Designing a dashboard for wellbeing data
A recommendation system for individual wellbeing

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Abstract

Due to COVID-19 the overall wellbeing decreased. Improving wellbeing has become a more important subject. A dashboard that generates possible solution via the My Wellness Check gives fitting solution per student to improve the individual wellbeing

1 Introduction

Assessing and improving the wellbeing became a bigger priority in the world. That is why the Delft University of Technology created the "My Wellness Check" survey. It is important to return this data back to the community because only then users know what the possible problems and solutions are.

At the end of the My Wellness Check the website shows figure **1** as an end-screen. To improve the wellbeing via the survey a dashboard is needed where users can interact with their input. This is the place to find solutions specifically to the user needs. A concept design can be seen in figure **2.**

2 Research Question

How might we design a dashboard for communicating data to back the community?

Figure 1: The current end screen of the My Wellness Check [2]

3 Related Work

The recommendation system is a software tool that provides suggestions based on user inputs. It has become more important and more used the few years due to applications like Netflix, Amazon Prime, YouTube, etc [1].

Recommending techniques are divided into 4 categories:
- **Collaborative Filtering**
  - Based on ratings on the items by the user. recommending
- **Content-Based Filtering**
  - Based on previous selected items by the user.
- **Demographic Filtering**
  - Based on the demographic profile of the user.
- **Hybrid Filtering**
  - Uses a combination of multiple filtering approaches.

Users and items are represented by a set of features such that the recommendation system can distinguish different users and items. The list of features is made from the questions and results from the survey. The list of features can be seen in table **1**.

Table 1: User/item features

User
Faculty
Gender
Study Year
Mood
Life Satisfaction
Physical Health
Academic Experience
Study Environment

Item
Duration
Intensity
Description

4 New Idea

The current system has 3 main issues that needs to be addressed:

1) **Logging in**
   The survey is now fully anonymous making it impossible to track individual data to a user. Being able to track this in a private manner is needed to start recommending possible solutions. To do this the My Wellness Check needs to start using Single Sign-On (SSO). This maintains the privacy of the user as it uses a username that is not necessarily linked to the user and a password to make it secure. SSO also lifts the user experience as the user only needs to remember the credentials from the TU Delft and once logged into a linked domain to the same SSO the user does not need to input the credentials again.

2) **Missing Data**
   Currently the survey allows users to skip over questions. This results in missing possible valuable data. To overcome this problem the data that is incomplete can either be deleted, which results in possible deleting valuable data, or predict missing data using a K-Nearest Neighbor algorithm. This algorithm can predict the missing data based on the data that is available. As both approaches can generate possible solutions user testing is needed as the user decides what is most beneficial for their wellbeing.

3) **Rating System**
   The recommendation system uses ratings to try and find similar users with similar ratings on different items. Multiple different rating systems are available. For example, Thumbs Up/Down, Linear Numeric Scale and the Forced Ranking Scale. To decide what the best rating system is can be done by creating a big data set of ratings in different styles and then let the recommendation system output possible solutions. Based on the output one can test what the better predictions are.

Figure 2: The concept design for the new dashboard

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5 Conclusion

To start improving wellbeing via the My Wellness Check a recommendation system should be implemented.
The recommendation system should use a Hybrid Filtering technique using both Collaborative Filtering as well as Content-Based Filtering. The combination is required as the Content-Based Filtering is able to overcome possible "Cold start" problems when there is little input. Once there is a large dataset of students and staff and corresponding ratings Collaborative Filtering is then able to predict suiting solutions per user.

- A logging system like SSO is needed to make anonymized data private user data
- The data that is missing should be deleted or filled in
- A rating system is needed for the recommendation to work

6 References

[1] Nake Aparanji and Bangarulakshmi Mahanthi. Movie recommendation system. inter-national journal of scientific research in engineering and management, 06, 04 2022.
[2] My Wellness Check: https://tudelft-student.mywellnesscheck.org/
- Icons: https://www.flaticon.com/

Welcome!

Name: John Doe

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It's been a while?
Hit this **link** or scan the QR Code and resubmit answers to the My Wellness Check

Try this out!
Here are your personalised solutions for improving your wellbeing!

	Duration	Intensity level (1-10)	Description	Your Ratings
Studying on Campus	2 hours	6	Study at the campus to not feel alone when studying for a hard exam.	How helpfull was the solution? ①②③④⑤⑥⑦⑧⑨⑩
Organise	30 minutes	4	Start your day by planning what you want to do today	How helpfull was the solution? ①②③④⑤⑥⑦⑧⑨⑩