

2022-1 CSI4117 Data Mining: Team Project

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Problem description

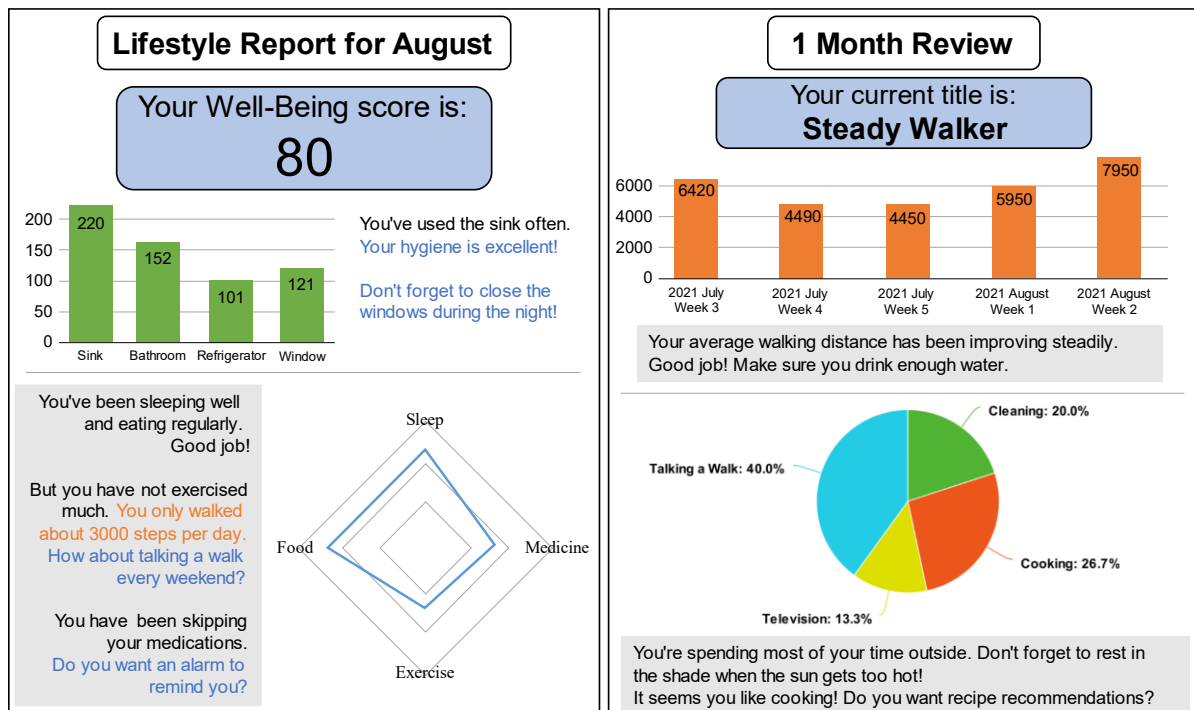
As a service from the lifelog dataset, we want to construct data mining models for the user's life patterns and activities to provide a life pattern report for a user, which includes several useful information ranging from simple statistics to recommendations to improve the user's life.

1. (30pt) Propose the contents of the life pattern report. Examining the examples of the report as shown at the end of the document, try to design the format and contents of the report for a specific user for a month to improve his/her well-being.
2. (30pt) Decide the appropriate data mining models for filling out the information at the report. Depending on the life patterns that you want to provide, several different models should be chosen and optimized with different hyperparameters.
3. (40pt) Evaluate the models with the validation data and demonstrate the usefulness of the data mining process to complete the service of summarizing the life patterns.

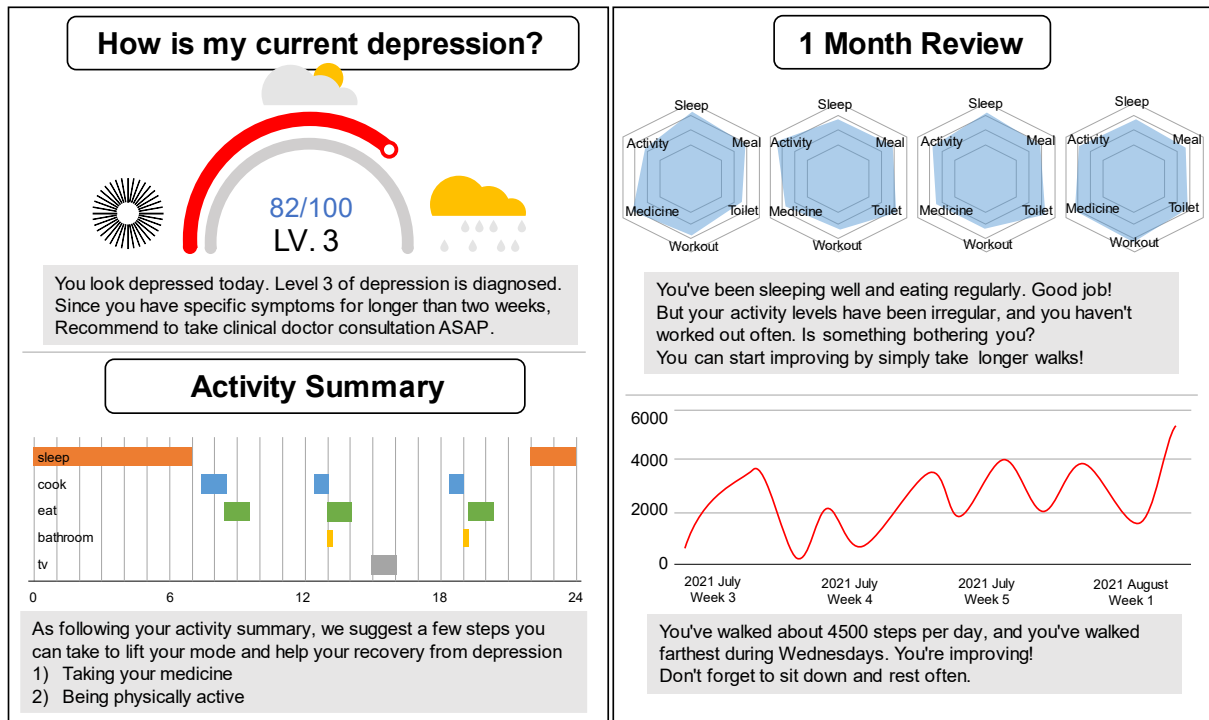
Submission due & format

- 5/4: Team formation
- 5/18 (Proposal): Submit a pdf file (DM-P3-proposal-team00.pdf) at 'DM Project 3-Proposal'.
- 6/1 (Final report): Submit a single zip file (DM-P3-team00.zip), containing the report (DM-P3-final-team00.pdf), source code and any necessary files to run the final program, at 'DM Project 3-Final'.
- Not allowed for late submission

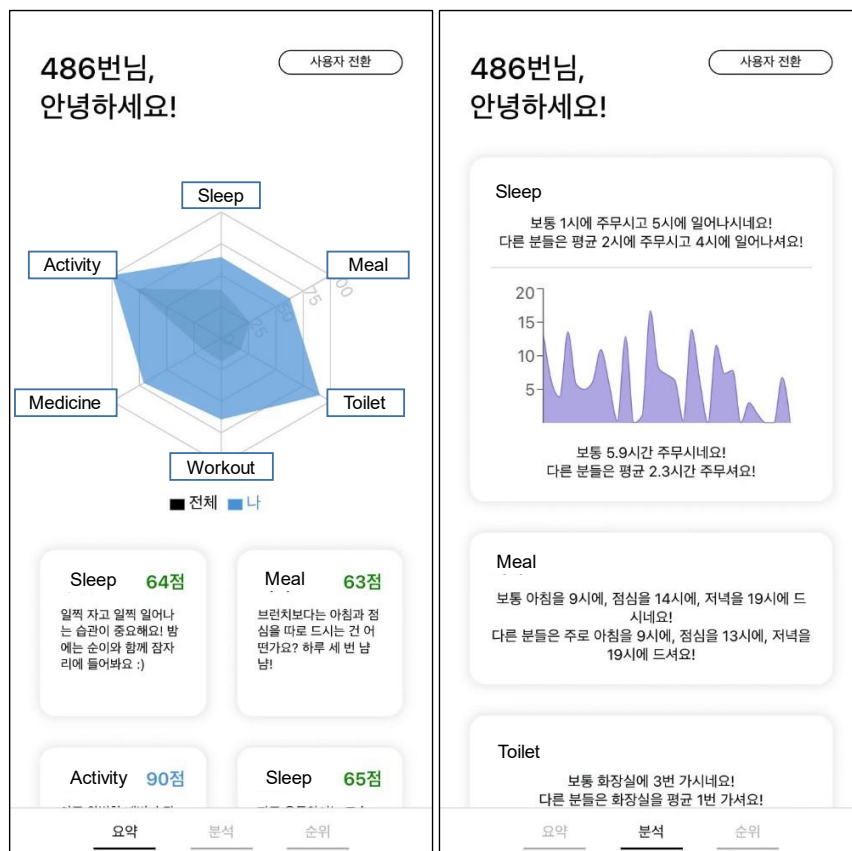
Examples of the life pattern report



Example 1: A report focused on activity frequency, activity proportions, encouragement and recommendations.



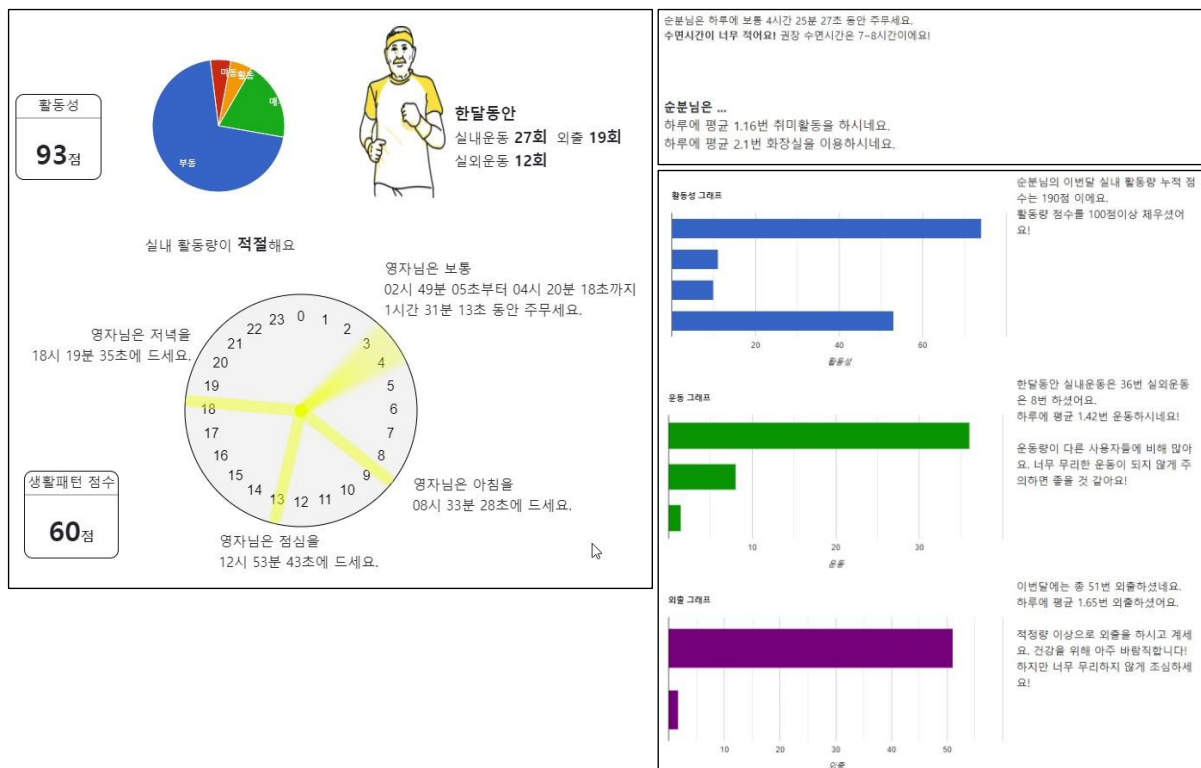
Example 2: A report focused on identifying depression patterns from user activities, and suggesting life style changes to improve mental health status.



Example 3: A report focused on life-style patterns and schedules. It calculates scores for various activities (such as sleep and eat) based on how regularly and punctually the actions were performed. It estimates the desired schedule of user activities and comments on them.



Example 4: A report that provides a score based on how regularly the user performed activities related with health. It also recommends changes to behavior that improve the quality of life, such as cleaning more often and reminding the user to take medication.



Example 5: A report focused on providing statistics of the user's workout routine. It displays the average meal and sleep time, monthly and daily work-out frequency. It also provides the scores to quantify the user's life-style quality.