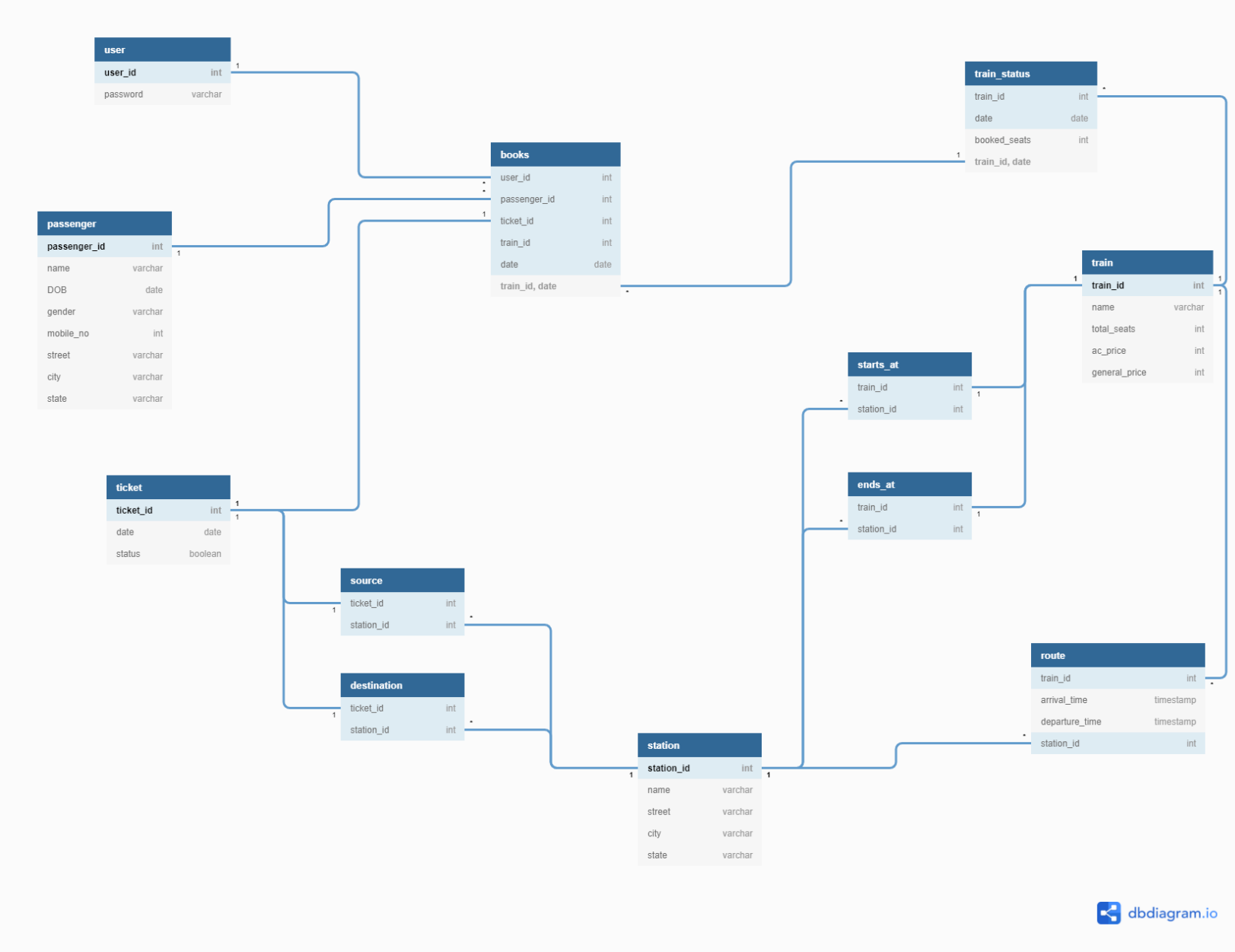
DnA Project Phase - 3

Made By:
Adhiraj Deshmukh - 2021121012
Pranjal Thapliyal - 2020101108
Sukhjinder Kumar - 2020101055

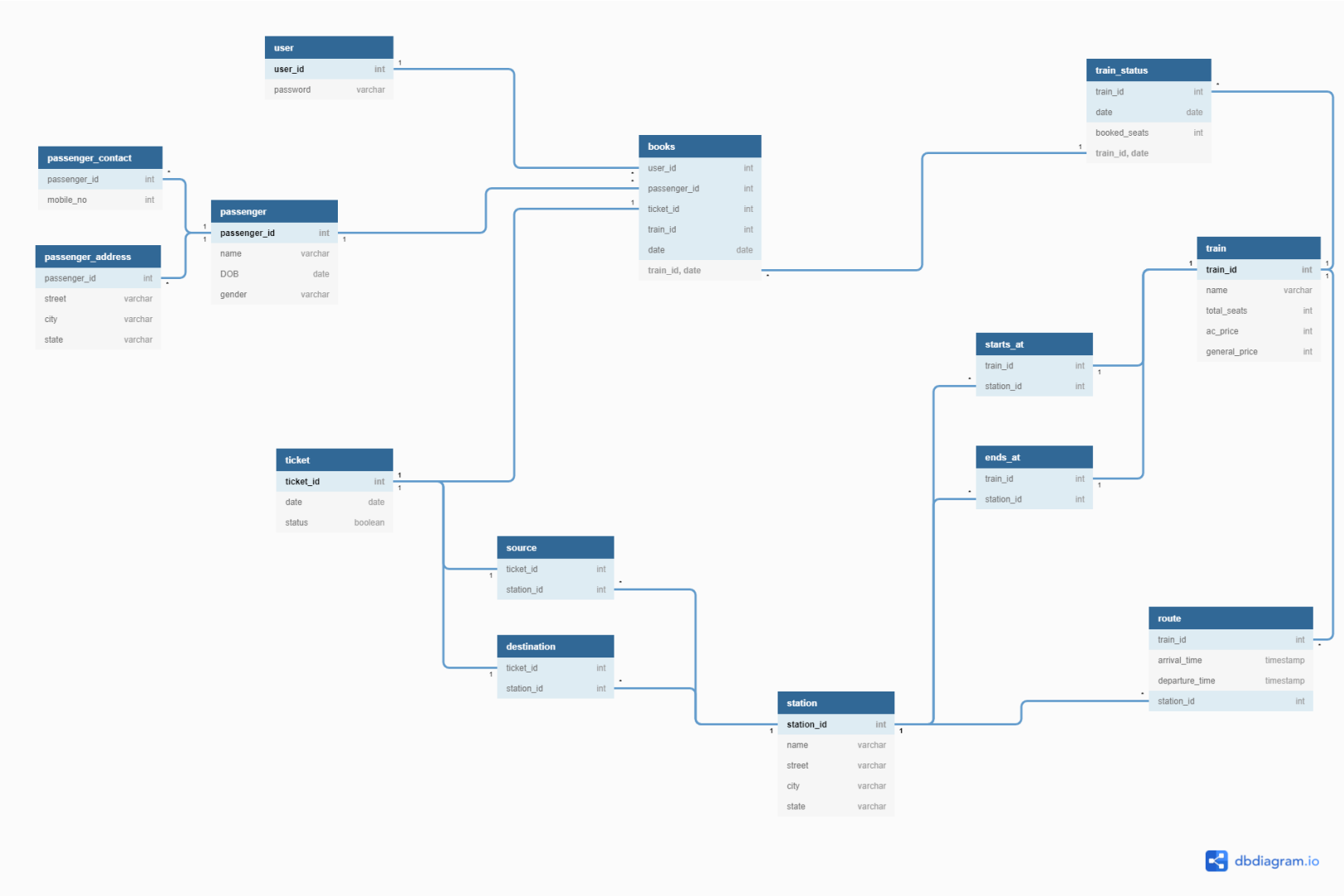
EER to Relational Model Mapping



- To map ERR model to Relational model, we create a table for each entity containing its attributes as columns and declaring its domain and features like a primary key.

- For composite attributes, we mapped them directly as their atomic attributes in the table.
- We have not mapped derived attributes since they are coded separately in SQL as a ***view***, they are not an attribute in a basic relation table.
- To map the relations, for **1:1** or **1:N** type relationships we use foreign keys to represent these relationships, and for **M:N** or **higher degrees** of relationships we made use of separate relationship tables containing the primary key attributes from each entity to represent the relationship.
- To map subclasses for ***Train*** entity we used ***8B*** type of mapping since our subclasses were total and could be mapped as attributes of the superclass.

Mapping to 3NF form



- Since this Mapping contains Multi-valued attributes for some entities like ***passenger*** therefore it is not in **1NF**.

- To make our mapping to **1NF** form we created a separate relation to show the multi-valued attributes of an entity. Therefore we create relation tables ***passenger_contact*** and ***passenger_address*** tables to represent multivalued attributes ***mobile_no****.* and ***address*** respectively. This reduces the data redundancy and our table is in **1NF** form.

- Since our entity tables were carefully created initially, therefore, we don't have any pre-existing ***partially dependency*** or ***transitive dependency*** in our tables.
  Thus making our mapping into **2NF** and **3NF** automatically while making it into **1NF**.