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MSc Software Engineering

Project Report 2018

Intelligent Expense Manager

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Acknowledgements

Abstract

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# 1. Introduction

Finance management is one of the most common problem different subjects encounter daily. Companies manage their finances, analyse their incomes and outcomes in order to distribute their assets better and gain more profit from their business. Ordinary people also have to control their money. Rules are similar, but they operate with smaller amounts and have less rules and risks in their mundane life. However, inefficient control of money can lead individuals to dramatic consequences. High overspendings and approaching mandatory bills, such as rent, can force individuals to seek for credit. For instance, it can be overdrafts, personal loans, payday loans. Some types of credit have very high interest rate and if they are not paid in full at the end of the term additional fees can be charged from the debtors. It results to further expenditures and in the worst case it may bring individuals into loan cycle; this is the situation when person takes new loan just to pay the previous. Loan cycles are very dangerous and can lead to severe financial problems.

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Taking everything into account, expense management is a very important aspect of welfare and people should be able to deal with it easily and efficiently. This project investigates the existing accounting solutions and focuses on building the prototype which attempts to improve the competitors’ applications to provide better experience and results for individuals in money management.

# 2. Research

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## 2.1 Analysis of flagships’ accountancy solutions

The problem of finance management is not new, and plenty solutions have been already developed to address it. To learn more about important issues and aspects of accounting, the large business solutions from flagship corporations have been investigated and analysed. These solutions are oriented on mainly large and medium-sized businesses and are quite expensive. Companies which can afford those solutions have many complex processes to maintain; therefore, by buying accounting solutions they can gain greater control of their finances, automate routine tasks and as a result make better decisions over time. Many experts and developers have been working on the flagships’ solutions for years, so their analysis has helped to discover essential capabilities and give an idea of vital features which can be inherited to help ordinal individuals with tighter budgets.

Solutions of four corporations have been investigated: Oracle, SAP SE, Microsoft and Sage. The products of the first three companies (Oracle, SAP SE, Microsoft) are mainly intended for large and medium-sized enterprises, whereas the last company (Sage) focuses on small and medium-sized.

### 2.1.1 Oracle accountancy solutions

### 2.1.2 SAP SE accountancy solutions

SAP SE (Systems Application & Products in Data Processing) is a multinational software corporation that makes enterprise software to manage business operations and customer relations.

### 2.1.3 Microsoft accountancy solutions

### 2.1.4 Sage accountancy solutions

## 2.2 Overspending issues and microloans system in the UK

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## 2.3 Analysis of existing budgeting solutions for individuals

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# 3. Requirements for Intelligent Expense Manager

The specification of Intelligent Expense Manager requirements has been created based on the background research described in the previous chapters. The software will be developed iteratively. Дописать

Basic requirements:

1. User should be able to register and authorize in the application.
2. All entered user’s data should be synchronized and fully accessible between different devices (if user uses several devices).

Requirements for the budgeting aspect:

1. User should be able to set a budget for a month.
2. User should be able to enter his/her everyday expenses.
3. While entering expense data, user should be able to set the following information: the date of expense, the category of expense, the amount of expense, whether the expense was done during travelling (by default it is false).
4. User should be able to edit and delete expenses.
5. User should be notified if he/she is getting closer to the limit of the month.
6. User should be able to select important dates in the calendar and the app will send them a reminder to start saving money for this event in advance. The default reminder will send notification one month before, but it should be customisable by user.

Requirements for the sharing expenses aspect:

1. User should be able to create or add a friend.
2. User should be able to create a group for sharing expenses. To create a group user should specify the name and add minimum one friend to it.
3. User should be able to change the group name.
4. While creating expense, user should be able to specify that it is shared expense, choose the group to which it belongs and select the splitting method within group members.
5. User should be able to modify any added expense and set/change/delete for it splitting options.
6. The app should support the following splitting rules:
   1. The expense can be paid by one or several group members.
   2. The amount of expense can be split not equally and not between all group members.
7. All shared expenses should be synchronised between group members.
8. User should be able to view balances between group members.
9. User should be able to view the list of friends with the debts.

Requirements for displaying statistics:

1. User should be able to view statistics of his/her expenses.
2. User can choose the period for which the statistics should be displayed.
3. User should be able to switch the statistics display between:
   1. All expenses.
   2. Only travelling expenses.
   3. Only everyday expenses without travelling expenses).

# 4. Design

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## 4.1 Monetization strategies of mobile applications

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## 4.2 UI design

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## 4.3 Architecture design

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## 5. Implementation

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# 6. Testing and evaluation

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# 7. Conclusions

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# 8. Further work

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# References

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# Appendices

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