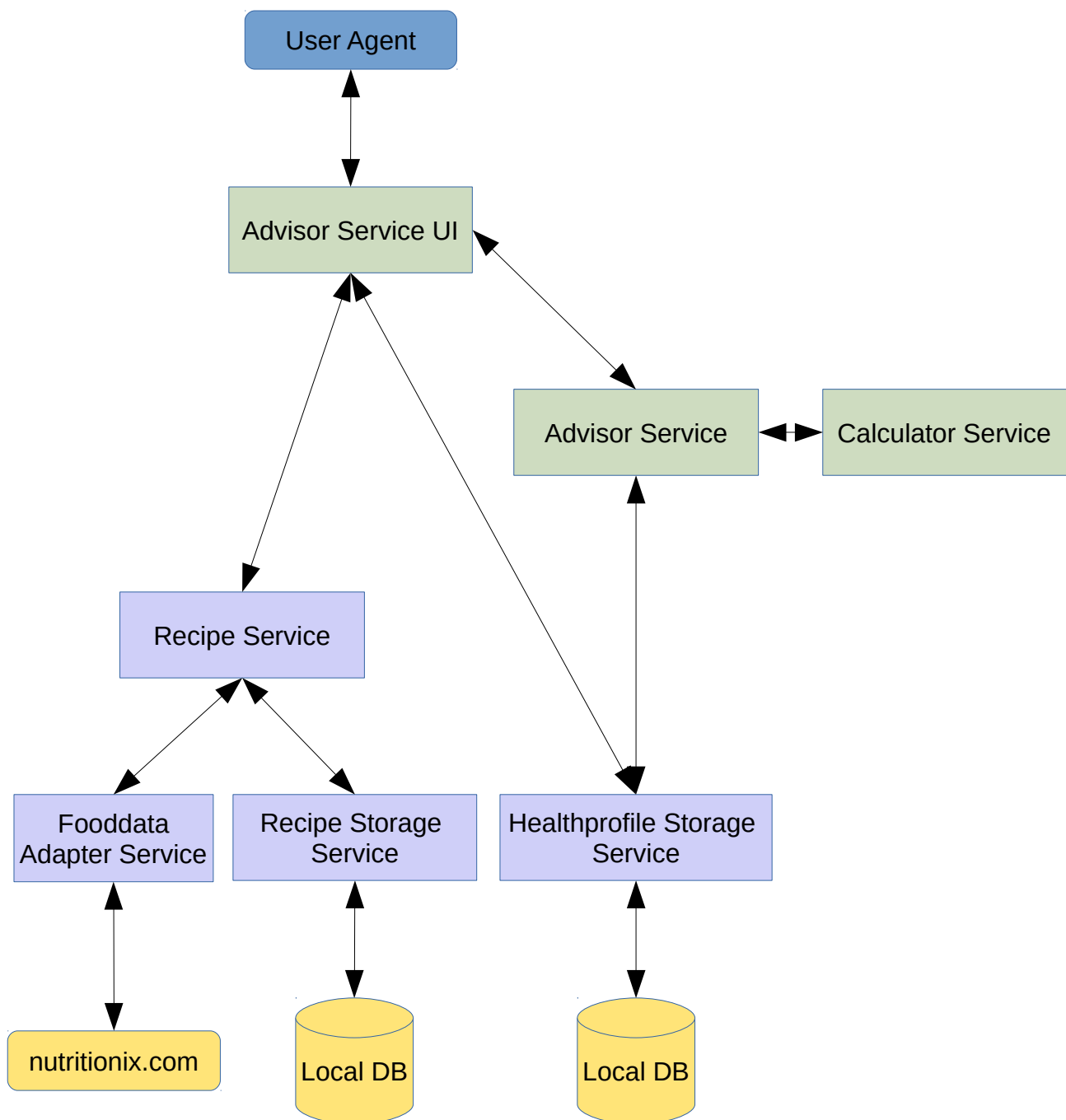# Introduction to service design and engineering 2015-16

Final project

The application helps people to adapt their meals to the daily calorific requirements. It collects data about the body measure, the physical activity and the meals a person intends to consume and gives an advice about the health and the meals.

Structure

HealthprofileStorageService

This webservice stores data about the persons and the healthprofile (a collection of measures) in a local database. The healthprofile can store an arbitrary number of measures. A measure can be of any measure type and unit; the numeric value is stored as a real number (double).

The measures are stored with a creation date. Old measures are archived and can be retrieved as history of values.

FoodDataAdapterService

The calories about food are retrieved from the external RESTful webservice nutriotionix.com[1] accessed via Mashape[2]. The FoodDataAdapterService queries the Nutritionix database, removes the fields that are not necessary and returns the list of products.

RecipeStorageService

The recipe storage service stores the recipes with their ingredients in a local database. The webservice offers primitives for storing recipes, adding ingredients to recipes and removing ingredients from recipes. When ingredients are added or removed, the calories of the recipe are updated.

RecipeService

This service provides an interface for creating, modifying and querying the recipe database of the Recipe Storage Service. It is intended as interface that joins together the functionality of the Fooddata Adapter Service and the Recipe storage service.

CaloriesCalculatorService

This service offers methods to calculate the recommended daily calory intake in consideration of the daily activity of the user. The values are passed as URL parameters. The response consists in a number as plain text.

The service implements the Harris-Benedict formula[3] for calculating the basic metabolic rate and the recommended calory intake.

AdvisorService

This service takes as input the healthprofile of a person and the selected meals and gives advices about the weight, the activity and the selected meals.

1   https://www.nutritionix.com/business/api
2   https://market.mashape.com/msilverman/nutritionix-nutrition-database
3   https://en.wikipedia.org/wiki/Harris%E2%80%93Benedict_equation

Activity advice: It considers the average PAL factor[4] and advices the user to be more active, maintain current activity or to slow down. (The reference table for the activity level is the one in the wikipedia article of the Harris-Benedict formula[5].)

Weight advice: The current body mass index[6] is calculated. Based on this value the service says whether the user is underweight, healty weight, overweight or obese.

Meal advice: It takes as input the weight, height and the list of all meals that the user plans to consume. If the user is overweight the recommended calory intake is reduced, in case of underweight increased. Then the total of the calories of the selected meals is calculated and compared with the recommended calory intake. Based on the difference of this measures the advice to the user is to mantian, reduce or increase the calories of the selected meals.

AdvisorServiceUI

This service combines all methods of the recipe service, the healthprofile service and the advisor service. It is intended as interface for an user agent.

UserAgent

The User Agent is a command line application that works for a single user. It offers commands for viewing, creating and modifying personal data, the healthprofile and the recipes. The user has the possiblity to create a mealplan and let it validated.

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4   https://en.wikipedia.org/wiki/Physical_activity_level
5   https://en.wikipedia.org/wiki/Harris%E2%80%93Benedict_equation
6   https://en.wikipedia.org/wiki/Body_mass_index