Project Phase 3

Data and Applications

DnA Team Sigma: No. 69

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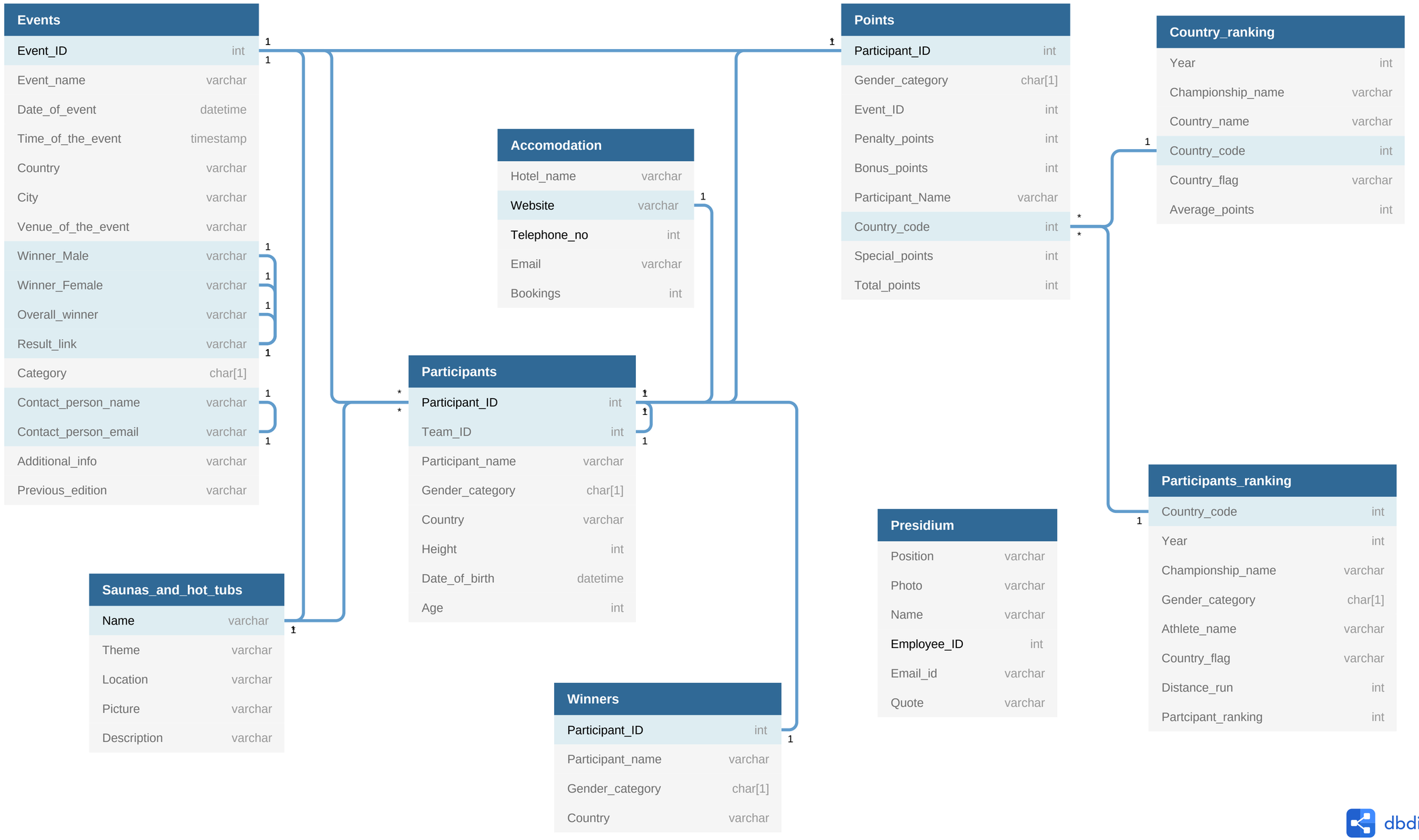
ER to Relational Model

In this stage the ER model submitted in the previous phase was converted to a relational model using the software.
Not many changes were required for this conversion as our ER model was sufficiently detailed to handle it.
Additions:

1. Team ID attribute to the Participants table to accommodate the Team Builder relationship.
2. Country code attribute to the Points table to accommodate the identifying relationship between Points, Country ranking and Participants ranking.


Events
Event_ID int
Event_name varchar
Date_of_event datetime
Time_of_the_event timestamp
Country varchar
City varchar
Venue_of_the_event varchar
Winner_Male varchar
Winner_Female varchar
Overall_winner varchar
Result_link varchar
Category char[1]
Contact_person_name varchar
Contact_person_email varchar
Additional_info varchar
Previous_edition varchar
Points
Participant_ID int
Gender_category char[1]
Event_ID int
Penalty_points int
Bonus_points int
Participant_Name varchar
Country_code int
Special_points int
Total_points int
Country_ranking
Year int
Championship_name varchar
Country_name varchar
Country_code int
Country_flag varchar
Average_points int
Accomodation
Hotel_name varchar
Website varchar
Telephone_no int
Email varchar
Bookings int
Participants
Participant_ID int
Team_ID int
Participant_name varchar
Gender_category char[1]
Country varchar
Height int
Date_of_birth datetime
Age int
Saunas_and_hot_tubs
Name varchar
Theme varchar
Location varchar
Picture varchar
Description varchar
Winners
Participant_ID int
Participant_name varchar
Gender_category char[1]
Country varchar
Presidium
Position varchar
Photo varchar
Name varchar
Employee_ID int
Email_id varchar
Quote varchar
Participants_ranking
Country_code int
Year int
Championship_name varchar
Gender_category char[1]
Athlete_name varchar
Country_flag varchar
Distance_run int
Partcipant_ranking int
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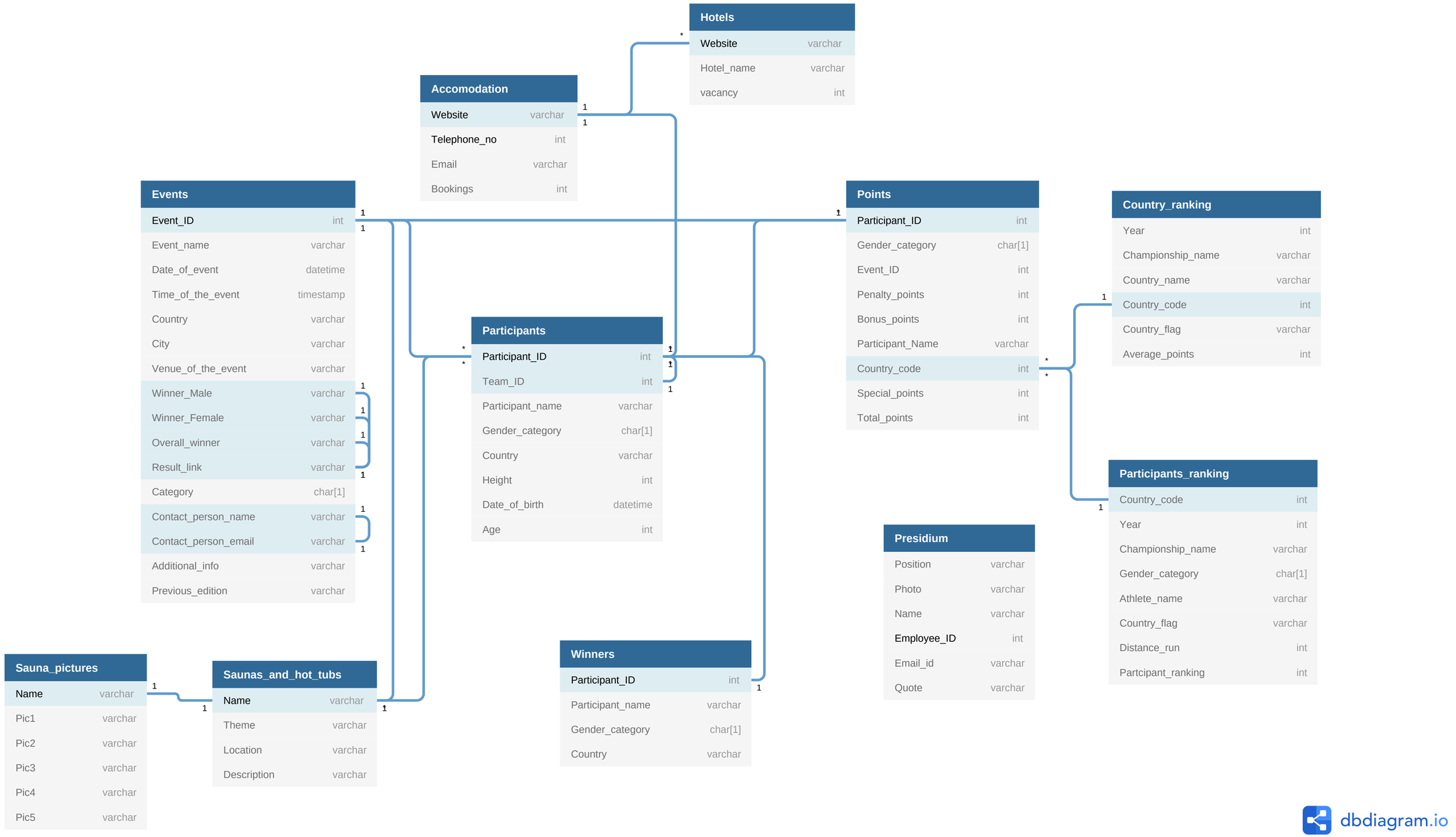
Relational Model to 1NF

To convert the relational model to the first normal form, the multivalued attributes had to be converted to atomic values. Changes:

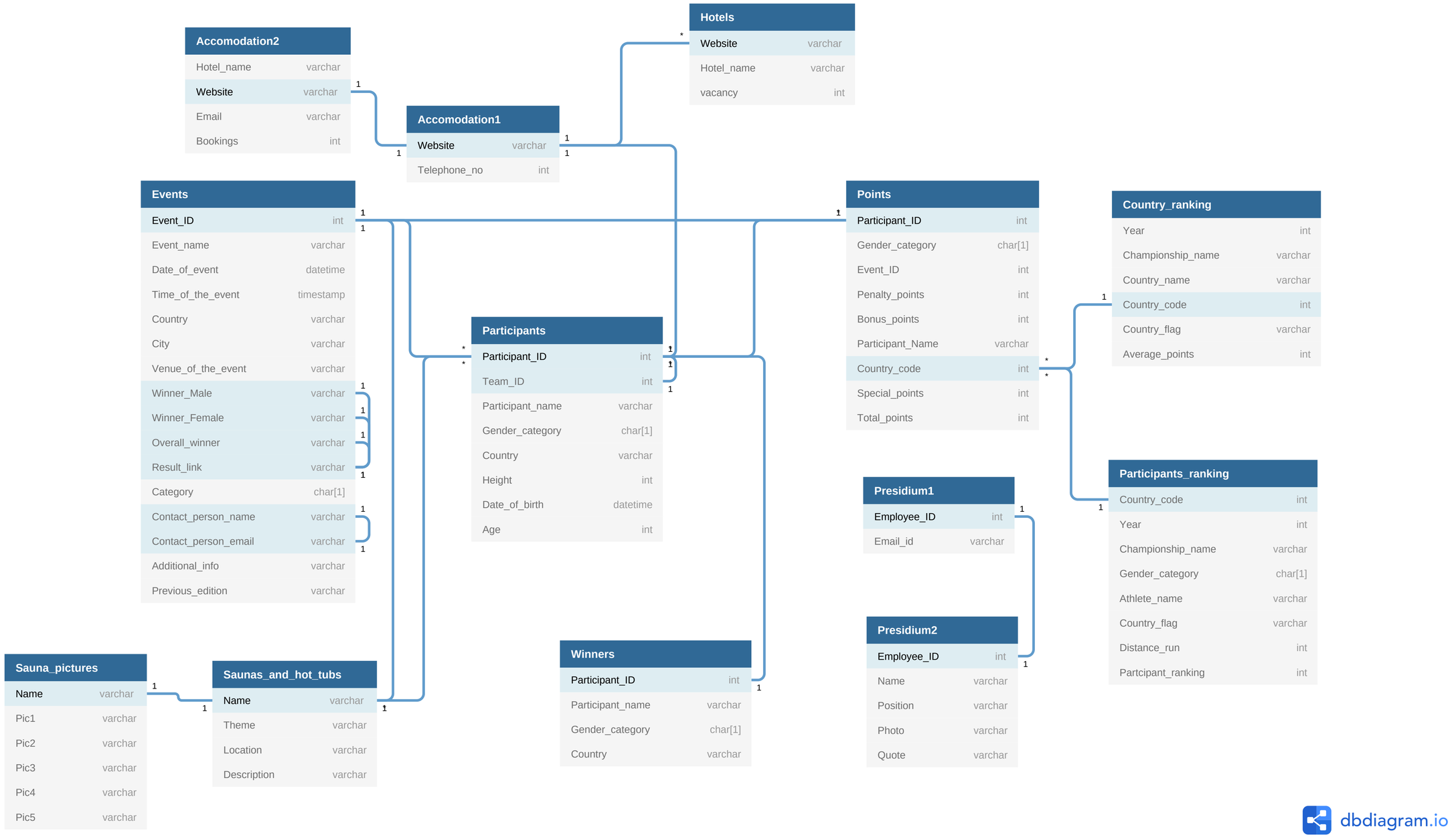
1. Accommodation had a multivalued attribute Hotel name , this was solved by creating another table Hotels with an additional attribute Vacancy(only takes binary values, 1 for vacant, 0 of ow). These two tables were connected with the Website.
2. Saunas and hot tubs had a multivalued attribute Pictures(which could have upto 5 values). It was resolved by creating another table Sauna pictures which was linked to the original table with Name. The newly created table contains 5 columns for each separate picture.



Relational Model to 2NF

Now to convert the model to the second normal form, we have to make sure there are only full functional dependencies and remove the partial dependencies. Changes:

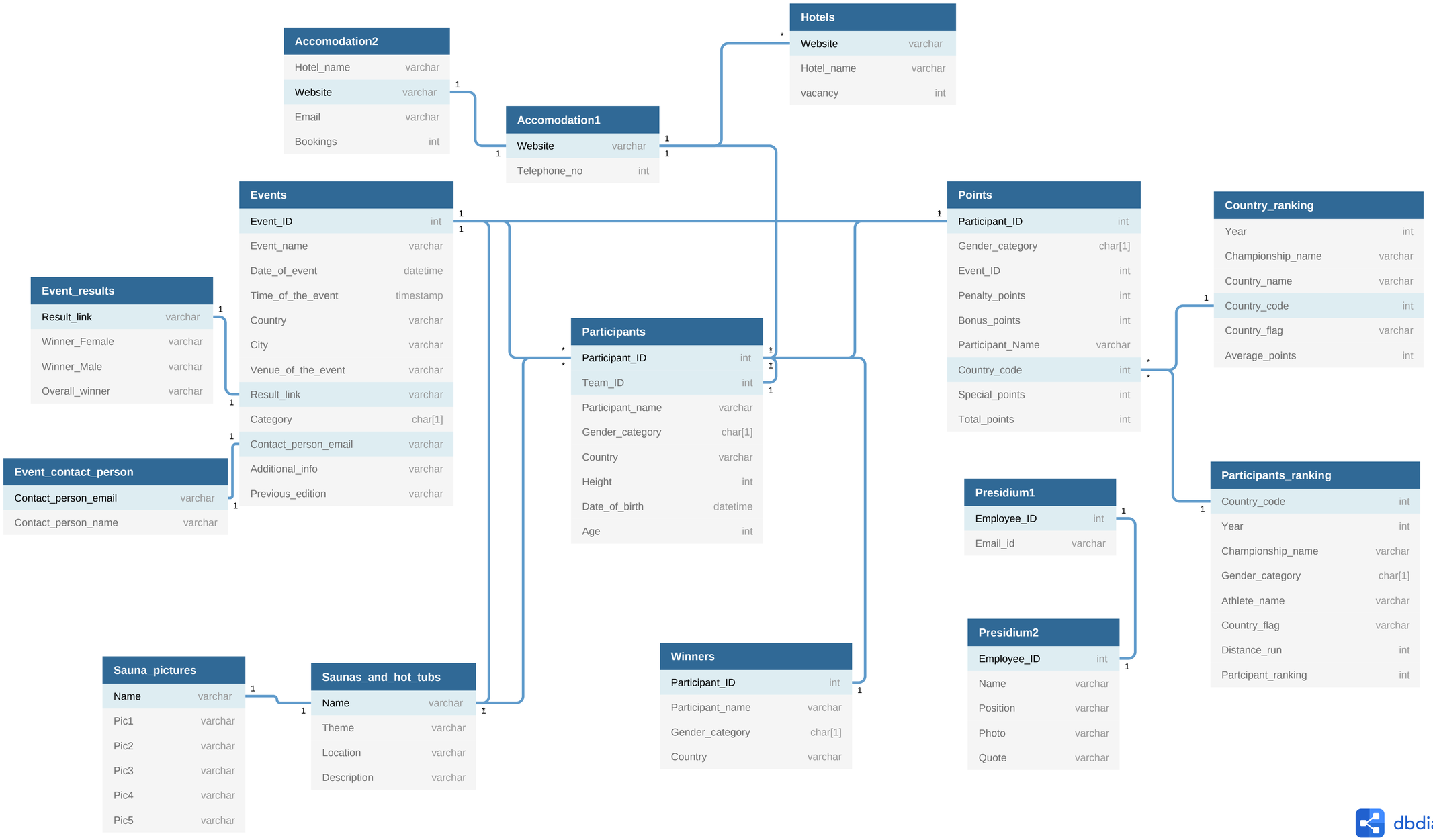
1. The Presidium table had to be modified to suit this. The Employee ID and Name were two attributes which were creating partial dependencies. This was resolved by splitting the current table to two separate tables: Presidium1 and Presidium2.
2. The Accommodation table had Website and telephone number creating partial dependencies with the non-prime attributes, this was resolved by separating them into two tables 1 and 2.



Relational Model to 3NF

Now to convert the model to the third normal form, we have to remove any transitive dependencies of non-prime attributes on the primary key. Changes:

1. In Events,{ Event ID -> Result link -> Winner } was a transitive dependency. This was resolved by creating another table called Event results. This was connected to the original table using the Result link attribute, and houses the Winners attributes.
2. In Events { Event ID -> Contact person email -> Contact person name } was a transitive dependency. This was resolved by creating another table called Event contact person, this was connected to the original table using email, and it housed the name attribute.


Accomodation2
Hotel_name varchar
Website varchar
Email varchar
Bookings int
Hotels
Website varchar
Hotel_name varchar
vacancy int
Accomodation1
Website varchar
Telephone_no int
Events
Event_ID int
Event_name varchar
Date_of_event datetime
Time_of_the_event timestamp
Country varchar
City varchar
Venue_of_the_event varchar
Result_link varchar
Category char[1]
Contact_person_email varchar
Additional_info varchar
Previous_edition varchar
Points
Participant_ID int
Gender_category char[1]
Event_ID int
Penalty_points int
Bonus_points int
Participant_Name varchar
Country_code int
Special_points int
Total_points int
Country_ranking
Year int
Championship_name varchar
Country_name varchar
Country_code int
Country_flag varchar
Average_points int
Event_results
Result_link varchar
Winner_Female varchar
Winner_Male varchar
Overall_winner varchar
Participants
Participant_ID int
Team_ID int
Participant_name varchar
Gender_category char[1]
Country varchar
Height int
Date_of_birth datetime
Age int
Event_contact_person
Contact_person_email varchar
Contact_person_name varchar
Presidium1
Employee_ID int
Email_id varchar
Participants_ranking
Country_code int
Year int
Championship_name varchar
Gender_category char[1]
Athlete_name varchar
Country_flag varchar
Distance_run int
Partcipant_ranking int
Presidium2
Employee_ID int
Name varchar
Position varchar
Photo varchar
Quote varchar
Winners
Participant_ID int
Participant_name varchar
Gender_category char[1]
Country varchar
Sauna_pictures
Name varchar
Pic1 varchar
Pic2 varchar
Pic3 varchar
Pic4 varchar
Pic5 varchar
Saunas_and_hot_tubs
Name varchar
Theme varchar
Location varchar
Description varchar
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