A NEW CENTRIC SYSTEM FOR MANAGING PERSONAL INFORMATION

Grela AJVAZI[1*], Florinda IMERI[1], Agon MEMETI[1]

[1]*Department of Informatics, Faculty of Natural Sciences and Mathematics, University of Tetova*
Corresponding author e-mail: grela.ajvazi@unite.edu.mk

Abstract

Information Management is a very important concept when talking about huge amount of quantity of information. Advances in technology, the spread of mobile devices and improvements in internet connectivity, have created a data-rich world where the amount of personal data/information has increased immensely. Personal information is recognized as one of the most valuable resources for many people. Personal data stores (PDSs), known as personal information management systems (PIMS), represent a class of a technology, focused on data management. In essence, a PDS equips a user with a technical system for managing their data/information by providing means to create, store, organize, maintain, retrieve, and use them otherwise managed by their device. What is already proven is that the use of data/information in a real time framework is a very important thing for many users. How difficult it is to find data/information depends on how well we are able to maintain them. PIMS such as GMAIL offers a range of functions that users can use to manage personal data/information. But there is a problem, users are either not aware of them or because of not very user-friendly interface do not use them much. These came as a result of a survey where among others people who were part of this survey expressed the need for a system for their daily obligations. This gave us the idea to build a new PIMS that would meet the needs of users for quick and effortless control and access to personal information. The post-registration system offers the ability to organize, store and maintain information in a very easy form as they are all in one place. The aim of this paper is to introduce the system and its features.

Keywords: information management, personal data/information, personal data stores, personal information management system

1. Introduction

We don't always get the proper information at the right moment in our daily lives. It is possible that we will discover information before we need it or even after we have completed our work, making it worthless. As the global digital infrastructure grows, the field of information management is rapidly evolving alongside it.

Personal information management is a relatively recent field with a long history. This is due to the fact that people have been dealing with the administration of varied information since the days when paper and not technology dominated. The only memory that could store information at that time was human memory, despite being the best, fails to remind us all the necessary information at the time when we will need it.

PIMs (Personal Information Managers) are apps that allow users to organize, categorize, collect, explore, and access various types of information, ranging from simple things like phone numbers to diary entries and personal meetings. These systems refer to the activities that a person engages in to get or create, store, organize, preserve, and use information in order to achieve life objectives and fulfill roles and duties (such as parent, spouse, friend, employee, community member, and so on) [1].

Despite the fact that PIM is a fundamental aspect of computer-based activity and millions of computer users manage their personal information on a daily basis, there is surprisingly little research on the topic. However, in recent years, scientists have begun to pay more attention to the subject. Users' challenges with the classification and retrieval of their personal information, as well as their unhappiness with these processes, are reported in several PIM-related research. Boardman et. al. in "Too Many Hierarchies? The Daily Struggle for Control of the Workspace ", who studied PIM within and across these systems, made the following

observation: "We were often surprised at the vehemence expressed regarding PIM-related problems, and have coined the term bugbear for recurring problems that frequently or seriously affect users" [2].

The phrase "Personal Information Management" was first used in the 1980s when the potential of the personal computer was tested to greatly enhance the processing and management of information as a human ability.

These systems assist us in answering the most important hypotheses that each of us may have regarding our data. Some of them may include:

- I'm not sure what to do with all of my images and videos. Will I be able to see them in thirty or forty years, just like all the data on my first computer?
- How should I organize the hard disk? I know what to do with paper documents, but my computer files are a mess!
- How can I become more agile in my information management so that I have more time for my family, friends, and the things that truly interest me in life! [3].

2. Data and their management

Data is defined as a collection of facts about certain events, but raw or unorganized. In other words, they are just one more word for information which is an organized, well-processed and meaningful form of the data we have. The data should be easy to comprehend, clear, organized, and structured. It should have a timeframe that is appropriate for completing the linked work and is accurate enough to produce the intended result [4].

The relationship between data and information is quite close, as information is undeniably vital to people, as we could not imagine building our modern world without it. Managing our data entails governing our reality. Many of us know people who manage despite of having disorganized information collections. Some of these people may be outstanding in their abilities to manage not only their own tasks but also the work of others. On the other side, many of us may have had the experience that sometimes the hours we spent "organizing" never paid off.

3. Our research on this system

Any work when started should be based on similar pre-created work. This helps to show how the development of your system will proceed, which further affects the success of the system. From the moment of the idea to develop this system I had in mind that it should be a system that will meet every request of the user given that there are many personal information management systems but they are unsuitable for daily use. We used Gmail as an example, which offers a lot of capabilities, but we were skeptical about how people used them.

Everyone in our region has at least one Gmail account, but they only use it to exchange personal emails and for work. This was a hypothesis thrown by us and I decided to create a questionnaire to see how true this would be. The results of this survey are presented below.

There were 101 participants, 70 of them were women and 31 of whom were men. The majority of the participants were between the ages of 18 and 25. (72.3%). This survey focused mostly on the Tetovo region, with 57.4 percent (58) of participants living in the city and the rest in the countryside. How familiar they are with the features that Gmail offers, 62.4% answered that they have no knowledge and that they use Gmail only to exchange emails, but 37.6% said they knew and used them. They were also asked for what they used Gmail on a daily basis, their answers were 64.4% (65) - to exchange emails, 19.8% (20) - to manage their data and 15.8% (16) to store important data. From this in a way we have the answer for the above hypothesis.
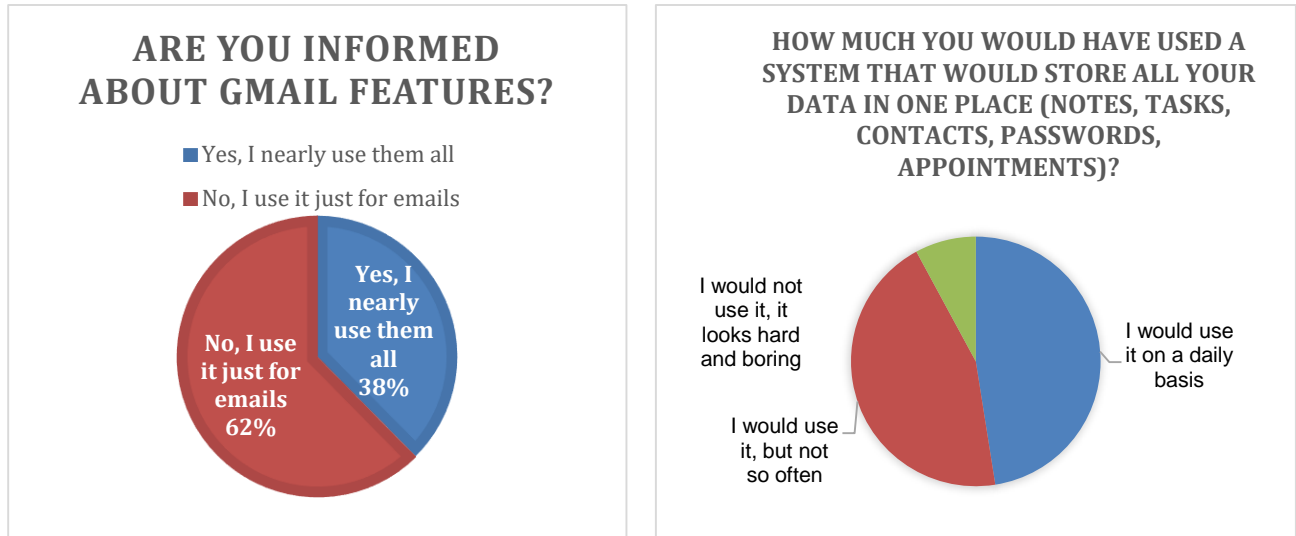
Fig 1. Graphic presentation of the question

A very important question from which I realized that most people need a system in which they will record their daily obligations. When asked where they keep track of their daily duties, the majority said in Notes (60.4 percent), 26.7 percent said they didn't need to record it anyplace, and 12.9% said on paper.

To see which features they needed most to include in the system, I asked which Gmail features they use most often. The following were their responses:

- 27.7% - neither
- 24.8% - notes
- 23.8% - contacts
- 13.9% - calendar
- 9.9% - tasks

These responses were expected in light of the hypothesis mentioned above, given 28 people in the survey did not use Gmail for any other purpose. We can conclude from this that people do not have the time or the patience to log into a more complex system in order to write or store their daily data.

The following question asked how much they had heard about personal information management and how much they had used it. 52.5% of respondents had heard about these systems but did not use them for personal reasons, 35.6% had never heard of them, and 11.9% used them on a daily basis. To fulfill the needs of the majority, I decided to make this system as simple and user-friendly as possible. I asked them which PIM they used to see where they received these experiences, and they said:

- 45.5% - none of these
- 44.6% - Google calendar
- 6.9% - MyInfo
- 3% - Remember the milk
- 0% - EssentialPIM

Would such a system help you with information management, the answer of 80.2% of them was yes, a lot. The remaining 19.8% answered that they do not need it.

And the last but not least important question was: How much would they use a system that would store all their information in one place (like notes, tasks, contacts, passwords, appointments). Most of them, or 47.5% said they would use it every day, 44.6% answered that they would use it occasionally and 7.9% said they would not use it because it seemed difficult and dull to use. In conclusion, 92.1% of respondents wanted a system that would assist them in their daily lives.

The description of this system is in the following pages of this paper where I have tried to develop a system that will satisfy the requirements of users, based on the survey conducted earlier. Our goal was to develop a system that is easily accessible by users and very simple to use.

4. Personal Information Management System

We rely on information to understand our surroundings, complete tasks, make wise decisions, and learn and master the environment. Everything would be a lot easier if we had a system to keep track of them. This is why I chose this topic to make our daily work a little easier by storing data and information that we may need more frequently in everyday life, such as contact information, meetings or important events, daily obligations, notes, various data that we enter on various websites during purchases or for other purposes, and so on.

4.1. The purpose of the project: Many projects, whether software or not, might fail due to a lack of specific definition of the main goal. Although it may be the most difficult phase, establishing the aim makes the system's implementation easier in the following steps. The goal of this system is to provide basic data management, allowing users to search for information without having to go to multiple sites. Considering that users can be of different profiles, I tried to make the system as simple and understandable as possible. Everyone will no longer be forced to remember their daily meetings; instead, they will be able to log in and know when their next meeting is. The user will be able to write down any new ideas he has and have them available anytime he wants them. Any password he has used on an Internet site will be able to be stored in the system, where the data will remain until he decides to erase it.

All of these allow the user to delete or update information as desired. All you have to do now is log into the system and you'll have access to everything listed above.

4.2. Project objectives: Users argue that personal information management systems like this give functionality that empowers them. The following are some of the claimed advantages for users:

- Users have complete control over the information collected about them, as well as how that information is shared and used.
- Better protection of personal data (including 'sensitive' personal data) from access by third parties.
- Access to the data they need at a critical moment.

4.3. Scope of the system: Regarding the field where this system will be used, it is clear that anyone who is looking for a location where he can conveniently organize his main data, such as those included in this system, will find it useful.

This system can generate an accurate and dependable report that includes the following information:

- You can easily save appointments or any other essential event.
- You may simply set all the things that you need to remember for days in Tasks, which organizes them by the day they will be generated.
- Allows you to update the information you entered when you first used the system.

- You have the option of storing all of your contacts so that you can find them quickly when you need them.
- In the Projects section, you can download projects in a variety of formats from your computer, which you can save and download later if you need them.
- You also have the option of entering all the passwords you used to register on various websites, considering that we will most likely forget them as soon as we finish working on that page.
- Each part is very easy to use and does not bring stress to the user.

We are dealing with a web application, so users will have access from anywhere.

5. System Requirements

Delivering high-quality software is a delicate process that involves patience, competence, and clear communication among all parties involved. Demand analysis is a key process for developing good systems as it enables the evaluation of the success of a software system. Requirements are generally divided into two types: Functional and non-functional requirements.

5.1. Functional requirements: The system's basic behavior is determined by functional requirements. They are, in essence, what the system should or should not do. All these functionalities must necessarily be included in the system as part of the contract. As a result, if the functional requirements aren't met, the system won't function.
Our system's functional requirements are as follows:

- Registration is the first and most important step, as without it, the user will be unable to use the system. The login process follows the registration phase.
- Login - After entering his information in the registration section, the user can log in here using only his Username and Password. Where it will be simple to access all of the system's functionalities.
- User information - management of information that the user will register in the system.

5.2. Non-functional requirements: Non-functional requirements have no impact on the system's essential functioning, therefore even if they aren't met, the system will still execute its primary function.
Why are these requirements relevant if a system can still function without achieving the non-functional requirements? Usability is the answer. Non-functional requirements influence the user experience by determining system behavior, features, and general characteristics.
The system I created is quite simple to operate. The following are the characteristics that define the quality of our system:

- Security - the entire system is password-protected. The user must first input the right password before making any changes to the system.
- Availability - the system is accessible at any time and from any location. Every user will have access to the ability to modify, store, and organize data from anywhere using their devices.
- Usability - the system is incredibly user-friendly. Everything is presented in web forms to make them as simple to use as feasible.

6. User interface

Every user is interested in having a user-friendly, effective and mostly simple interface. When creating a new user interface, keep in mind that user-centered design is a modern idea that is extensively used in the field of design. Users, stylists, and technical practitioners collaborate to express the user's desires, wants, and restrictions, and to design a system that solves these aspects.

The goal was to make this system's structure simple to use at first glance. It includes simple tasks and operations that may be performed with a single button click. See Fig ure 1 for a better understanding of the user interface.
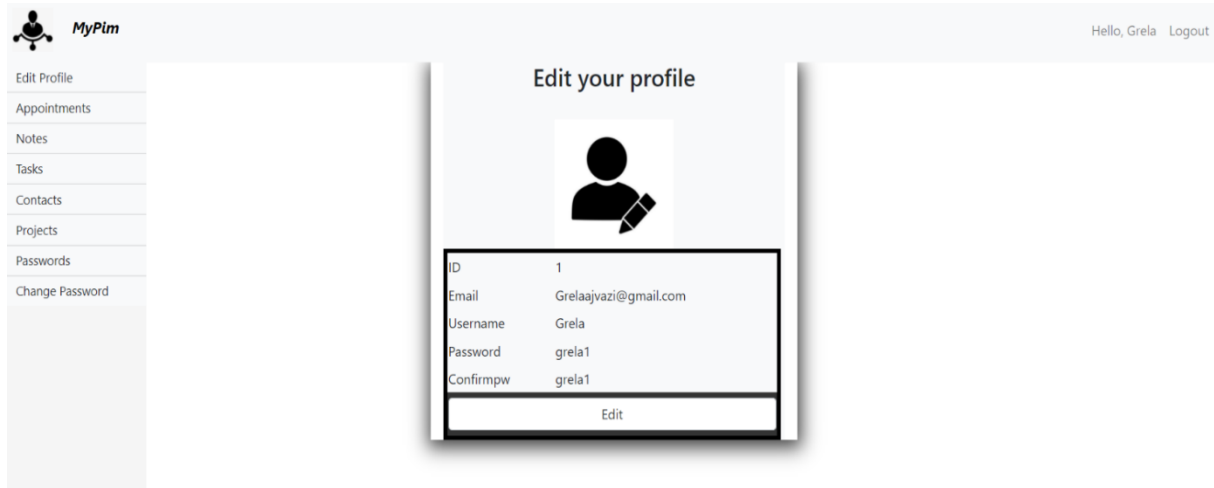
Fig 2. System view after login

7. A comparison of gmail's and our system's similar features

Everything about this system is based on the PIMS that was built previously, but the main and most important reason is the ease of use and user access. This is because we aim to utilize it at various ages, so that even the most elderly individuals can benefit from it and be integrated into systems that will make their daily work easier.
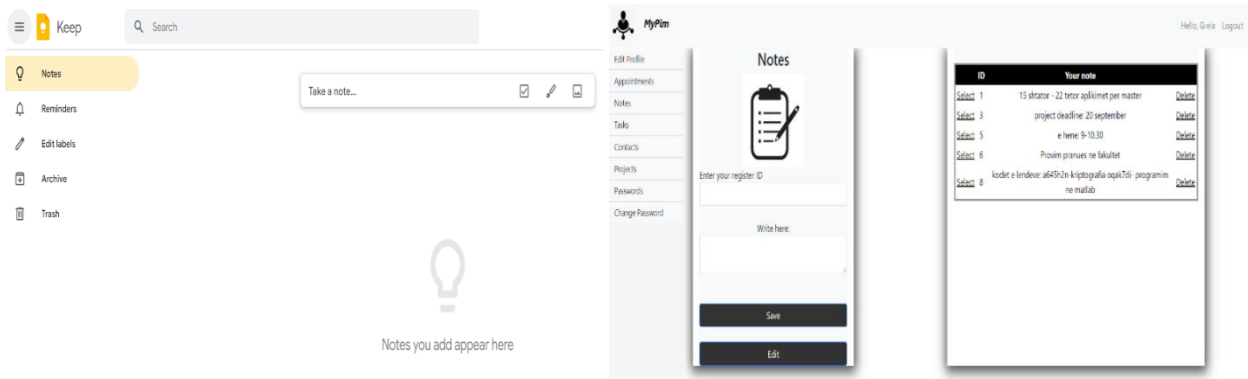

Fig 3. Comparison of notes (in Gmail and our system)

Although Gmail clearly provides more data manipulation options, our system provides easier and more direct access to the features it offers. Everything is very visible and simple to use for people of all ages.
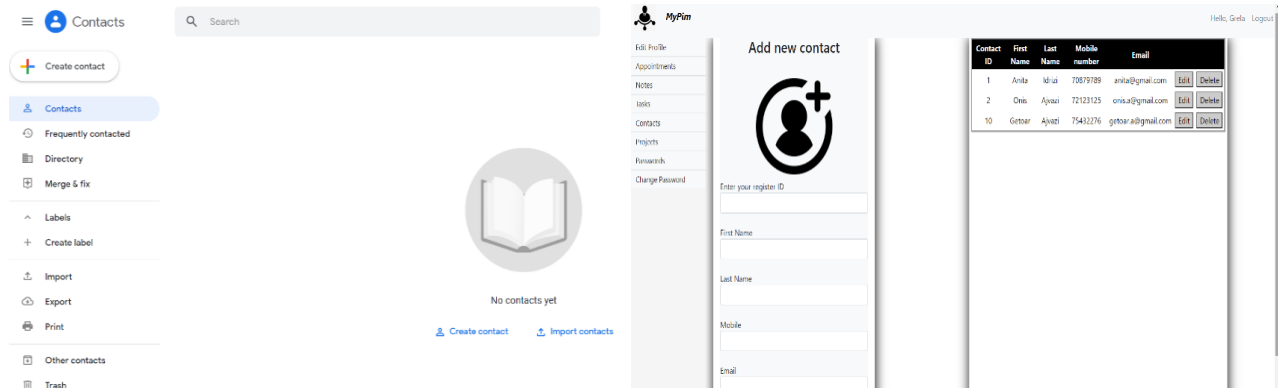

Fig 4. Comparison of contacts (in Gmail and our system)

Also, in our system, you have the ability to save different passwords that you have set through various websites on the Internet. This brings us many advantages, as each of us loses the password for the given page at the moment of finishing work on it. It also allows you to save important documents or projects, which you can subsequently access and download from any device. This eliminates the need to open your computer for a single document; instead, log in to MyPim from any device and get those documents right away on the device you're using.
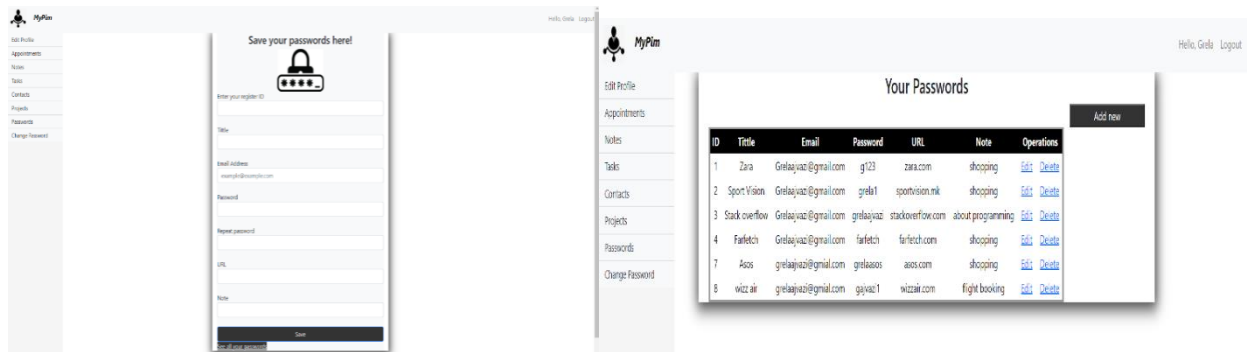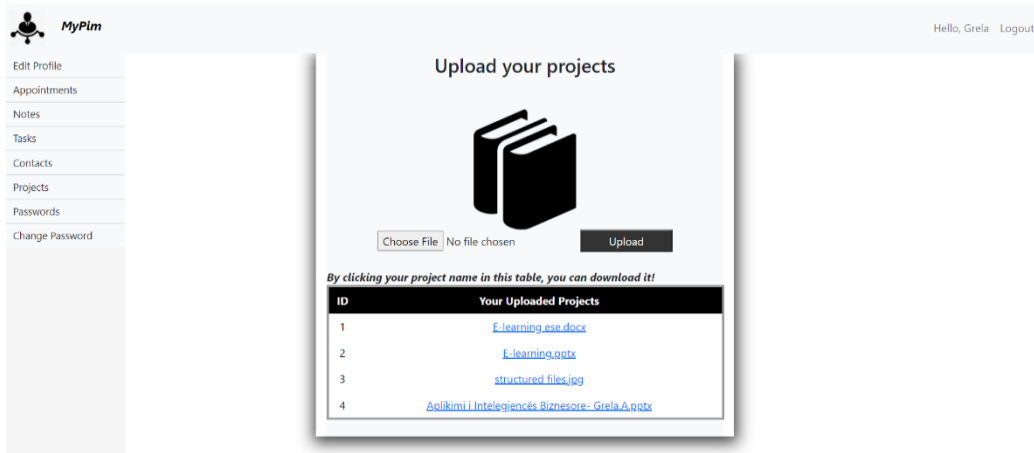

Fig 5. Save your passwords

Fig 6. Important documents

8. Conclusions

There is no perfect organizational scheme for everyone. It is more important to evaluate the client's wants and preferences and to choose the system (or combination of systems) that is best suited to solve his difficulties, rather than to design a system that conforms to a preconceived notion of what a good system should resemble. The personal information management system in question provides users with a simple platform to handle their everyday information. The goal is to make information organization accessible to people of all ages. People's memory, or the quantity of things they can remember at once, tends to deteriorate as they grow older. With an information management system they will be able to control all their data. Depending on user needs, the system is adaptable and includes opportunities for future modifications and extensions. The system's future work will be focused on its extension and the integration of as much data as possible in various formats. This, I believe, will be the most important process in our system's development.

References

[1]. Yun-Ke Chang, M. A.-A.-C.-S.-Y. (2010). Personal Digital Information Resources Management Behavior. *2010 Seventh International Conference on Information Technology: New Generations.* Las Vegas, NV, USA: IEEE.

[2]. Richard Boardman, R. S. (2003). Too Many Hierarchies? The Daily Struggle for Control of the Workspace. Retrieved from https://www.researchgate.net/publication/327032448_Too_many_hierarchies_The_daily_struggle_for_control_of_the_workspace/stats#fullTextFileContent

[3]. Jones, W. (2008). *Keeping found things found.* Morgan Kaufmann. doi:https://doi.org/10.1016/B978-0-12-370866-3.X5001-2

[4]. William Jones, J. D.-Q. (2017). Personal Information Management. In M. L.-C. John D. McDonald, *Encyclopedia of Library and Information Science, Fourth Edition.* doi:10.1081/E-ELIS4-120053695