As the primary objective of our web application is to facilitate timetable management between students and teachers at Bucks university, we recognise that we will be dealing with large amounts of data that need to be well managed, stored, easily accessible and highly maintainable.

For that reason, we made sure to follow a process of data modelling where we identify and determine real-life information and put them coherently into a well-formed data structure. This process is essential to determine and analyse the kind of information we need in our app which means we can get a clearer understanding of the exact data that we need early-on.[[1]](#endnote-1)

The first step in our data modelling process was to build an Entity relationship Diagram which is an abstract representation of the data that will be used in our program. The ERD format has three main elements; entities, relationships and attributes. [[2]](#endnote-2)

In our program, we defined two main entities which are the `User` and the `Event` as the app mainly revolves around users creating events using our calendar and to share and notify other users with key events.

Then we identified the attributes that each entity will have along with their data structure. For example, for the User we included an ID and a role ID of type integer, and a username, password and email of type string. Whereas for the Event we identified an event Id, user Id, category Id of type integer, start date and time and end date and time of type datetime, a title, description of type string and finally a notify field of type Boolean.

Then we moved on to define the type of relationship between them and the multiplicities of each. For example, a user can create, update or delete zero to many numbers of events and an event can be managed by only one user.

After creating the ERD, we moved on to building our relational-database schema where we specify the description of the structure and behaviour of our database.[[3]](#endnote-3) This is an important step where we visualized the entities that will exist in the database in the form of tables with their specific fields and their relationship with each other, whether they have a One-To-One, One-To-Many or Many-To-Many relationship.[[4]](#endnote-4)

Building upon the ERD we had, we identified four tables which include users, events, categories and roles and depicted the relationship that they will have for each other. We also listed the fields that each table will have and marked those that will constitute the primary or the foreign key.

This process of thinking about how to manage the data that will be used in our app has helped us understand what data we need to build it, and how it will be structured and stored. It also indirectly allowed us to think the main features that we will provide in our app and what sort of data we need for each feature.

Finally, we strongly believe that this process has provided us with solid foundation to build upon in the next stage where we start coding to build our app.

1. (Peter Domanski & Philip Irvine, 2000) 28 [↑](#endnote-ref-1)
2. (Liu, 2012) 276 [↑](#endnote-ref-2)
3. (Herman Balsters, Bert de Brock, Stefan Conrad, 2000) 1 [↑](#endnote-ref-3)
4. (Gupta, 2007) 15 [↑](#endnote-ref-4)