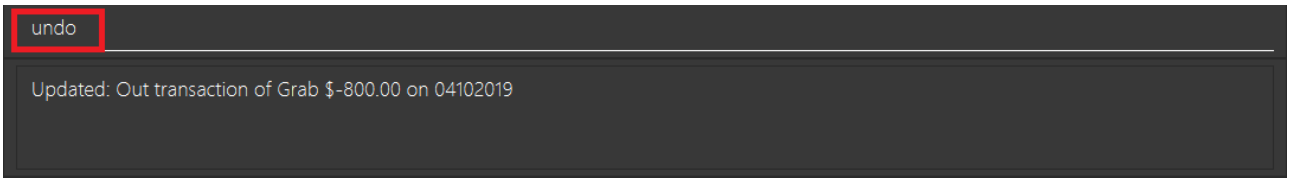


Figure 58. User Input for Undo Command

3. As you wish, your command has been undone.

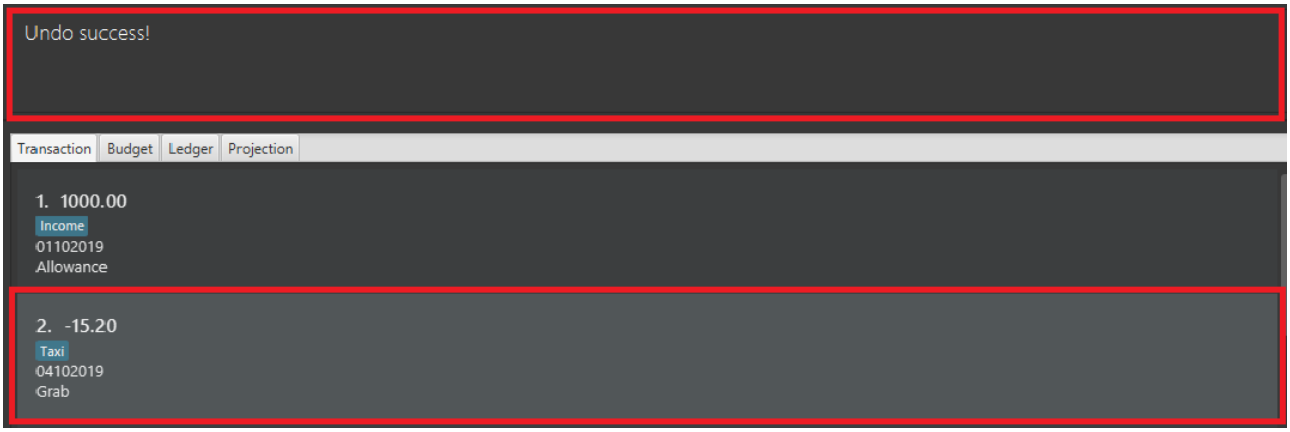


Figure 59. Erroneous Transaction Has Been Undone

4.14. Redoing the Last Command : `redo`

Made an extra `undo` by mistake? Do not worry! PalPay lets you redo your previous undo(s) with just one word, `redo`.

4.14.1. Command Syntax

Format: `redo`

- You can only redo `undo` commands.
- Once you exit PalPay, you cannot redo the previous undo(s).

4.14.2. Example Usage

Suppose you want to undo your last update but you accidentally undo twice instead. You can simply perform the `redo` command to revert the changes. Just follow these three simple steps.

1. Here, you can see the extra undo you just made and the GrabTaxi ride is back at $800.

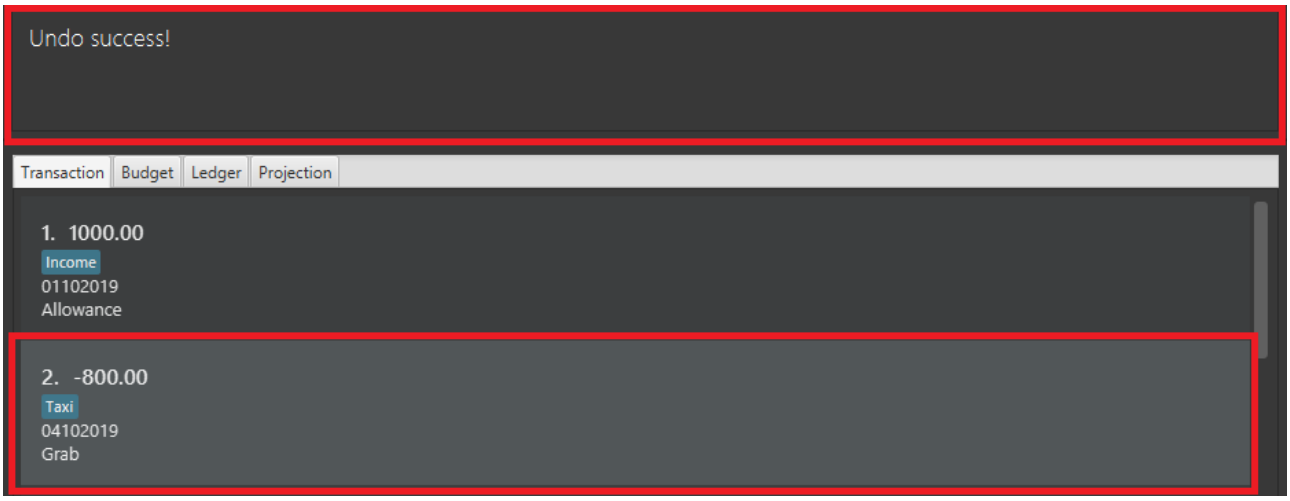


Figure 60. Transaction List Containing Erroneous Transaction

2. Simply type **redo** in the command box and press `Enter`.

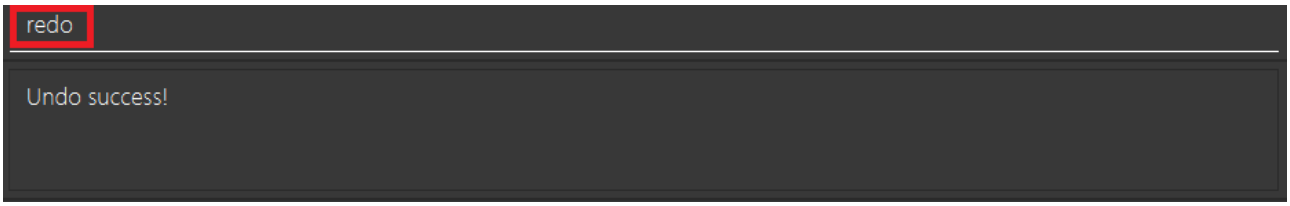


Figure 61. User Input for Redo Command

3. Great! Your transaction is back to normal.

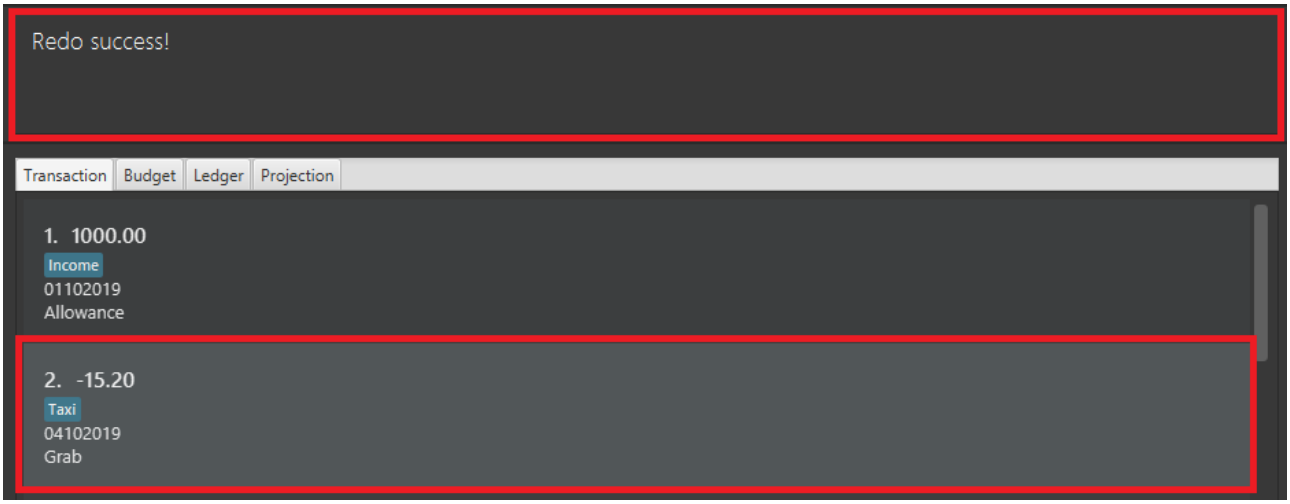


Figure 62. Success Message for Redo Command

4.15. Clearing All Entries : `clear`

Do you want to start PalPay from a clean slate again? The `clear` command lets you do that!

4.15.1. Command Syntax

Format: `clear`

4.16. Listing All Entries : `list`

After filtering your transactions, you can use the `list` command to see all of your transactions in PalPay again.

4.16.1. Command Syntax

Format: `list`

4.17. Viewing Help : `help`

Did you forget how to use the `in` command? Fret not! You can easily find the link to this User Guide with the `help` command. Simply copy and paste the URL into your browser to access our User Guide.

4.17.1. Command Syntax

Format: `help`

4.18. Exiting the Application : `exit`

Finishing using PalPay for the day? You can use the `exit` command to close PalPay.

4.18.1. Command Syntax

Format: `exit`

4.19. Saving the Data

PalPay data is saved in the hard disk automatically after any command that changes the data.
There is no need to save manually.

5. FAQ

Q: How do I transfer my data to another Computer?
A: Install the app in the other computer and overwrite the empty data file it creates with the file that contains the data of your previous Bank Account folder.

6. Command Summary

- **In** : `in $/AMOUNT n/ITEM d/DATE [c/CATEGORY]`
  Example: `in $/100 n/allowance d/11112019 c/income`
- **Out** : `out $/AMOUNT n/ITEM d/DATE [c/CATEGORY]`
  Example: `out $/20 n/coke d/19112019 c/drink c/lunch`
- **Set** : `set $/AMOUNT d/DATE [c/CATEGORY]…`
  Example: `set $/100 d/10102019 c/food`
- **Split** : `split $/AMOUNT n/NAME1 a/DESCRIPTION [d/DATE] [n/NAME2]… [s/SHARE]…`
  Example: `split $/1000 n/Amy n/Betty n/Catherine n/Dan a/HaiDiLao`
- **Receive** : `receive $/AMOUNT n/NAME`
  Example: `receive $/20 n/Albert`
- **Project** : `project DATE CATEGORY`
  Example: `project d/22072020 c/Food`
- **Display** : `display PROJECTION_ID`
  Example: `project p1`
- **View** : `view TAB`
  Example: `view transaction`
- **Delete** : `delete TYPE+INDEX`
  Example: `delete t1`
- **Update** : `update TYPE+INDEX [$/AMOUNT] [d/date] [n/ITEM] [c/CATEGORY]`
  Example: `update b1 $/100 c/transport`
- **Sort** : `sort PREDICATE`
  Example: `sort amount`
- **Filter** : `filter [n/DESCRIPTION] [y/YEAR] [m/MONTH] [c/CATEGORY]…`
  Example: `filter c/transport c/allowance y/2019`
- **Undo** : `undo`
- **Redo** : `redo`
- **Clear** : `clear`
- **List** : `list`
- **Help** : `help`
- **Exit** : `exit`