

SEBA Master - Web Application Engineering

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Assignment 2

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Budgetly is an expense tracking web app to help private customers with many monthly transactions or critical budgets to keep track of their finances with automated bank transaction analysis, customizable budget categories, and special attention to data security.

Use Cases with Mockups

In the following section, four distinct use cases are presented that illustrate main functionalities of the Budgetly web application.

Use Case #1: Add a Category

To make the web application as flexible to individual lifestyles as possible, users can define their budget categories. A user can add a new category by clicking the "NEW CATEGORY" button on the overview page. This opens a dialog popup, which they can dismiss at any point by clicking on "CLOSE". If they wish to add a new category, they have to enter a name for the category. The user won't be able to complete the adding process as long as this field is empty. Additionally, users can add other attributes of a category. In particular, users can define a budget limit and an associated budget type that specifies the time interval.

Furthermore, they can select an existing group and assign the new category to it.

Because categories represent conditional filters, users can choose keywords that specify a category. Exemplary, transactions with discount supermarkets - like "Aldi", "Lidl", and "Norma" - may be defined by the respective keywords. After a user has added a keyword, it is displayed such that users can review and modify their filter if needed.

If the name field is non-empty, the user can add the new category by clicking on the "ADD CATEGORY" button, which stores the new object in the application's database. The popup changes and shows that the process has been successful. Users are then able to directly apply their new filter to categorize all existing transactions by accepting, but they can also reject an immediate update. In either case, the user returns to the overview page.

In order to further structure their categories, users also can create category groups with the same popup dialog by clicking on the "ADD CATEGORY GROUP" button. Then they also can specify a name, budget limit and budget type. Instead of selecting a group, they can choose categories that belong to this group. Because associated categories already filter the transactions, category groups do not need a specification of a conditional filter with keywords. Users can then confirm the process similar to the adding process for categories, but the confirmation popup does not ask whether an update shall be made, and the user is redirected to the overview page.

BUDGETLY

Add Category

Add Category Group

Add Category Group

The process involves navigating through the Budgetly interface to add a new category and a category group. The steps are as follows:

- Step 1: Main Dashboard** - Shows the main transaction list with various categories like 'Food', 'Transport', etc.
- Step 2: Add Category** - A modal window where you enter the category name ('Discoverer'), budget limit (100,00), and part of group ('Food'). You also have the option to add keywords and include existing categories.
- Step 3: Confirmation** - A success message stating 'Your new Category has been added successfully!' with a checkmark icon.
- Step 4: Add Category Group** - A modal window where you enter the category group name ('Food'), budget limit (200,00), and include categories ('Cheese Categories').
- Step 5: Confirmation** - A success message stating 'Your new Category Group has been added successfully!' with a checkmark icon.

Use Case #2: Add a New Transaction Manually

Another indispensable feature is that users always have the opportunity to manually add a transaction if they are no premium users or have made a transaction that has involved cash. By clicking on the "NEW TRANSACTION" button, the user lets a dismissible dialog popup appear.

Users can add a description there that reminds them of the intended use. Furthermore, they have to add the amount of money and select a category to which the transaction will belong to initially. Then, users may choose an account, or else the transaction receives the default cash option.

In case a mandatory field is empty, a user can not complete the adding process, and a label is shown that informs the user about the specific missing information. If all mandatory fields are non-empty, the user can save the transaction by clicking on the "ADD" button. The transaction is stored in the database, and the popup informs the user about the successful completion. If the user confirms this notice and the category's budget limit is reached because of this transaction, the popup shows a budget alarm with the set limit and the current sum.

After the user accepts by clicking the respective button, the popup is dismissed, and the user returns to the overview page.

BUDGETLY

Categories

- Overview
- Food
- Supermarket
- Restaurant
- Lafendido
- Hobby
- Tennis
- Sailing
- Transport
- Uncategorized

+ NEW CATEGORY

TABLE CHARTS INSIGHTS

| Date | Category | Account | Partner | Reference | Amount | Verified |
|------------|------------|----------------|------------------------------|---------------------------------|--------|----------|
| 30.05.2022 | Restaurant | Sparksse Giro | Mc Donalds | Cheesy Burger Dörfchenhof | 3,99€ | |
| 29.05.2022 | Restaurant | Comdirect Visa | McDonald's | Pololets Matzke Garching | 9,99€ | |
| 27.05.2022 | Restaurant | Sparksse Giro | Filzen Brauhaus GmbH | Bier Rechnung Ref 903842 | 12,99€ | |
| 21.05.2022 | Restaurant | Sparksse Giro | Other rechteschaffene Dörfel | | 5,99€ | |
| 18.05.2022 | Restaurant | Sparksse Giro | Sushi Maniacal | Sushi Kamezukoh | 29,99€ | |
| 12.05.2022 | Restaurant | Comdirect Visa | Hans im Glück | WG Service Ref 129086048 | 12,99€ | |
| 09.05.2022 | Restaurant | Comdirect Visa | Burger King | Burger King Fläke (actor 89127) | 8,99€ | |

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+ NEW TRANSACTION

BUDGETLY

Categories

- Overview
- Food
- Supermarket
- Restaurant
- Lafendido
- Hobby
- Tennis
- Sailing
- Transport
- Uncategorized

+ NEW CATEGORY

TABLE CHARTS INSIGHTS

Add Transaction

CLOSE X

Date: 30.05.2022

Description: Barbecue

Amount in €: * 21,40

Category of Transaction: * Choose Category

Used Account: Sparksse Girocard

+ ADD

MANAGE BANK ACCOUNTS

| Date | Category | Account | Partner | Reference | Amount | Verified |
|------------|------------|----------------|------------------------------|---------------------------------|--------|----------|
| 30.05.2022 | Restaurant | Sparksse Giro | | | 3,99€ | |
| 29.05.2022 | Restaurant | Comdirect Visa | McDonald's | Pololets Matzke Garching | 9,99€ | |
| 27.05.2022 | Restaurant | Sparksse Giro | Filzen Brauhaus GmbH | Bier Rechnung Ref 903842 | 12,99€ | |
| 21.05.2022 | Restaurant | Sparksse Giro | Other rechteschaffene Dörfel | | 5,99€ | |
| 18.05.2022 | Restaurant | Sparksse Giro | Sushi Maniacal | Sushi Kamezukoh | 29,99€ | |
| 12.05.2022 | Restaurant | Comdirect Visa | Hans im Glück | WG Service Ref 129086048 | 12,99€ | |
| 09.05.2022 | Restaurant | Comdirect Visa | Burger King | Burger King Fläke (actor 89127) | 8,99€ | |

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valid input

invalid input

BUDGETLY

Categories

- Overview
- Food
- Supermarket
- Restaurant
- Lafendido
- Hobby
- Tennis
- Sailing
- Transport
- Uncategorized

+ NEW CATEGORY

TABLE CHARTS INSIGHTS

Add Transaction

CLOSE X

Your Transaction has been added successfully!

OK

MANAGE BANK ACCOUNTS

| Date | Category | Account | Partner | Reference | Amount | Verified |
|------------|------------|----------------|------------------------------|---------------------------------|--------|----------|
| 30.05.2022 | Restaurant | Sparksse Giro | | | 3,99€ | |
| 29.05.2022 | Restaurant | Comdirect Visa | McDonald's | Pololets Matzke Garching | 9,99€ | |
| 27.05.2022 | Restaurant | Sparksse Giro | Filzen Brauhaus GmbH | Bier Rechnung Ref 903842 | 12,99€ | |
| 21.05.2022 | Restaurant | Sparksse Giro | Other rechteschaffene Dörfel | | 5,99€ | |
| 18.05.2022 | Restaurant | Sparksse Giro | Sushi Maniacal | Sushi Kamezukoh | 29,99€ | |
| 12.05.2022 | Restaurant | Comdirect Visa | Hans im Glück | WG Service Ref 129086048 | 12,99€ | |
| 09.05.2022 | Restaurant | Comdirect Visa | Burger King | Burger King Fläke (actor 89127) | 8,99€ | |

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BUDGETLY

Categories

- Overview
- Food
- Supermarket
- Restaurant
- Lafendido
- Hobby
- Tennis
- Sailing
- Transport
- Uncategorized

+ NEW CATEGORY

TABLE CHARTS INSIGHTS

Add Transaction

CLOSE X

Description: Barbecue

Amount in €: * 21,60

Category of Transaction: * Discouter

Used Account: Sparksse Girocard

+ ADD

MANAGE BANK ACCOUNTS

| Date | Category | Account | Partner | Reference | Amount | Verified |
|------------|------------|----------------|------------------------------|---------------------------------|--------|----------|
| 30.05.2022 | Restaurant | Sparksse Giro | | | 3,99€ | |
| 29.05.2022 | Restaurant | Comdirect Visa | McDonald's | Pololets Matzke Garching | 9,99€ | |
| 27.05.2022 | Restaurant | Sparksse Giro | Filzen Brauhaus GmbH | Bier Rechnung Ref 903842 | 12,99€ | |
| 21.05.2022 | Restaurant | Sparksse Giro | Other rechteschaffene Dörfel | | 5,99€ | |
| 18.05.2022 | Restaurant | Sparksse Giro | Sushi Maniacal | Sushi Kamezukoh | 29,99€ | |
| 12.05.2022 | Restaurant | Comdirect Visa | Hans im Glück | WG Service Ref 129086048 | 12,99€ | |
| 09.05.2022 | Restaurant | Comdirect Visa | Burger King | Burger King Fläke (actor 89127) | 8,99€ | |

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BUDGETLY

Categories

- Overview
- Food
- Supermarket
- Restaurant
- Lafendido
- Hobby
- Tennis
- Sailing
- Transport
- Uncategorized

+ NEW CATEGORY

TABLE CHARTS INSIGHTS

Add Transaction

CLOSE X

Attention!

You reached the budget limit in the category group Food

Your Budget Limit: 200,00€

Your current spending: 215,67€

OK

MANAGE BANK ACCOUNTS

| Date | Category | Account | Partner | Reference | Amount | Verified |
|------------|------------|----------------|------------------------------|---------------------------------|--------|----------|
| 30.05.2022 | Restaurant | Sparksse Giro | | | 3,99€ | |
| 29.05.2022 | Restaurant | Comdirect Visa | McDonald's | Pololets Matzke Garching | 9,99€ | |
| 27.05.2022 | Restaurant | Sparksse Giro | Filzen Brauhaus GmbH | Bier Rechnung Ref 903842 | 12,99€ | |
| 21.05.2022 | Restaurant | Sparksse Giro | Other rechteschaffene Dörfel | | 5,99€ | |
| 18.05.2022 | Restaurant | Sparksse Giro | Sushi Maniacal | Sushi Kamezukoh | 29,99€ | |
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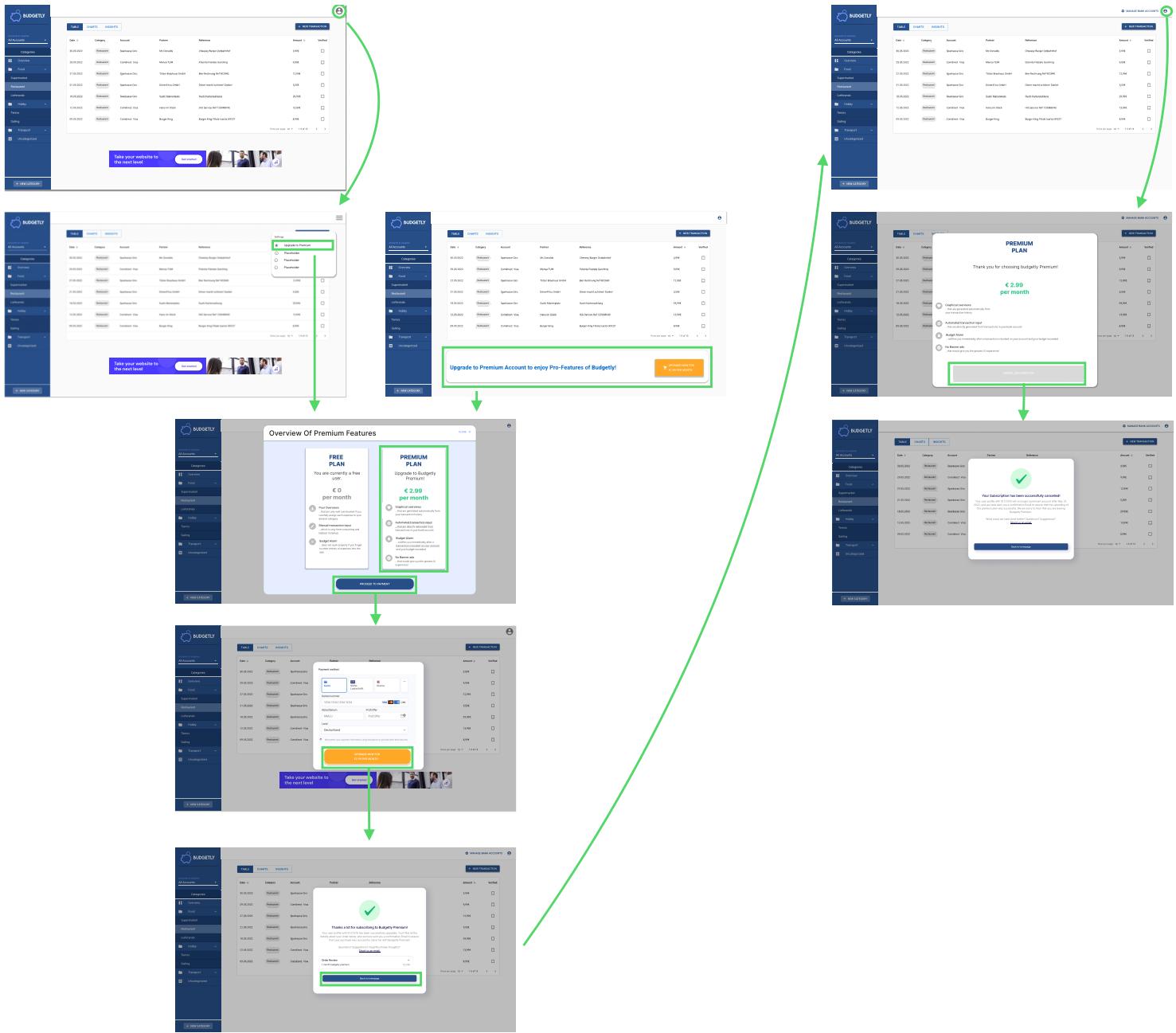
Use Case #3: Upgrade to a Premium Account

The first use case of the web application describes how to upgrade to the premium plan. A user can upgrade his free account to budgetly premium to unlock premium features. Since the user is not a premium user by default, he can see a banner advertisement from our advertising partners at the bottom of the homepage. There are two entry points to the "account upgrade" flow:

- 1. Periodically, he sees a banner promoting our premium plan instead of the ads. If he clicks on the banner, he gets redirected to a pop-up showing the overview of our two different subscription plans.
- 2. He clicks on his profile button on the top right corner, showing a dropdown of menu settings. One of the menu items is named "Upgrade to premium" which will redirect him to the same overview pop-up as in the first option.

The overview pop-up shows him the difference between our application's free and premium plans. The user can see that with the premium plan, he can automatically pull transaction histories from bank accounts after he gives authorizations. This enables the application to generate better overviews of his transactions and automatically notify the user through a "budget alarm" if a transaction is booked on his account and the budget limit is exceeded. Furthermore, the banner advertisements from sponsors are no longer shown in the app after the user upgrades to premium. When the user clicks on the "Proceed to payment" button, he can enter his payment information in a stripe payment widget and initiate the payment by clicking the "Upgrade now for 2,99 Euro per month" button. After successful payment, the pop-up dialog displays that the upgrade was successful.

The user does not see any advertisements on the homepage anymore because of his premium subscription. Furthermore, he now has one additional button called "Manage my accounts" on the top of the page, which allows him to add and manage his accounts (For more details on the functionality of this button, please refer to our use case #4). If the user goes to the dropdown menu and clicks on "My Profile", he would see that now he is a premium user and enjoys a lot of premium features. Nevertheless, he can also see a "Cancel Premium Subscription" button. He can cancel the subscription anytime by clicking on this button. After clicking on this button, a pop-up will show up and confirm that his cancellation is successful.



Use Case #4: Add a New Bank Account

A user has the possibility to manage their connected bank accounts by pressing the “Manage bank accounts” button on the homepage. Then the user will see a popup that displays all the bank accounts that are currently connected to this Budgetly account. At the bottom of this pop up, the user can click on the “Add Account” button to add another bank account. After that, the user can see a full list of available financial institutions in Germany. The user chooses one of the banks, and then will be redirected to the authentication page of the corresponding bank to grant permission to process his account information. Then the user will see an end user agreement generated by the banking API, which specifies how many days the API is allowed to date back in the transaction history, and how many days the API is allowed to store the transactions. Then, the user is asked to enter his online banking information to validate his identity. After the authentication flow is finished and the user's identity is confirmed, the user can see another popup displaying a list of available accounts that he owns in the bank he specified in the last step. The user could then select the accounts that he would like to connect to in the application and confirm the choice by clicking on the “Add selected accounts” at the bottom of the popup. Finally, an initial pull of all accounts selected by the user is done, and now the user can see the transaction history of these accounts displayed on the application's homepage.

BUDGETLY

Transactions

Charts

Insights

TABLE

Date Category Account Partner Balance

Amount ▾ Verbal

+ NEW TRANSACTION

18.05.2022 Received Spakasse Brix MC Credit Chees Burger Deliworld 500€

29.05.2022 Received Contact View Metro TBLI Profectur Tbilisi 500€

21.05.2022 Received Spakasse Brix TSB Retail Asia Under Bar Nachtrag Met World 1200€

21.05.2022 Received Spakasse Brix 30000 Credit Esse nachtrag Bar World 500€

18.05.2022 Received Spakasse Brix Sait International Super Karlsruhe 1000€

13.05.2022 Received Contact View Arne de Groot Hill Service Met World 1100€

08.05.2022 Received Contact Visa Burger King Burger King Food Market 600€

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BUDGETLY

Transactions

Charts

Insights

TABLE

Date Category Account

Amount ▾ Verbal

+ NEW TRANSACTION

18.05.2022 Received Spakasse München Sparkasse Garmisch (IBAN: DE04 2200 1990 2001)

29.05.2022 Received Spakasse Ingolstadt (IBAN: DE04 2200 1992 2002)

21.05.2022 Received Directbank (IBAN: DE04 2200 1992 2002)

21.05.2022 Received Spakasse Toggenburg (IBAN: DE04 2200 1992 2002)

18.05.2022 Received Contact View (IBAN: DE24 1234 1234 1234 1234)

13.05.2022 Received Directbank (IBAN: DE04 2200 1992 2002)

08.05.2022 Received Directbank (IBAN: DE04 2200 1992 2002)

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BUDGETLY

Transactions

Charts

Insights

TABLE

Date Category

Amount ▾ Verbal

+ NEW TRANSACTION

Add Account

Select Financial Institute

Spakasse München **IBG 2000 20 20 900**

Spakasse Ingolstadt **IBG 1111 20 20 900**

Directbank **IBG 1234 1234 1234 1234**

Contact View **IBG 2200 20 20 900**

ING Direct **IBG 1111 20 20 900**

Santander Bank **IBG 1333 1111 190**

Postbank **IBG 1717 20 20 900**

Hochtaunus Bank **IBG 1822 20 20 900**

HSB Bank **IBG 1822 20 20 900**

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BUDGETLY

Transactions

Charts

Insights

TABLE

Date Category

Amount ▾ Verbal

+ NEW TRANSACTION

Add Account

Connect Authentication Process

Grant permission to access and process your bank account details

For me to use this service, Budgetly needs to access your bank account details. After you grant permission, we'll never request your account details again.

What do we need to access?

My account details, such as my bank account number, my name and my address.

What do we do with this information?

We store your bank details in our database so we can always access them quickly. You are sharing your data with us.

We will never share your data with third parties.

By using this service, you agree to our [Privacy Policy](#) and [Terms and Conditions](#).

Next Step

BUDGETLY

Transactions

Charts

Insights

TABLE

Date Category

Amount ▾ Verbal

+ NEW TRANSACTION

Add Account

Authenticate to Access

These credentials will not be shared

Enter your user ID

Enter your password

Use SmarKey to generate security code

Proceed

BUDGETLY

Transactions

Charts

Insights

TABLE

Date Category

Amount ▾ Verbal

+ NEW TRANSACTION

Add Account

Choose the Accounts you want to add from Connect

Account: **IBAG Directbank** **Smart-ID Application**

Selected accounts: **IBAG Directbank** **Smart-ID Application**

Connected Accounts: **IBAG Directbank** **Smart-ID Application**

Connected TransferPlus: **IBAG Directbank** **Smart-ID Application**

Connected Services for Payees: **IBAG Directbank** **Smart-ID Application**

Add Selected Accounts

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UML Class Diagram

