An overview of the database design ERD

A list of any reasonable design assumptions you have made

An explanation of some of the primary keys, foreign key constraints between tables and the data

types used in your database;

A discussion and justification for some of the important design decisions you made;

A discussion and justification for some of the important normalisation decisions you

made;

A discussion and justification for some improvements you might make to the design;

Evidence of your SQL queries (these can simply be pasted into the appendix). The

report is essentially a wider extension of the work you need to compete for your video demo. You are

welcome to re-use content prepared for your individual video demo.

Justifications:

* Region table
  + removed as jet2 has a flexible definition of country, ie it has Balearics as a country and not a region. Ibiza is nested under Balearics, not under spain
* Speak about justification for salted hash storage of sensitive stuff.
  + Hash card number, password at a minimum
* Different addresses may be something to talk about in improvements
* Timezones are in British time and probably localised in front-end (?)
* *gps\_address* “wraps” address for entities that require both an address and a gps location
* booking duration encoded by flight datetimes?
* Booking reference is generated uniquely by external code when making a booking
* ROOM type containing min and max passebnger ages, because the room type defines the customers able to stay there
* Room types are unique to hotels, look to be manually entered **(see below images)**
* A screenshot of a bedroom

  Description automatically generated with medium confidence
* Rooms are linked to hotels by the room type, which was a design choice to ensure each hotel has its own room types data (hotel\_id in room vs in room\_type)
* Image tables are linked to their respective use cases (be it a room type image or a review image) via a 1:0 relationship. That is images can be used 0 or 1 times in a review/ room type
* Review table is linked to booking\_contact\_id via a 1:0 relationship, as a booking contact can be in 0 or 1 reviews, and booking contact
* Flight time is a derived attribute. It is derived from departure and arrival datetimes
* **Date times** are stored as utc datetimes, and localised by developer on front end. All dates on website do not stipulate timezone but as jet2 specifically a British package holiday provider it seems reasonable to assume all website times are displayed in British time. Passport is left wityh no timezone specified as theser dates are likely to be local times.
* **Dates** are stored with no timezone
* Payment card holder details are accessible via the booking contact > address relationship
* CCV number not stored for PCI SSS (??) regulations and etc etc
* Booking contact stores more info than passenger, as only 1 passenger has to provide the extra fields
* Talk about how decisions were based on website
* Talk about gps/ address relationship
* Image\_url text type as no upper size limit on url
  + https://www.sistrix.com/ask-sistrix/technical-seo/site-structure/url-length-how-long-can-a-url-be
  + Timeline

    Description automatically generated
* Datetimes used instead of timestamps as their maximum value is much higher, therefore more future proof
* Telephone numbers were only requested against booking contact on website
* A reviewer must be a passenger
* Hotel facility types
  + Graphical user interface, text, application, email

    Description automatically generated
  + Appear to be same across various hotels
* Hotel facilities and room facilities don’t actually have much in common
  + Hotel facilities have images, names, types and descriptions
  + Room facilities is a simple list of strings
    - Room facilties seems to be room type specific, and can be seen being used in multiple different hotel room types
    - 2 diff hotels:
    - A picture containing text, indoor, screenshot

      Description automatically generated
    - Graphical user interface, application

      Description automatically generated
* Hotels have a couple of extra bits of information
  + Additional info – nullable – not always present
  + Background pattern

    Description automatically generated with low confidence
  + Features – derived attributes mostly, but also has lift and floor count
  + Figure 1note no additional info (its nullable) Background pattern

    Description automatically generated with low confidence
* Boards – shared across hotels, BUT, can have a little unique blurb
  + Text

    Description automatically generated with medium confidence
  + Left this description as nullable, so that it may be omitted if required (eg *half board* in above image)
* Foreign keys match their corresponding primary key, and are kept distinct via their fully qualified name, eg, room\_image.image\_id vs image.image\_id
* Reviews are from trip advisor, and are external to jet2s databvase, likely accessed via an api
* Prices stored as dec(13,4) as per this allows very expensive rooms potentially, and uses a fixed point decimal arithmetic library after MySQL 5.0, making currency calculations very accurate and not prone to rounding errors
* <https://www.globalpaymentsintegrated.com/en-us/blog/2019/11/25/pci-rules-for-storing-credit-card-numbers-in-a-database> “It is important to note that these statements apply to Cardholder Data (16-digit Primary Account Number, expiration date, cardholder name), and do not apply to Sensitive Authentication Data (Track Data, PIN, PIN Block, CVV). Sensitive Authentication Data (SAD) can never be stored after authorization.”
* recent searches are simply stored on local storage by website and not in the database.
  + Graphical user interface, text

    Description automatically generated
  + Graphical user interface, text, application

    Description automatically generated
* <https://www.jet2holidays.com/destinations/croatia#>
  + Countries have description
  + No mention at all of currency
* Removed language and currency tables as this information was not findable on the website
* Left country\_description nullable as only destination countries have this attribute (eg, search for NI)
* Country code not visible anywhere – removed
* country\_group table added to show this relationship for searching purposes
*  Text

  Description automatically generated
* Graphical user interface, text, application

  Description automatically generated
* Above shows that a country can be a child only once, and a parent / child relationship is ALSO unique

Improvements

* Return flights have no timezone specified. To find the time localisation bants we’d need to complete payment, so that is effectively out of scope. British package holiday provider – British times when timezone not specific
* Passport storing local time smells bad – but seems appropriate
* Seat\_count should perhaps be moved into a plane table, that holds information of the type of plane, and its seat count
* GDPR?
* ONLINE SECURITY BILL IN HOUSE OF COMMONS?
* 2 field uniqueness constraints eg a booking contact can make many reviews, but only 1 per hotel?
* Room type occupancies also contain an option (max children attribute) I did not implement this however
* Allow extended check/in out from hotels as a cost item – and its corresponding database implementation
* Short list login system not implemented in our database

Assumptions

* A booking contact can use the same record if they make another booking?
* The booking does not care which passenger goes in which room, which is why room id is stored at room\_booking level and not booking\_passengers level. Perhaps after finalising a booking the website would assign passengers to rooms but this is speculation
* If there is a flight available we are assuming there is a room available? Something like that?
* As there is no login functionality (other than shortlists) when you enter youre details as a booking contact, a new record is inserted, and this new record allows you a single review on that hotel