

UNIVERSITY OF TARTU
<< INSTITUTE OF COMPUTER SCIENCE >>



Budget Management Application
(Case - 2)

Project in subject “Software Product Management” (MTAT.03.325)

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1. Project Description

1.1. Introducing The Application

The 'MARK' application is a budget management tool for those who have trouble managing their finances and it demonstrates a better method of monitoring cash flow in an effective manner. As part of the project, the MARK app seeks to create an integrated system with other banks that work with our app across Estonia, allowing users to cope with the stress of payment deadlines, set new savings goals, and keep track of their daily expenses and incomes using its functionalities. The application is primarily built based on the information gathered through user research.

All this time, people have to use banking applications or other similar applications to manage their fixed and non-fixed expenditures. There are similar applications to the MARK app that need users to manually enter data in order to manage their monthly outgoings. As a result, the MARK app, an automated system is here, with some new extra features to help repulsive buyers, as well as all the other ordinary users, who are in need of keeping track of their money.

This report includes all of the essential descriptive research done for the app to-ready-to-be launched into the market. The project is developed in order to discover the best solution for the public who are eager to use the app.

1.2 Business Model Canvas

The MARK app's business model is derived to capture all the aspects of the application that are required to create, deliver and capture the value. The value proposition canvas (Fig.1) is built before the business model canvas in order to determine the customers' values and needs to achieve product-market fit. Further to that, a canvas highlighting all 9 building blocks of the MARK app's business model is presented (Fig.2) following the detailed motivations for each building block.

Fig. 1. Value Proposition Canvas

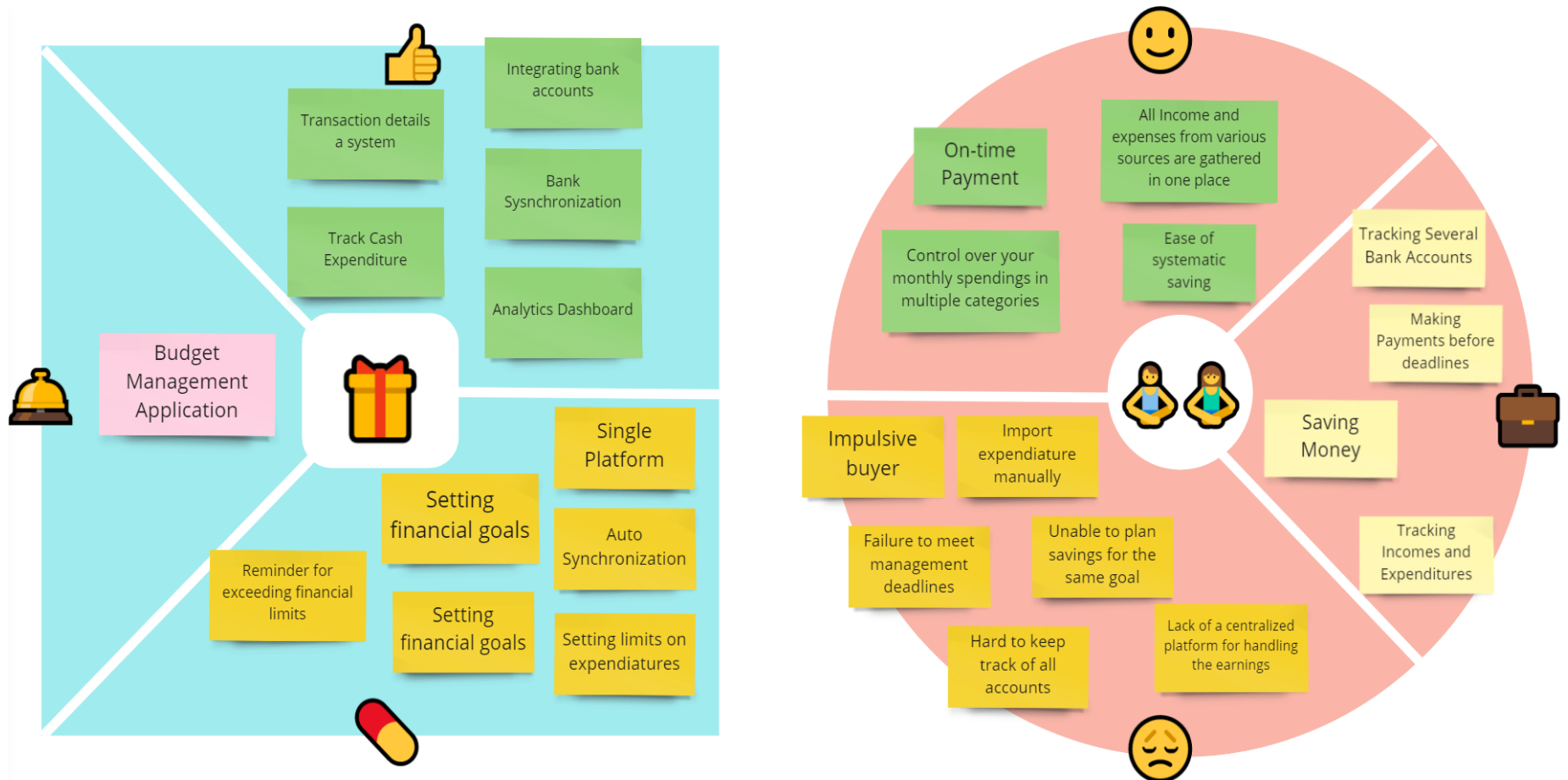
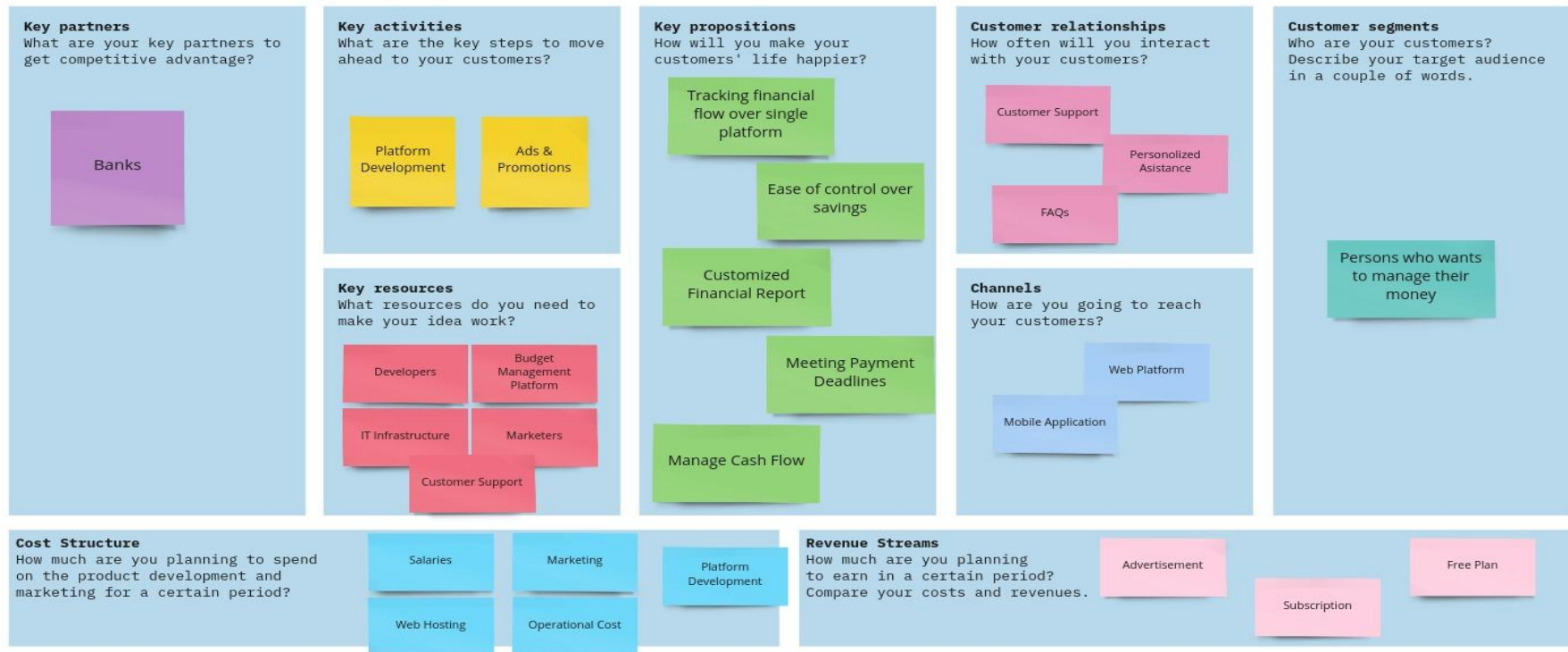


Fig. 2. Basic Business Model Canvas

Budget Management App - MARK App



Customer RelationshipDescription:

Customer Segment defines the relationships a business has with its customer segment. To establish trust among our customers, we have adopted different ways to interact with our customers, and interaction also depends on the type of subscription a customer has taken.

- *Customer Support:* Our MARK app will provide customer support for customers who have problems with the app usage or want to give feedback concerning a feature.
- *Personal Assistance:* Our MARK app guides our premium customers with saving goals and customised support to manage their investment portfolio.
- *FAQs:* This will primarily focus on transactional type customers or general users.

Motivation:

- Customer relationship heavily impacts their customer experience. Having a good customer experience is the key for a business to run and grow.
- Customer relationship also extends the brand value, which helps establish trust in new customers.

ChannelsDescription:

This block outlines how we deliver our Key proposition to our customers. We are mainly focusing on having a digital presence. So, we planned to provide both web and mobile interfaces to our customers.

- *Mobile App:* Our Mark app will be available on both android and iOS. We are considering that the majority of the people use one of these platforms. It would be easier for customers to check information whenever they can.

- *Web application:* Our web application provides the same functionality as the mobile application. The web application sees all the information in detail and gives a larger view of data points and analytics.

Motivation:

- To reach as many customers as possible with both web and mobile applications.
- Provide ease to the customer to choose whichever platform they want to use.

Key partnersDescription:

Key partners for the MARK app comprise banks. It describes the network of partners that make the business model work.

- Numerous banks will be integrated with MARK app so that customers can monitor their finance in the management application.

Motivation:

- *Acquisition of resources and activities*
Since the budgeting app lacks its own banking system, it must collaborate with other banks.

- *More value to customers to attract new customers*

The budget management app allows its users to add their bank cards/accounts to track easily.

Customer SegmentsDescription:

In customer segments, we define people that buy our products or use our service aim to reach.

- Our MARK app prominently focuses on the people who want to manage their money, make a saving goals, and never miss a payment deadline. We are targeting customer groups who earn or have a saving plan.

Motivation:

- People who have multiple money sources to track

- People who have several payment deadlines tend to forget their due date.
- People who make saving goals tend to forget to keep track of it.
- People who like to track expenditure patterns.

Key activitiesDescription:

It summarizes the most important tasks/activities a company must perform in order for its business model to succeed.

It includes the development of both the creation of new features and the enhancement of existing ones along with the maintenance and management of the application and services. Aside from that, there is also marketing work to be done. It also includes supporting the system and scaling it up as the customer base expands.

- *Platform Development* - The MARK app's main activity is platform development and the addition of new features for the customers who are eager to manage their money. As a result, it requires a platform that can expand its user base. This strategy is necessary in order to maintain customer growth and avoid competition from other applications. We grow in order to improve transparency and understanding of our clients' needs.

- *Ads & promotions* - These are required to reach markets, maintain customer relationships, and earn revenues.

Motivation:

- Growth of the application by enhancing new features to attract customers
- Provide people the essence of downloading the app by showing them the best value and money management features through ads.

Key resourcesDescription:

It contributes directly to the creation of your value proposition, the delivery of a service to your client segments, and the maintenance of customer connections. It describes the most significant assets (resources) that a company model needs to succeed.

Developers - It is what allows customers to use MARK's features and helps the app grow. Developers are needed to bring the features to life in accordance with consumer requests.

Budget Management Platform - It is a primary resource. This creates the networks and connections that provide consumers access to the digital world.

IT infrastructure - It includes hardware and software, which must be integrated into a single platform. To name a few, networking, internet connectivity, and servers are some examples of the platform to work.

Marketers - Marketers are required to broadcast our application or to get them to the platform.

Customer support - They assist clients in resolving issues that can be done to private customers.

Motivation:

- To bring the best of the best ideas to the application
- To solve issues of the customers if they come across any
- To maintain and create the best environment for the customers to give them the unique and best experience that fulfills their everyday demands

Revenue streamsDescription:

The amount of money generated by the application as a result of its business model.

- *Advertisement* - Freemium model contains some adds from partners

- *Subscription* - Costs are generated by giving continuous access to some particular features such as the ability to go over the limits per month, such as number of bank account integration

- *Free plan* - Easily downloadable free-to-use app with standard features on it.

Key Propositions:Description:

A company's key proposition is the sum of its various products and services, especially how it uniquely stands out amongst the competition. For our MARK app, we have defined the following proposition.

- *Tracking financial flow over a single platform* helps manage flow like income expenditure, savings, and payments. A customer can see everything in one place rather than maintaining several ledgers and applications.
- *Ease of control over savings*: Saving is an important activity that every person has to do while earning to have a better and more secure future. We add value to people's lives by reminding them to save regularly, make saving goals, and limit impulsive expenditure.
- *Customised Financial Report*: It would give an accessible analytical overview to the customer about their spending, earnings and savings. It would represent information so that customer could effortlessly figure out their financial flow.
- *Meeting Payment Deadline*: Most people forget about their payment deadline, and In some cases, they have to pay a heavy penalty. We provide reminders to avoid such situations.
- *Manage Cash flow*: Managing cash is always hard for people. Sometimes people forget money they lend to a friend or forget to add cash payments to their ledger, which is terrible money management. Our app provides a solution where a person can track their cash flow efficiently.

Motivation:

- Managing income is a crucial part of people's lives for a secure future.
- Managing payment deadlines for people, so they don't miss them.
- Making people aware of their spending can manage their money more efficiently.

Cost structureDescription:

It describes the developmental costs of operating the business model.

Salaries - Resources spent on wages of the employees on hiring, training, and retaining employees.

Marketing - Expanding the app to worldwide markets allows us to take advantage of economies of scale, and investment through mass marketing. Sales and marketing employees receive salaries and commissions. The cost of branding, marketing, and advertising.

Web hosting - The expense of hosting our application on the internet, as well as serving and managing files for one or more customers on the website. To work, you'll need a secure server that stores and backs up your data. The data must be stored and backed up on a secure server.

Operational cost - Electricity, the processing time for installation, and software testing are examples of some operational costs. Expenses for providing fundamental operations to bring out the system by hiring an operations team.

Platform development - Costs that must be paid to developers in order for features to be released into the market such as for the goal of integrations. The resources such as developers, engineers, product managers, and consultancies are a must for the development of the platform.

2. User Research

As part of our user research, we carried out two extensive interviews and surveys. The following are the reasons why we chose those two user research:

- **Surveys**: The survey is inexpensive, simple to conduct and analyze, capable of gathering large numbers of responses in a fraction of minutes, and capable of reaching a wide range of pre-defined customers via various digital channels.
- **Interviews**: Interviews are conducted one-on-one, which allows for more flexibility in data collection because it enables the interviewer for asking threaded questions depending on the base questions. It also benefits us in gathering deep qualitative data and understanding their perceptions and attitudes regarding the questions.

Our interview and survey questions centered on going deep into customer sufferings and evaluating them in order to put out the best features possible to address user issues. Both the survey and the interview questions were mostly the same. However, what differentiates those two user research is that the interview questions used a why-why technique to grasp the root cause of the problem and better understand what can be done to prevent those issues from occurring again. The MOM TEST was considered when planning the questions so that we could get the optimum responses from our customers.

2.1. Description of The Research Process

The following content outlines the reasons for selecting specific questions while conducting user research:

- To better understand the user demographics, the *first question* asks about the age group and gender. The age group selections were created with the understanding that different income brackets, savings, and expenditures can exist at different phases of life. The question asks which age group and gender would be more interested in a budget management app.
- “*Have you ever had a problem tracking your monthly expenditures?*” The question asks whether people have trouble keeping track of their expenditures. This subject in the interview provides thorough information on the report and analytics dashboard that will draw user attention.
- “*How do you keep track of your expenditures during the month?*” The question asks how the user is currently dealing with the discomfort in tracking expenses and how we can try to digitalize the process in the case of manual tasks.
- “*Have you ever had experience with a budget management system?*” This question asks about any products that consumers were using or were aware of. This subject assists us in learning more about the current product and its characteristics.
- “*Do you have issues splitting up your cash in various categories?*” This question asks whether users categorize their spending and whether they have difficulty managing it.
- “*How much money do you spend in a month?*” This question helps us in evaluating the user's spending patterns. This question assists us to figure out whether users have massively manageable or significantly small non-manageable expenditures.
- “*Do you have several bank accounts?*” This question let us figure out if consumers have many bank accounts and want a single platform to track expenses as well as integrate several bank accounts.
- “*Have you ever faced problems tracking several bank accounts?*” This question intends to determine the nature of users' issues with maintaining multiple bank accounts. The subject provided insight into how the bank's integration can assist users in automating their tasks.
- “*Do you make saving goals?*” This question asks whether users set savings goals and stick to them on a regular basis.
- “*How often do you forget to save money?*” This question provides insight into whether users neglect to save money toward their financial goals. This subject seeks to determine the user's saving pattern (weekly, monthly, daily) as well as the pattern of the reminder feature.
- “*How often do you miss your payment due date?*” This question helps us figure out if the user forgets to pay their invoices on time, and if they need features like invoice synchronization and payment reminders before the deadline.

To create and manage the survey questions, we considered using ‘Typeform’. The survey is available [here](#).

2.2. Results of The Research

After collecting the survey and interview results, we analyzed the following:

From the survey, we received 32 responses. The most common age categories in the poll were 18-23 and 24-30, which account for 51.5% and 33.3% of users, respectively. 45.5% of users had trouble keeping track of their expenditures. Keeping track of payments show that 54.8% of customers have banking application statements to monitor their expenses. On the other hand, people using a budget management tool and taking notes account for 12.9% each, while typing on an excel sheet accounts for 9.7%. The results also suggest that 51.5% of people have never used a budget management app, 21.2% have used one a long time ago, and 18.2% have used one but disliked it. When it comes to categorizing expenditures, 48.3% of people believe it is difficult to do so. According to the research, 66.7% of respondents spend less than 500 euros per month. 69.7% of the users have several bank accounts. According to the responses, 28.2% of users keep notes, 25% use mobile applications to save their goals, and 46.8% of people have no savings plans. 34.6% of users use sticky notes to remind themselves about their saving goals. Similarly, 18.2% of users receive reminders from other people, 9.1% set a calendar event, and 36.4% of people believe it is difficult to recall to save money toward their saving goals. In regard to missing payment deadline, 60.6% of users never miss the payment deadline, 18.2% miss it but it's not an issue, and 12.1% forget the payment due every time. The link to the survey responses with charts can be found [here](#).

We interviewed 20 individuals who fall under our customer segment. We tried to gather an in-depth response to questions from certain users who spend less than 500 Euro in small payments and find it difficult to categorize and track their expenditure. We also discovered that, due to users' lower/variable income, they don't have any savings goals or just have one primary goal. Some customers criticize the difficulty in tracking multiple bank accounts because they have to navigate through various bank accounts to gather information about specific expenses.

Due to manual efforts on inserting data, security issues, and a poor user interface with difficult follow-through UI, several customers felt that the existing budget management application does not meet their expectations. This research assists us in defining the optimum features for satisfying customer needs.

3. Features and Minimum Viable Product (MVP)

After doing user research, all features are jotted down in order to describe the customers' desires and satisfaction. By taking into account the customers' features, they are grouped into numerous categories:- integration, ease of control over savings, reporting, payment deadlines, managing cash flow, getting customer support via the application, and being able to export data

into an excel sheet. Despite the fact that a large number of features are gathered as a result of user research, only the most basic functionalities for the MARK app will be built in the end to please the early users.

Overall with the other prioritization techniques, we chose the KANO model since it is a simple, customer-driven, and straightforward approach to prioritizing diverse features due to its most popular

triple division strategy, which definitely speeds up the ranking of a group of user stories(functionalities).

The following is a list of all the functionalities:

1. Integration

The functionalities in this category are designed to address the issues that come with having a number of banking applications. According to our user research, customers are too lazy to browse through many banking applications to check their balances and monitor their transactions, therefore integrating our MARK application with Estonian regional banks is the ideal way to handle the problem. After this functionality has been successfully implemented, people will be able to add their banking accounts to our MARK app, and they will be able to see all of their transactions and balances on one site.

😊 F1. As a user, I want to add other bank accounts to my app so that my app displays balances in one place.

😊 F2. As a user, I want to access my transactions from different Estonian banks in one place so that don't need to check several applications.

2. Ease of control over savings

This category outlines the obstacles that people have when it comes to saving money, as well as how to address them through the user stories. Through our user research, we encountered individuals who were repulsive buyers, some who couldn't save their money despite having goals, and others who failed to save on a monthly basis. People also adopted other tools, such as sticky notes, excel sheets which were not particularly useful to them to get reminders, and some of them even got lost due to their hectic schedules. As a result, we believe that having a system where people can define saving goals, prioritize them according to the most important ones, and receive notifications once they reach their target goals is the most valuable feature for our clients.

😊 F3. As a user, I want to create saving goals so that I can save money.

😊 F4. As a user, I want to manage saving goals so that I prioritize my savings.

😊 F5. As a user, I want to get a saving reminder monthly/weekly so that I can remember to save money.

😊 F6. As a user, I want to add multiple users(my friends, family) to my saving goal so that we all can save money in the same account.

3. Reporting

This category discusses the informative report that people typically require when they need to present a document to a corporation or organization. A number of users have demanded this functionality because they frequently want a report to evaluate their spending for future review and interpretation. This functionality also allows users to select a certain time period in the calendar and download the most relevant expense sections.

😊 F7. As a user, I want to get an informative report about my expenditure for a certain time period I select.

4. Payment Deadlines

This category highlights how users may set, get, and view their calendar reminders and deadlines in the application. People who frequently miss payment deadlines and are too lazy to manually fill in the deadlines in the app's calendar are the motivating factor behind the features listed below. The new feature we have implemented is that our system now integrates with email, allowing our application to auto-synchronize invoices from email and update them in the app's calendar.

😊 F8. As a user, I want to add due dates of different payments so that I can get reminders before the deadline.

😊 F9. As a user, I want to get a payment reminder before the due date of the planned payment so that I can pay my payments on time.

🤖 F10. As a user, I want to view payment deadlines in a calendar so that I can remember the upcoming deadlines.

🤖 F11. As a user, I want to update payment reminders so that I won't be reminded several times.

😍 F12. As a user, I want to auto-synchronize my invoices from email and eventually to the app so that it auto-updates the dates to the calendar of the app.

5. Managing cash flow

This functionality was inspired by the types of people who prefer to pay cash for groceries but are unable to use bank cards. This service lets them manually enter expenses into the app and categorize them into different categories such as grocery, entertainment, travel, and so forth.

😊 F13. As a user, I want to insert my expenditure data manually so that I can track cash operations as well.

😊 F14. As a user, I want to categorize different payments so that I can manage my cash in a structured manner.

6. Getting customer support via application

After conducting user research, we discovered that a certain group of people believe that the application they have been using in recent days is a little challenging to use and that some people have even encountered difficulties with integration with their banks and some other new features that they have been unable to use. As a result, this category assists them in chatting with the application's customer service desk to provide clients with all of the information they require 24/7. In the scenario when real support from the application is unavailable, FAQ chats are addressed with the help of bots.

😍 F15. As a user, I want to get customer support via application so that I will not need to call anyone.

7. Being able to export the data into an excel file

This feature comes in handy when users want to process their data or migrate it to other systems, or archive it. They can export their data at any moment. It relieves users' security and control issues over their data and not be dependent on a single application.

🤖 F16. As a user, I want to export my data into an excel file from the app so that I can use it later.

8. Improvement in registration

To improve user experience, it is better to let users decide what their interests are and customize the app based on their needs.

😊 F17. As a user, I want to choose the most used categories for me while registering, so that I can easily access them while using the app.

EMOTICONS FOR FEATURE TYPES:

- 😊 Basic
- 😊 Satisfiers
- 😍 Delighters

To create an MVP, we used the KANO model to prioritize all of the above user stories into three categories:

1. Threshold Attributes (Basics)

In our context, [F1](#), [F2](#), [F3](#), [F5](#), [F7](#), [F8](#), and [F9](#) are the basic features that can be implemented in MVP. These features are included in this category because these are the properties that must always be present in the app and without them, the application cannot function, and they simply meet the needs of the client, although customers may choose to remain neutral because of the application's basic features. The major objective of the application is also discussed in this category, even though 'dissatisfiers' may arise due to the very basic features. This category assists us in developing more innovative features in the future by collecting feedback from customers.

2. Performance Attributes (Satisfiers)

[F4](#), [F10](#), [F11](#), [F13](#), [F14](#), [F16](#), and [F17](#) are regarded as 'satisfiers' functionalities since they improve the application's likeability for customers, although they are not absolutely necessary in the early stages. These features are not included in MVP since they go beyond the application's principal goal.

3. Excitement Attributes (Delighters)

[F6](#), [F12](#), and [F15](#) are categorized as delighters since they are features that clients may not be aware of but will be overjoyed to have. These are the features that persuade users to download our app due to the unique features that we have considered, and these may even surprise customers. These features are not included in MVP because customers have no idea if they exist and they might not even be aware of these features.

In conclusion, all of the 'Threshold Attributes (Basics)' features are considered for building our MVP because they are the 'Must include' features that users expect from the application. The other remaining features are listed in our roadmap.

4. Roadmap

The product roadmap is concerned with the product's development and marketing along with the new features to be added that are not included in MVP. The goal of creating a roadmap is to have a vision for our product, prioritize and plan particular features to deploy over time, and make ourselves aware of

product development progress and status. Since the budget management application is a critical application that stores personal data, security and trust are also important aspects to be taken into account while making the roadmap. The product will take around a year to build, after which the focus will shift to upgrading and maintaining the app. There will be multiple releases to provide value for customers incrementally. The prioritization described in the previous section is used to formulate release candidates. The summary plan of the product development is presented in Table 1.

Table 1: Roadmap

RELEASES	Ease of control over savings	Payment Deadlines	Managing cash flow	Improvements in customer satisfaction
Release 2	F4. Manage saving goals	F10. View payment deadlines in a calendar		
		F11. Update payment reminders		
Release 3			F13. Insert expenditure data manually	
			F14. Categorize payments	
Release 4	F6. Add multiple users to the saving goal	F12. Auto-synchronize email invoices with deadline calendar		
Release 5				F16. Export data into file
				F17. Customize interested categories
				F15. Get customer support via application

5. Risk Management

This section defines the possible risks and their mitigation strategies that may arise during the project development lifecycle. The motivation for identifying risks is to be prepared in advance for unpredictable scenarios and, ultimately, to solve problems through the risk management lifecycle. While building an application, we can come across many risks, but we tried to include the most important ones in Table 2. The table includes the risk, its likelihood of occurrence (probability) on a scale of 1-5, its impact on the project on a scale of 1-5, a risk score produced based on the values of probability and impact, and a risk mitigation plan that is assigned to each team member depending on their expertise. High-scoring risks are prioritized at the top of the table. The table also includes a risk mitigation plan.

Table 2. Risk Management

Risk	Probability	Impact	Score	Responsible	Mitigation Strategy
Users do not trust the security level of the application, so they do not enter their banking credentials and do not use the app	3	5	15	Monika	Monitor the usage of mentioned functionality constantly and send them clearly defined security policy from application platforms. Advertise how secure to use the app
Banks start to provide better expenditure tracking systems in their native mobile apps, so users prefer it more, over our app	3	5	15	Adil	Keep all product-related notes secret until the release date. Do more detailed research on competitors' actions and find opportunities to add our product to distinguish it.
Application is not compatible with all devices and fewer users adopt the app	3	5	15	Monika	Find out the most used device types and make sure the application can be used without having any problem with them.
Early adopters are not satisfied with the recent features and do not recommend the app to other users	3	5	15	Monika	Do multiple user research and reflect their needs in the development process.
Key developers leave the team, so development fails due to domain knowledge shortage	3	4	12	Adil	Make sure that everything in development is well-documented
Tasks take more time than estimated, as a result, there is a delay in product release	3	4	12	Rajan	Hold weekly meetings to check the progress on each task. Re-evaluate and distribute tasks more efficiently based on current effort evaluation results. Separate dependencies and add more resources to work in parallel
Development team does not understand requirements properly and ends up building a different product.	2	5	10	Adil	Prepare well-defined user stories and acceptance criteria. Involve all team members active in the feature discussion process. Apply Agile approach
Integration services provided by banks change and break the app functionality	2	5	10	Rajan	Agree with the partners not to change application contracts before prior planning.
Security breach happens and customer data reveals	2	5	10	Kamil	Make sure all development processes follow the latest security guidelines. All platform dependencies are regularly updated with recent secure versions.
There are sweet spots in terms and conditions and users sue the company to grab money	2	3	6	Monika	Analyze every change in terms and conditions with the help of experienced lawyers

Users think the app is not user-friendly and decide not to continue to use it	1	5	5	Kamil	Follow the best design guidelines to make the application easy to use. Constantly monitor user behavior and makes relevant changes based on feedback. Attach hints in the application to teach them how to use it.
Employees can reveal customer data to 3rd parties, so it leads to privacy leakage	1	4	4	Kamil	Strongly logging, monitoring, and reporting all queries. Applying threat detection techniques.

6. Metrics

This section explains how to track and analyze a product's health and performance for an application's overall success. Table 3 lists metrics and the motivation for their use.

Table 3. Metrics

Metrics	Motivation to use it
Number of users visiting the app in the published platform(play/apple store) per month	To understand how likely an app gets attention
Conversion rate of downloads per week	To measure the willingness of people to choose the app and use it
Average time app used daily per customer	To understand if app solves customers' daily needs
Top feature of the week	Which feature is the most interesting to use, how we can improve others using this data
Conversation rate for registration	To track how many customers started to use the app after download
Conversation rate for subscription per month	How many customers started to pay for the app
Click-Through-Rate (CTR)	To define the effectiveness of ads
Cost-Per-Click (CPC)	To calculate the cost-value relationship of app ads.
Customer-Churn-Rate(CCR) per month per business model	To determine whether the app grows or loses customers for each offered model
Customer-Retention-Rate(CRR) per month per business model	To measure whether provided value is valid for customers
Monthly Active Users	To determine whether an app is growing or decreasing

7. Visual Description of The MARK✓ Application

The application's visuals can be found in the link below. Figma is used to visualize the application's key features. We chose Figma because of its finest UX tools for creating wireframes and enables better collaboration. A few glimpses of the app are presented below. To view the full functionalities of the app click [here](#).

