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# Tailored Food Recommendations in Facilitating Dietary Change: A Rule-Based Personalized Eating Solution †

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**Abstract:** Background and objectives: A concept of personalized eating originates from personalized nutrition, where dietary advice is tailored to an individual. In personalized nutrition solutions, dietary advice is more and more based on clinical biomarkers, genetics, and the gut microbiome. However, there is evidence that tailored dietary advice based only on personal dietary data is effective in facilitating changes in dietary intakes. Thus, the aim is to create a personalized eating solution: a prototype of data platform recommends foods by linking individual's dietary data with product information via specified rules. Methods: The data platform is integrated with an external global food product database and a user interface (UI), and the system structure is: (1) a personal profile, (2) a rules engine with functionality for setting tags and filtering rules, and (3) a knowledge database (food product database). The food product database is integrated via an open API (application programming interface) with the platform, and is utilized to retrieve product information for the filtering rules. When using the platform for the first time, a user must enter demographic data and information about specific dietary criteria and personal preferences. With the permission from the user, the data platform may also retrieve data for the personal profile from other integrated services, including wearable devices. Food recommendations are generated by filtering the product information based on the personal profile and food groups selected by the user. The user can access the food recommendations via a web-based UI. The platform also includes an API, which allows the recommendations to be integrated to existing wellness applications and devices. Results and Discussion: The personalized eating solution suitability for use by consumers and ecommerce services will be tested in 2023. A strength is that the solution considers personal preferences to motivate users, such as values related to the consumption of ethic and sustainable products. However, the food recommendation rules rely on formal information about products in the external food database. In the future, the solution could be used for research, commercial, and healthcare purposes in facilitating dietary changes to promote health and wellbeing.

**Keywords:** personalized eating; food recommendation; platform prototype

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** Data sharing not applicable. No new data were created or analyzed in this study.

**Conflicts of Interest:** The authors declare no conflict of interest.