

- You are to analyse the Bite-n-Write Case Study and design a **Physical ER Model** for a MySQL Relational Database in **Crow's foot notation** modelled with MySQL Workbench.
- You are to provide a Data Dictionary for the **five largest tables** in your ER Model. Largest is defined as the most number of attributes.
- You may list any assumptions you have made about the model on a separate page. There is a **100 word** limit for assumptions. Assumptions must not be used to simplify the assignment, but only to justify your decision about any ambiguity in the Case Study.
- As part of your submission you must submit your final **MySQL Workbench .mwb file** of your Physical ER Model.

BITE-n-Write Case Study

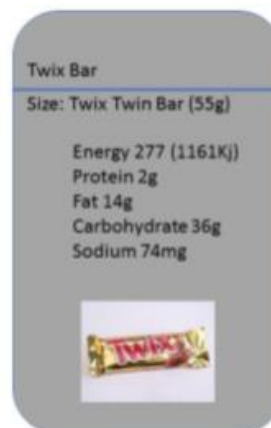
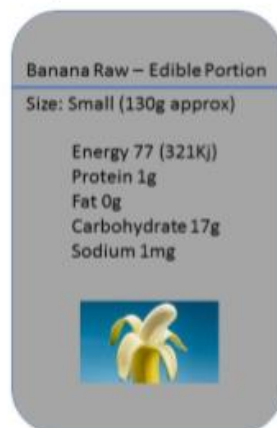
Bite-n-Write is a food diary and exercise app for people seeking to monitor their calorie intake and exercise. Bite-n-Write will be available from app stores and is designed to be a cross platform system (website & phone app) available anywhere and anytime.

Users must register in order to use Bite-n-Write. They must provide a first name, last name, unique username, email address, and optionally upload a photograph or avatar image. After they have registered, users must enter their current weight, goal weight, target daily calories intake and sex. Bite-n-Write records the date users became a member of Bite-n-Write.

An average male needs 2100 calories a day and a female 1800 calories a day. To lose weight users must have consumed fewer calories than they have expended either through metabolic activity (normal cost of keeping the human body alive) or exercise. To gain weight users must consume more calories than they have expended. As most users stop and start food diaries Bite-n-Write will need to store multiple goal body weights, and current body weights over periods of time.

The app system has three sections: the food diary & database; the exercise diary; and the user forums.

The food database contains nutritional information about all types of foods. It records the total in calories and the amount of protein, fat, carbohydrates and sodium levels. As well as storing information about unprocessed food, it also stores nutritional information about processed foods (e.g. Twix Bar) and prepared foods by the major food retailers (e.g. McDonalds, KFC, SumoSalad, Subway, Starbucks etc.).



Information available from the Food database for unprocessed foods (Banana) and processed foods (Twix Bar)

On any day users open the app and enter information about the meals they eat. Users can enter food under meal categories 'Breakfast', 'Lunch', 'Dinner' and 'Snacks'. The system allows users to create their own foods and meals. For example user JamieO has saved a food called 'Nut and Fruit Granola'. User BamBamSam has saved a meal called 'Favourite Brekky' which is made up of the following foods: 2 poached eggs, 1 Slice Sourdough Toast, ½ cup steamed spinach. This is so users can quickly add commonly consumed meals and foods to the diary.

Adding foods to the database

Using their phone or tablet camera users can scan a barcode of a processed food item and see if it is already in Bite-n-Write's food database and add it to their diary. If the barcode is not found, users can enter the food macro nutrient information (calories, fat, carbs, protein, sodium) from the packet and add this food item to the database. The Bite-n-Write system records which user added the food to the database.

Setting and Saving Targets

Users can set daily targets for macronutrients (Carbohydrate, Fat, Protein) and record the number of standard glasses (250ml) of water they drink in a day. The app records a running average for net and sum (total) energy for the last 3, 7 days and current calendar month. Users can enter their current weight at any time, and on the first day of each calendar month users are encouraged to update their current weight. This enables Bite-n-Write to chart their weight over time and show progress to their goal weight.

Reminders and Prompts

The app reminds users to enter data in their food diary if no data has been entered by 6pm on any given day. If by 6pm users have drunk less than 2 glasses of water it prompts users to stay hydrated. The app keeps a record of how many times it had to remind and prompt users and a count of the number of days where no food diary information was entered at all. Bite-n-Write need to collect this data to see how effective the reminders and prompts are and if they need to be revised in the app design.

Micro Blog and Vlogs

'Public' users can post short micro blog posts of up to 300 words and vlog posts (max 60 seconds in size) to their personal blog. Other users can "like" a user's blog/vlog post. 'Private' profiles share no information with any other users of Bite-n-Write and are not able to create a blog/vlog or like another users blog/vlog.

Forums

All public users can publish to five forum areas 'General', 'Motivation', 'Food Ideas', 'Inspiration' and 'Problem Solving'. Under each of these areas people can post a topic (e.g. "Using Old Bananas") and other users can post replies to the topic. The post and replies should be ordered by time and show the username. There is a maximum post and reply size of 300 characters.

Mates

Public users can invite other public users to be a 'Mate'. Users can either accept or reject the invitation. Users who are Mates can send messages of up to 140 characters to each other. Users can delete the messages and unfriend Mates. The database records the invite date, the response of the user

(Accept or Reject) and the date a user unfriends a Mate. If a user changes their visibility from public to private, they lose all of their 'Mates'.

Reporting and Blocking

Unfortunately, as there are trolls and unwanted users in any social media community, users are allowed to 'Block' users. Once a user is 'Blocked' they can no longer see posts or any information from the user who blocked them. As well as blocking unwanted users, users can also 'Report' trolls who violate the standards of Bite-n-Write membership to Bite-n-Write. Users who 'Report' other users must provide a contact email, contact phone number a statement of up to 100 words and the username of the member being reported.

Exercise Diary

Users can also record their daily exercise in an exercise diary. The database has a list of several hundred activities including the average calories burned per hour. Activities can be as diverse as walking, gardening, rugby, netball, and rogaining. When users record their exercise (e.g. Gym workout 45 minutes calories 273) the food calendar will display a net and gross calories total for the day. The net calories is the total number of calories consumed including credit calories for any exercise. As females and males burn calories at different rates per hour the exercise information must be stored for the male and female sex.

Business Tests

Use these business tests to help test your ER Model. Imagine how your model would solve these needs. Please **DO NOT SUBMIT SQL** as it will not be assessed.

- Can you identify the net calorie intake for username JamieO on 15th March 2016?
- Can you identify the users that have saved favourite meals?
- Can you identify how many male users in 2017 were under their target weight when they first joined Bite-n-Write?
- Can you identify the users who have been blocked by more than 5 other users?
- Can you identify the days Alice92 forgot to record any information in her diary?
- Can you identify if a user's mate, unfriended them, and then become that user's mate again?
- Can you identify users that have posted to all forum areas?
- Can you identify if BamBamSam ignored prompts in the month of December 2017?
- Can you identify members that have private profiles?

END OF CASE STUDY