

SEBA Master - Web Application Engineering

Summer Term 2022

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.

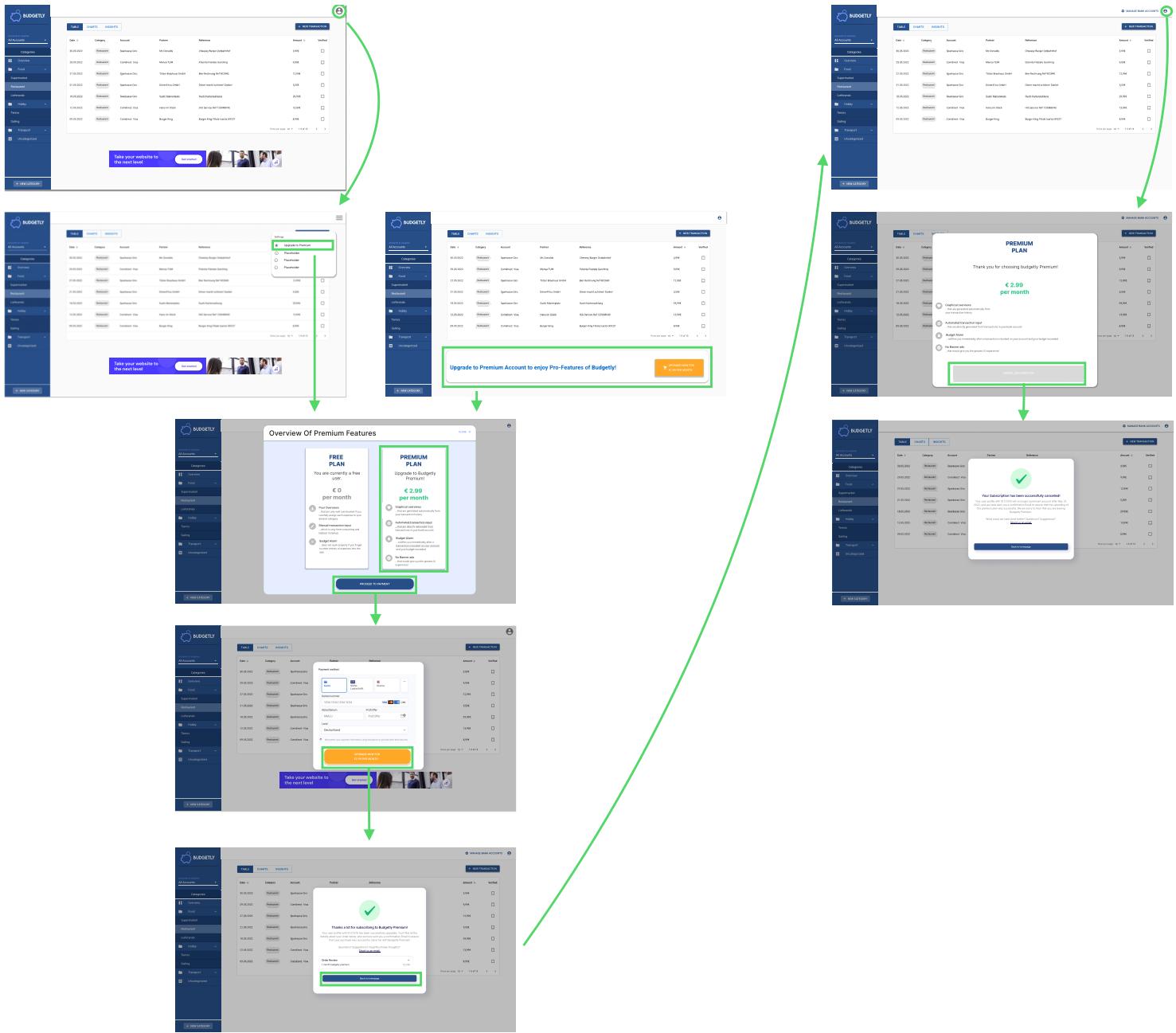
Use Case #1: Upgrade to a Premium Account

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 #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	Pekin's Matzah-Croissant	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 (rechnung 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	Mc Donalds	Cheesy Burger Dörfchenhof	3,99€	
29.05.2022	Restaurant	Comdirect Visa	McDonald's	Pekin's Matzah-Croissant	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 (rechnung 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	Mc Donalds	Cheesy Burger Dörfchenhof	3,99€	
29.05.2022	Restaurant	Comdirect Visa	McDonald's	Pekin's Matzah-Croissant	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 (rechnung 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	Mc Donalds	Cheesy Burger Dörfchenhof	3,99€	
29.05.2022	Restaurant	Comdirect Visa	McDonald's	Pekin's Matzah-Croissant	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 (rechnung 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	Mc Donalds	Cheesy Burger Dörfchenhof	3,99€	
29.05.2022	Restaurant	Comdirect Visa	McDonald's	Pekin's Matzah-Croissant	9,99€	
27.05.2022	Restaurant	Sparksse Giro	Filzen Brauhaus GmbH	Bier Rechnung Ref 903842	12,99€	
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Use Case #3: 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 confirmation button.
- 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 confirmation button.

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

Categories

Overview

Food

Transport

Holiday

Entertainment

Utilities

Leisure

Hobby

Travel

Entertainment

Transport

Unassigned

+ NEW CATEGORY

TABLE CHARTS INSIGHTS

Date Category Account Partner Balance

16.05.2022 Received Spakasse Brix MC Credit Cheesey Burger Deliworld 500€

29.05.2022 Received Contact View Metro TBLI Profectur Tbilisi Sodexo 500€

21.05.2022 Received Spakasse Brix TSB Retail Asia Under Bar Nachtragl Pferd 1200€

21.05.2022 Received Spakasse Brix 30000 Credit Edeka Markt am Brandenburger Tor 500€

18.05.2022 Received Spakasse Brix Saiti International Super Karlsruhe 1000€

13.05.2022 Received Contact View Arne de Groot Hill Session Pferd 1100€

09.05.2022 Received Contact View Burger King Burger King Flock Market 600€

Amount ▾ Verbal

1 Page per page 10 20 50 100 < >

+ NEW TRANSACTION

BUDGETLY

Transactions

Categories

Overview

Food

Transport

Holiday

Entertainment

Utilities

Leisure

Hobby

Travel

Entertainment

Transport

Unassigned

+ NEW CATEGORY

TABLE CHARTS INSIGHTS

Date Category Account Details Edit Delete

Spakasse München IBAN DE04 2200 1990 2001

Spakasse Toggenburg IBAN DE04 2200 1992 2002

Contact Contact View ABN 0224 1971 0012

Amount ▾ Verbal

1 Page per page 10 20 50 100 < >

+ ADD ACCOUNT

BUDGETLY

Transactions

Categories

Overview

Food

Transport

Holiday

Entertainment

Utilities

Leisure

Hobby

Travel

Entertainment

Transport

Unassigned

+ NEW CATEGORY

TABLE CHARTS INSIGHTS

Date Category Account Select Financial Institute

Spakasse München BEC 200 00 00 000

Spakasse Hamburg BEC 111 00 00 000

Spakasse Berlin BEC 122 00 00 000

Contact BEC 200 00 00 000

Commerzbank BEC 250 11 00 000

ING Direct BEC 111 11 00 000

Santander Bank BEC 133 11 11 100

Postbank BEC 171 11 00 000

Westfalenbank BEC 182 18 00 000

HSB Bank BEC 182 18 20 000

Amount ▾ Verbal

1 Page per page 10 20 50 100 < >

+ NEW TRANSACTION

BUDGETLY

Transactions

Categories

Overview

Food

Transport

Holiday

Entertainment

Utilities

Leisure

Hobby

Travel

Entertainment

Transport

Unassigned

+ NEW CATEGORY

TABLE CHARTS INSIGHTS

Date Category 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 bank 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 account details in our database so we can always access them quickly.

We are storing your data with:

By using this service, you agree to our Privacy Policy and Terms and Conditions.

Next Step

Amount ▾ Verbal

1 Page per page 10 20 50 100 < >

+ NEW TRANSACTION

BUDGETLY

Transactions

Categories

Overview

Food

Transport

Holiday

Entertainment

Utilities

Leisure

Hobby

Travel

Entertainment

Transport

Unassigned

+ NEW CATEGORY

TABLE CHARTS INSIGHTS

Date Category Account Authenticate to Access

These credentials will not be shared

Enter your user ID User ID

Enter your password Enter your password

Use SmarKey to generate security code Generated security code

Proceed

Amount ▾ Verbal

1 Page per page 10 20 50 100 < >

+ NEW TRANSACTION

BUDGETLY

Transactions

Categories

Overview

Food

Transport

Holiday

Entertainment

Utilities

Leisure

Hobby

Travel

Entertainment

Transport

Unassigned

+ NEW CATEGORY

TABLE CHARTS INSIGHTS

Date Category Account Choose the Accounts you want to add from Connect

Account BEKA Select this application

Contacted accounts EKAB 1801 0000 0002 0000

Contacted payment plan EKAB 1801 0000 0002 0001

Contacted partners EKAB 1801 0000 1111 0002

Amount ▾ Verbal

1 Page per page 10 20 50 100 < >

+ NEW TRANSACTION

+ ADD ACCOUNT

UML Class Diagram

