

Project Phase-3

e-Commerce Database

Team: DNA Aliens

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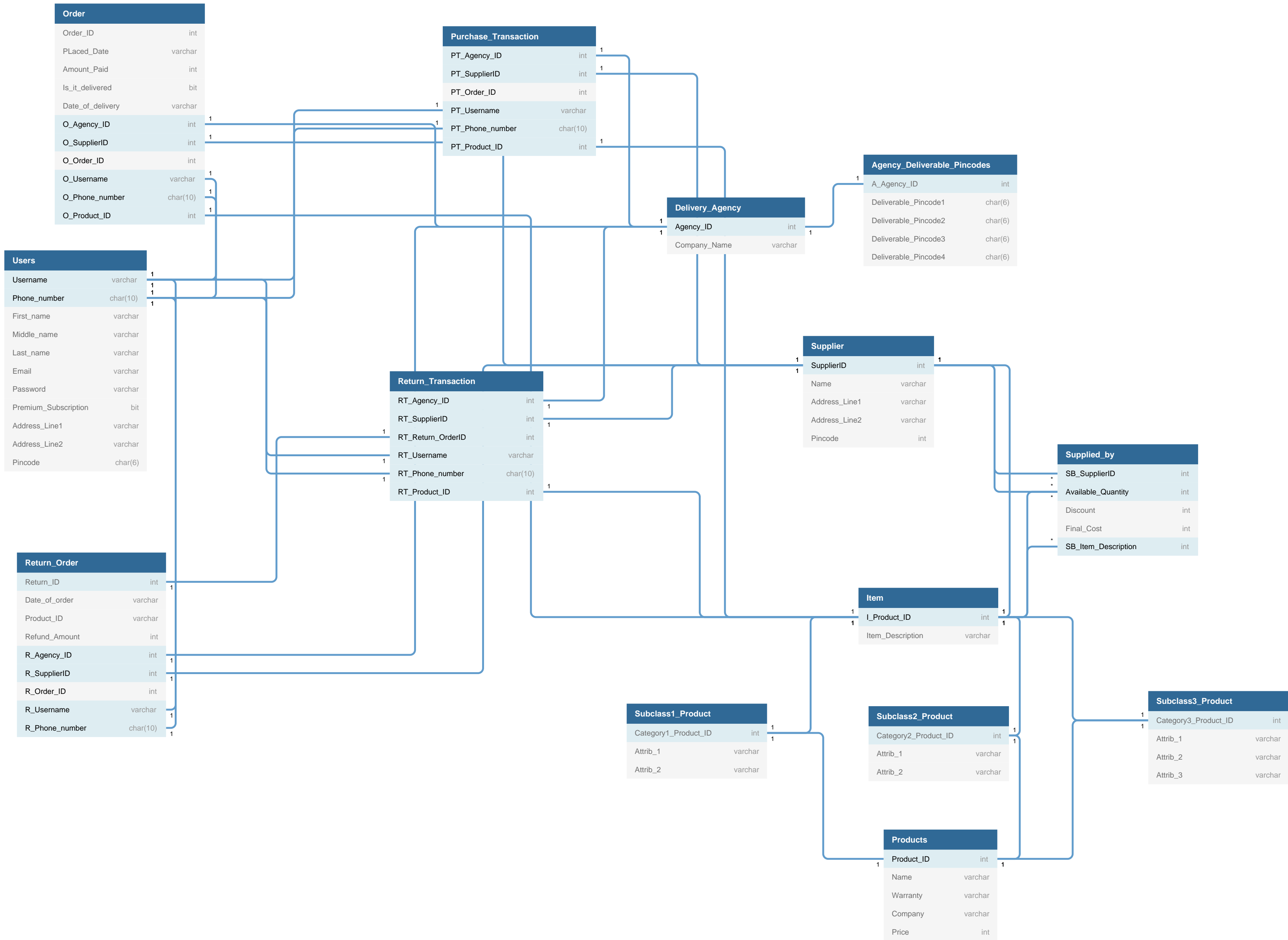
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Relational Data Model :

The below attached Image corresponds to the Relational Data Model constructed based on the previous phases of the project done, on the topic “e-Commerce Database”.

Relational Data Model updated to First Normal form :

- The above diagram has already been normalised to the 1st Normal Form. Since the above relational model is a flat relational model, it doesn't allow any multivalued or composite attributes by definition (which is a requirement for the first normal form).



Relational Data Model updated to Third Normal form :

The below attached Image is the Relational Model of our database normalised to 2nd normal form. In the previous version, the “Return_Transaction”, “Return_Order”, “Order”, “Purchase_Transaction” have both “Phone_number” and “Username” attributes of the User entity as foreign keys. However, “Phone_number” OR “Username” (along with foreign keys of other participating entities) is alone enough to functionally determine the attributes of these 4 entities.

This is in violation of the second normal form. Hence, we removed the Phone_number as a prime attribute to these four entities. Similarly, in the relation “Supplied By”, the attribute “Available_Quantity” is taken as a prime attribute along with foreign keys of the Supplier and Item entities.

- For a relational model to be in its third normal form, for every functional dependency, $X \rightarrow Y$, either X is a primary key or Y is a prime attribute. Here, in our relational model, every functional dependency has the left hand side as a key attribute. Hence, the relation is in its 3rd normal form.

