
Team 5

SpendWise

Vision

Version 1.0

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Revision History

Date	Version	Description	Author(s)
01/03/23	1.0	Final draft for iteration 1	Henning S. Strandå, Agnethe Kval-Engstad, Ole Heggum, Madeleine S. Jonassen

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1. Introduction

This vision document outlines and discusses various facets of an application used to aid personal finance. The development of this project is initialized by NTNU, as a required task in the subject “Systemutvikling - IDATT1002”. This document will include details regarding both the project development and the application.

1.1 Purpose and scope

The purpose of this vision document is to get an overview of the project’s goals and challenges, and to gain a common understanding of what the team with the client wants to achieve.

1.2 Definitions, Acronyms, and Abbreviations

NKr - Norwegian krone

NTNU - Norwegian University of Science and Technology

ICT - Information and communication technology

GUI - Graphic user interface

1.3 Overview

The rest of the vision document consists of a product statement, the goal of the project, a product overview, description of stakeholders and a user guide.

2. Positioning

This chapter will describe why the product is created and who it is created for. In addition to this it will describe how the product intends to positively affect the users.

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2.1 Business Opportunity

During this project we will create an application that will gather and present the personal finance of the user. The business opportunity is creating a clientele based on users that wants better control of their own finances.

2.2 Problem Statement

The problem of	People not being able to get a good understanding and control over their own finances.
affects	In particular people who have little to no understanding of how to control the problem.
the impact of which is	At its worst, people may end up with severe financial problems.
a successful solution would be	To create an accessible, user-friendly site/ application that can give the person a better overview of their finances.

2.3 Product Position Statement

For	The individual with a personal finance to manage.
Who	Wishes to get better control and understanding of their finances.
The finance application; SpendWise	Is an application that runs as a Java desktop program.
That	Gathers and presents the finance of the user, in a simple yet descriptive way
Unlike	Complicated sites that do not communicate with other services.
Our product	Gather all information the user wishes to record, and present it in a clear and simple way.

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3. Project goals

This chapter will map the different goals the team wishes to reach by the end of this project.

3.1 Impact goals - The client's wishes

Impact goals	Description	How the team will achieve this result
Full functionality.	The client wishes the finished product to have full functionality, with the predetermined functions.	The team will get a clear description from the client of what functionalities the application needs. Then work actively towards creating these functions..
High quality.	The client wants the product to be of a high quality.	To achieve this, the team will make sure the application runs smoothly and is thoroughly tested.
Low maintenance.	The client does not want to take on costs to maintain the application.	The team will make sure the finished program will run by itself without need of constant maintenance.

3.2 Result goals

Result	Description	How the team will achieve this result
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A product with the features agreed upon with the client.	When the project is finished all the features the client wished for will be included.	By creating a clear understanding of what features the client wants. Also by using creativity and communication within the team to find good solutions.
Complete the project within the time limit.	The product is to be finished within the deadline of the project.	It will be achieved by working in efficient scrum sprints where there are clear tasks and goals.
Staying within budget, and being cost efficient.	Staying within the limits of the budget, and not creating new unexpected expenses for the client.	By using billable/ working hours efficiently, and avoiding unnecessary expenses.
Good quality.	The finished product will be of a high quality.	The team will achieve this by producing good work, and avoid taking shortcuts. It will also be created by open communication in the team. Such that when a problem occurs, the team can work together to find the best solution.

3.3 Process goals

Process goal	Description	How the team will achieve this result
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Improve coding skills.	During this project the team members wish to further develop and challenge their coding skills.	We will challenge ourselves and the other team members to be creative and solve problems in new ways.
Work in teams, and become better team members.	After the project we wish to be better at communicating, helping and being helped. Generally, to be a better team member.	By practicing communicating and problem solving in a group. Also by being an active member in the team and building each other up.
Learn about system development.	To many of the team members system development is a new subject. So, during the project we wish to learn more about it.	Working diligently on the project, being attentive in lectures, and using the curriculum thoroughly .

4. Stakeholder and User Descriptions

This chapter will discuss the circumstances regarding the stakeholder, users and developers, and their relations to the project.

4.1 Market Demographics

Considering this is a student project, our organization is our team. Our organization has no reputation in the economic market or in the development market. The numbers regarding potential users, marked size growth and potential future earnings, would be inaccurate to such a degree it would be pointless to include them in this document.

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4.2 Stakeholder Summary

Name	Description	Responsibilities
Developers	The organization and the developers responsible for producing the project.	Creating the product. Implement the functionalities demanded by the client. Ensure high quality.
Client	The organization the product is developed on behalf of.	Confirm demand of product. Financial funding.

4.3 User Summary

Name	Description	Responsibilities	Stakeholder
Person/ individual	An individual with a personal finance to manage.	None	Both the client and the developer team. The client to ensure the users/ market need is delivered to the developer. And the developing team through user-tests.

4.4 User Environment

The user environment of the target user are as following;

The application is developed for an individual. The application will be able to present personal finance, but will not be developed in regards to entire households or businesses. A task cycle should be restricted to a couple of minutes. This timeframe is given in due to expected differences in users. Some users may have less experience or understanding of web applications, and may therefore use some more time to orient themselves on the site. However, the functionality is expected to be simple, so that there are no long task cycles. Considering environmental constraints, the use of the application is limited to a computer that has a form of connection to the internet.

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4.5 Key Stakeholder or User Needs

Need	Priority	Concerns	Current Solution	Proposed Solutions
Income display	High	Display income in a descriptive way.	None	Let user display income using different types of graphs.
Keep persistent data in local files or database	High	How to store the data in the most efficient and logical way.	None	The team will research the subject and combine with previous knowledge.
Budgeting	High	Solving the function in a creative way.	None	The team will research the subject.
Storing budgets	Medium	Storing the data of earlier budgets.	None	Try to store the information using some of the same methods as for persistent data.
Expense display	High	Display expenses in a descriptive way.	None	Let user display expenses using different types of graphs.

4.6 Alternatives and Competition

Some alternatives and competitors of this project are;

- Another team in our class
- Pockets

Expense Tracker. An application designed for iOS and android. It is an established application that has several of the same functions as our application. An important difference between our

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product and theirs is that ours is free, while they charge their users.

5. Product Overview

This chapter explains the product and its costs/benefits on a higher level.

5.1 Product Perspective

This product is independent and self-contained. It is to be constructed without third-party dependencies (unless those provided at runtime) and will function as a stand-alone program without anything but user-interaction and a computer.

5.2 Summary of Capabilities

The product aims to visualize personal economy in order to aid more informed spending habits. In short, the product will translate numbers into a more human readable format. Translating categorically sorted spendings into pie-charts or other forms of visualized formats is the main function of the product. Categorizing expenditures and showing them as something else than numbers will help to understand a personal economy. Beyond visualization, it will also be able to show the entire personal economy in pure numbers, a history of expenses and current payments on a set interval, e.g. subscriptions, rent and/ or other cyclic bills.

As well as showing past expenses, this product will aid in planning future spending with the same features as for past expenditures.

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Table 4-1 Client Support System

Client Benefit	Supporting Features
Visualized spendings aids to understand both parts and the whole of the personal economy.	Expense graph that shows spendings, change graph type to visualize in different ways, change time interval to show different situations.
Future budgeting to help spending not overrunning income in different categories.	Future budgeting features will let the user list and categorize their future expenses to plan.
Quick look at unique expenses with a note to explain the context of bank statements.	A list of past expenses where the user made a small side-note.
An overview over recurring expenses to aid control over subscriptions and other fixed expenses.	Recurring expense overview showing what payments made in a month or fraction of a pay for expenses that are paid on a longer interval.

5.3 Assumptions and Dependencies for the product

It is to primarily be used by a single person for the respective person's economy.

It is to be used to *aid* personal economic control and clarity.

It is not to be supported long term. The product will not be maintained or updated after the project it is related to ends.

5.4 Risk analysis

The major risks have been entered in this table, and assessed on a scale from one to ten.

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What	Probability	Consequence
Loss of data	1	4
Undiscovered errors	3	7
Errors occurring during commits and related issues	5	6
Delays during development	5	3

- Loss of data
 - Documentation or program code can be lost during development due to unforeseen incidents or accidents.
 - Actions taken to reduce the probability of this occurring:
 - All documents will be stored on a Google Disk, where all members will have access to edit and save documents.
 - The program code will be stored in a git repository on GitLab, where team members will be required to write good documentation, commit messages and commit at an even pace throughout the entire project.

- Undiscovered errors before release/delivery
 - Even though the team intends to thoroughly test the application, smaller bugs may occur at the end of the application development.
 - Actions taken to reduce the probability of this occurring:
 - The team will actively use unit testing to test the program code. While user tests also will be used to make the program satisfactory, and may show some deficiencies and errors the unit testing may have failed to discover.

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- Errors occurring during commits and related issues
 - Since a larger part of the team has little to no experience with working with a repository, there may occur some human errors during merging and commits.
 - Actions taken to reduce the probability of this occurring:
 - Members will attend lectures and workshops regarding Git repositories and such. The team will also help each other when there are uncertainties, and teach each other the functionalities of Git.

- Delays during development
 - During the development it is not unexpected that delays may occur. This may be caused by team members suffering from illness or things taking longer to develop than expected.
 - Actions taken to reduce the risk if this occurs:
 - The team will communicate when workload needs to be delegated differently, and members will inform the team if illness occurs.

5.5 Cost, Pricing and benefits

The cost of producing the product will be moderate but not low. It will be proportionate to the hourly pay of the workers. One could also factor in the cost of meetings with superiors, but this will be a low amount compared to the hourly pay.

It is assumed that the total time per team member will be between 99 and 121 hours. Given that the team has five members, this will total to 495-605 hours worked for the project. With the given hourly rate of every team member (1590 NKr per hour), this totals a minimum of 787'500 NKr and a maximum of 961'950 NKr. Factoring in meetings with superiors with an assumed pay (1990 NKr per hour), it is natural to assume a total between 800'000 NKr and 1'000'000 NKr.

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The product is given to a single user for free (0 Nkr). Although no money will be paid for the product, one could argue that this user spends a decent amount of time testing and aiding, through user feedback, and thus pays through personal time spent. Furthermore, it is natural that a person who spent the amount of time assumed to be spent on aiding in the production without pay, will get a copy free of charge.

Although it would be natural to deem the project not viable by these numbers. Given that the cost is an imagined cost and the real benefit is learning the skill of production within development, it will be worth the cost. Additionally, the cost of superiors is used on teaching the production team how to do better and what is done right or wrong. This has immense value for the learning of the production team.

In conclusion, production should continue in order for the team to learn as much as possible.

5.6 Loss of direct costs

The loss of direct cost is a difficult point to properly describe, as assumptions must be made for it to make sense. Given that full visual clarity for a system makes it easier to change, one could argue that the product will be able to aid the client in a loss of cost. It will achieve this through allowing the user to change their economy, including either higher savings or lower expenses. Furthermore, the product will be given to the client free of monetary charge, which, if the client currency utilizes a paid program, will lead to a loss of direct cost by allowing the client to stop paying for their current solution.

5.7 Licensing and Installation

Both licensing and installation is assumed to be minimal, given that there will be a minimal amount of users, and an installation guide could be made to aid installation without supervision.

6. Product Features

This chapter explains the features of the program, down to the buttons and settings. The features

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of the product will include a way to visualize past and expected spendings, list past spendings, note spendings, budgeting for expected spendings and a tool to categorize spendings with both pre-determined and user-created categories.

The priority of the given functionalities are defined on a scale from Low, Medium, and finally High. High being the most important and Low being the least important.

6.1 Main functionalities

Name of function	Function task	Priority
Home Button	Pressing the logo of the product, the user will return to home in the application.	High
Expense graph	A graph of spending, separated by intervals of time.	High
Income graph	A graph displaying the income.	High
Future budgeting	A list of which the user can input future budgeting.	High
Recurring expense graph	An overview over recurring expenses.	Medium
Choose time interval	Being able to choose a time interval for the transaction overview and for future budgeting.	Medium

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Categorizer	Ability to manipulate, create or remove categories.	Medium
Recent activity	A list showing the user's income and expenses in a set time period, gives an overview of the account movement.	Medium
Change graph type	A button that gives the user access to change the graph type representing income and expenses.	Medium
Question mark button	A button that gives the user links to FAQs and other helping tools.	Medium
Settings button	A button to access the settings menu.	Medium
"Back" button	A button to move backwards in the program. Allowing the user to go back without going home first.	Low
Spending notes	A function that is connected to the other functions, allowing for simple notes.	Low

6.2 Settings

Setting name	Setting functionality	Priority
Language selection	Allows the user to change between Norwegian and English.	Low

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Theme selection	Allows the user to change to a theme that fits their needs and/or liking.	Low
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6.3 To be decided

Function/Setting name	Functionality	Priority
Last used feature button	Lets you enter the functionality you used last time you used the product from home.	TBD
Categoric spending graph	Lets you select what categories you want to see in your graph.	TBD

7. Constraints

- Time is a very limiting factor, as the project has a hard deadline. Our nature as students taking a course makes the deadline given by the task a final one.
- As a result of the time limit, there is also a cost limit. Due to the expected costs being directly connected to the salary of the developers, the expected cost has been set to 800 000- 1 '000' 000 NOK. If the developers (students) work overtime within the designated time limit, it will affect the budget. Therefore cost is also a constraint.
- Another constraint is the skill level of the developers. Since the developers in this team are students who are still learning, the individual skill level may vary. This also means that there may occur constrictions to functionality due to lack of knowledge and training.
- Given the nature of this project, there are also limits regarding the resources. These resources may include computers, databases, repositories and consultants.
- The product will intentionally be further constrained by the scope. This is done in order to make the desired product within the task and wishes of the client. Certain features, and approaches are left out to make the product possible to develop.

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- The task given in the course “Systemutvikling, IDATT1002”, that this product aims to fulfill is also a constraint, although it could be considered a vague one.

8. Quality Ranges

The product is to be very focused on quality, usability and have good fault tolerance. This will be achieved through proper testing and error handling.

9. Other Product Requirements

This chapter describes the applicable standards and the system requirements for the product.

9.1 Applicable Standards

The application must not strictly adhere to any standard. Even though the developers are free to make the product without any strict standards in mind, they will attempt to make the product adhere to the Norwegian universal design of ICT standard. This standard outlines what makes an application usable for users with various impairments.

9.2 System and performance requirements

Assumably, the system requirements will be minimal. As of now it is hard to quantify what sort of components a computer would have to have in order to run the program, but given that there is no demanding graphics or large dataset it would be odd if the system requirements were to be of any major significance.

10. Documentation Requirements

This chapter describes the documentation that will be made for the product to support it after it is disbanded by the production team.

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10.1 User Manual

The user manual will be a short, digital and indexed explanation of the products' different functionalities. It will be 3-5 pages long, depending on the amount and size of pictures needed to thoroughly explain how to utilize the product.

10.2 Online Help

The only source of online help available to the user will be a short wiki and user manual. Beyond that, an email address might be implemented to handle edge cases or support if the product should break or in any way cease to function properly. The installation guide, proposed in 5.7 could also be made if it is deemed to be of value.

10.3 Installation Guides, Configuration, and Read Me File

As previously mentioned in 5.9, it is possible to create a short installation guide for the product. Given the size and user base, this might not be necessary, but if it is deemed to be of value later on, it will be created. Presumably there will not be any configuration needed on the user end, beyond language. As for a Read Me file, it should be installed with the package that contains the program itself. It should include a short description of the product and any relevant links to the wiki, user manual and if included, the email address mentioned in 11.2.

10.4 Labeling and Packaging

The application will have its own color scheme and an icon that serves both as a home button and logo. In addition to this, there will be an attempt to make the GUI in a single style throughout the applications. This might be challenged by various button sizes, layouts and similar issues.

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11. Feature Attributes

The implemented features and their attributes and priorities are going to be reviewed in this chapter of the vision document. The attributes mention how every feature in the application has an intentional purpose; both visually and functionally. Firstly the team made a list of potential features. The list was then used to find out which features were fundamental for the application and which were not. Throughout the process, there may be a need for additional functions or essential updates. The conversation of the final decision will be described in chapter 11.1.

The application displays the most frequently used features at the homescreen, however all of the features will be available through a tile-screen or similar layout, showing off all features. These features will show more properties or manage an action when accessed.

11.1 Status

New features or updates may appear throughout the project. If these features are to be implemented, they are decided by the team. However, the scrum master and the team leader are in charge of tracking the team's progression during this project, they are responsible for further elicitation and they are obligated to log all the new implementations. The log should consist of argumentation as to why the feature is essential.

To see what features have been approved and what features are still under development, have a look at chapter 6.1 - 6.3.

11.2 Effort

Estimating that the frontend of the product will require more resources, the majority of the team

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will focus on the functionality and visual appeal of the product. This project will have a deadline of 28nd of April 2023, which will give the team ten weeks to finish both the backend and frontend of this project. This should give each team member around 110 hours to finish the project. This timeframe will also consist of five sprints with 2-week-long sprints using the scrum methodology. As this project is hard to estimate the exact number of lines of code, the team has decided not to draw any conclusions.

11.3 Stability

The different features in the application will probably change and vary throughout the project, however the team has decided to try to maintain the fundamental functions of the income and outcome. This will include adding, removing or changing each variable. In spite of that, due to feedback from user tests, refactoring, other ideas or a change of heart might lead to changing some of the fundamental functions later on in the project.

11.4 Target Release

The application will have a targeted final released date of 28 of April 2023, however, this project will have three smaller deadlines. The first deadline, 3th of March, consists of a semi-finished product of the domain-model, the vision document and the wireframes. The second deadline, 17th of March, which will be an almost finished product, or Minimal viable Product. Then, there will be the targeted deadline and release date of the final product with every feature.

11.5 Assigned To

The features will be assigned to either one or more team members depending on the amount of work that has to be done in order to implement said feature. By using GitLab, or to be more exact *Milestones* and *Issues*, the team members can delegate responsibilities and effortlessly know what needs to be done.

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11.6 Reason

Every feature needs a reason to be implemented into the application. Therefore every last detail, such as, positioning, color and function, will ensure that the application does not have any unnecessary features, which would make it difficult for the client to navigate.

12. Changes to the template

Firstly we have chosen to exclude point 5.6 This point discusses quantifiable and non-quantifiable benefits. This was disregarded due to lack of concrete, reliable information regarding the market of the product and surrounding factors. The numbers that would have been presented would be inaccurate and misleading. Therefore the point was removed, yet some of its content is included in 5.5.. Furthermore we also removed point 5.8. This was done due to the subject already being discussed in depth in point 5.5.

Regarding main points 9, 9.3 and 9.4 were removed. 9.3. 9.3.- performance requirements, was removed since it was discussed in point 9.2. The point 9.4 - environmental requirements was not discussed further, due to it already being discussed in point 4.4.