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Contents

[Introduction: 3](#_Toc30067619)

[Background: 3](#_Toc30067620)

[Problem Statement: 4](#_Toc30067621)

[Process & Results: 4](#_Toc30067622)

[Evaluation/Reflection: 6](#_Toc30067623)

[References: 7](#_Toc30067624)

# Introduction:

The aim of the project is to create a software application easing the communication between landlord and tenants. The application’s goal is to enable communication and support both parties in their mission to maintain a household.

This report presents a solution on how to solve the problems with the house. The communication is solved with the help of a chatroom – for the tenants and complaint forms sent via email to the landlord. Moreover, the landlord can send announcements, preparing the tenants for an upcoming maintenance. In terms of chore separation and motivation, a calendar with the chores for the week is created. Each chore gives a certain amount of points, which in the end can be claimed to reap rewards.

# Background:

Our team examined the problems within the household and addressed the potentially significant problems, resulting in the creation of a software application solving them. The proposed solution consists of six main points we have focused on – separate accounts for the landlord and the tenants, a calendar with chores and a separate interface for the chores taken, a chat room for the tenants, a point system, a complaint system via email and an announcement system. All these points are to smoothen the communication and allow an easier track of duties per week. The proposed accounts are to enable some hierarchy in this small ecosystem. The calendar is to help with the weekly organization. The chat is there to enable communication between the tenants. The point system is there to serve as a motivation to do the appointed chores with the possibility of a reward. The complaint system is a last resort measure, since it allows the landlord to interfere with inner operation of the house. Finally, the announcement system is to serve as a way of notifying the tenants of an upcoming maintenance, rent collection, etc.

# Problem Statement:

In every student housing tenants are expected to maintain a clean and healthy living environment, through keeping personal items away from the common areas and cleaning them when used and/or needed. However in the case described in the project document it’s clear that this is not the case, as dishes are left dirty in the sink and the toilet is left dirty for an excessive amount of time. These acts of ignorance will lead to unlivable and life threatening conditions in the house for the tenants themselves. Further it will make cleaning the house very difficult for the landlord and may end up meaning the landlord will loose money not only for cleaning the mess, but also for not being able to rent the house as quick as he might have been without such trouble. This behavior of the tenants is caused from a lack of communication and motivation. These problems will be mitigated through the use of our application with the help of a pointing/reward system in order to motivate, a chat room to boost communication between the tenants, a calendar system in order to choose chores for a good work distribution, a complaint system so the tenants can address any problems that may occur and last the land lord can place announcements to inform the tenants at any given moment easy and fast, also the land lord can clearly see the current points of all the tenants. This solution will boost communication and motivation among the tenants and allow the landlord to have great control over the situation. It is crucial that the landlord implements this application as it will prevent health and economic risks and issues in the future for him and the tenants.

# Process & Results:

Before taking action and writing code we held a meeting discussing the work environment. We soon concluded, in order to assure a high quality product, we need to work together on the same and/or different devices. This way we could discuss about things to implement and have a group input and effort.

We proceeded with assigning designated roles to all the different members of the group but in later instance these did not matter due to everybody doing more than their assigned role/task. Important to note is Michael Bahchevanov (3806596) our team leader and the team members Aleksandar Todorov (3787842), Kristiyan Strahilov (3807487), Michael Groenewegen van der Weijden (3842401).

Starting the project we set of with design and functionality ideas. We soon decided on a product logo and naming, right after we came up with our graphical user interface (gui), which we kept through out our project development. Continuing to brain storm we expressed a number of features, but ultimately keeping a calendar, chat room, point/reward system and complaint system, further the tenants would have personal accounts and the landlord his. In order to be able to implement all these features we decided to use a database solution **SSMS** [[1]](#_References:)**.**

For designing the logo and a first sketch of how our gui will look we used Adobe Photoshop [[2]](#_References:). Then for the implementation of the gui we used Visual Studio .Net frame work in C# to create a Windows form application [[3]](#_References:) . The first implementation was made by Michael Groenewegen van der Weijden and later changes were made by Aleksandar Todorov, keeping the core design the same throughout the whole process which consists of a calendar tab, a chat room tab, a scoreboard tab, complaint tab and an announcement pop-up menu. For the land lord an overview tab of the scoreboard, a tab where he could alter the accounts and an announcement section.

Once the gui was completed we proceeded to setup the database on the Hera server of Fontys and to be able to connect to it we had to use the Cisco any connect vpn [[4]](#_References:). Thanks to an incredible combined effort of Michael Bahchevanov and Aleksandar Todorov they set up the database along with the methods needed to set and get the data need of the database. Next Michael Greonewegen van der Weijden proceeded to test out the methods in small ways to assure these methods work and report for improvement if needed.

Parallel Kristiyan Strahilov was testing a UDP Connection[[5]](#_References:) in order to set up the chat room feature. This went not as planed and was forced to use the database to implement the functionality of the chat room.

Continuing forward the announcement system was implemented by Michael Groenewegen van der Weijden with the help of the methods Michael Bahchevanov and Aleksandar Todorov created. Further the Scoreboard was implemented by Aleksandar Todorov and Michael Groenewegen van der Weijden as was the complaint system using emails. Next the Chat room was implemented by Kristiyan Strahilov and continued to work on it to make small improvements. The calendar system was implemented by Aleksandar Todorov. Further we continued on adding features as the password retrieval, log in out state and primarily small bug fixes by all of us that in the end make a huge difference.

In the end the application had all the initial features we wanted it to have such as the Chat room which was a great accomplishment along with the Scoreboard and we were also able to implement more features like the password retrieval. The application turned out to be everything we expected. We are very proud of the application we created as we believe this has not only an application for this project but also real life application because with application we are able to solve many problems that occur on a daily basis.

# Evaluation/Reflection:

To look back as a team/group at the project we are surprised how fast this whole process went from just thinking to being done with such a project of such scale just amazes us. In addition we are all very happy as how things progressed in the communication aspect and how we steadily added and implement our ideas. A key aspect that contributes greatly to this projects success is the fact that we worked as much as often together as stated before. The only thing that that could be considered a draw back is the our great ambition at the start of the project, this slowed down the process and for the next project we could be bit more realistic, it did not affect our project, but definitely made things a little more difficult and tiring for us. We are most proud of the Chat room and the calendar systems these were quite challenging but as a team we got through the implications

# Conclusion:

Taking everything in account that has happened these last four weeks we are quite happy on how things turned out, no major communication issues, no fights between us and in general a very professional and productive environment. In the end the lessons learned from this experience are not only about how to code, have a good insight and algorithmic thinking, or how to set up a database and implement the necessary procedures, life skills were also learned, communication skills were improved and friendships were formed.

# References:

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No. 2: Adobe Photoshop, Link: <https://www.adobe.com/nl/products/photoshop.html?promoid=RL89NFBP&mv=other>, Release: Unknown.

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No. 4; Cisco any connect vpn, Link: <https://www.cisco.com/c/dam/en/us/products/collateral/security/anyconnect-secure-mobility-client/at_a_glance_c45-578609.pdf>, Release: 06/17/2017.

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