RM, 1NF, 2NF AND 3NF DIAGRAMS FOR

Hotel Chain Management

ARCHIT JAIN (2019101053)
PULKIT GUPTA (2019101078)
AADITYA SHARMA (2019113009)

GROUP NAME - P*

PHASE #3

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Changes from SRS Document

- We also changed some data types

Attribute	From	To	IN Entity
Check-in	VARCHAR	DATETIME	Booking
Check-out	VARCHAR	DATETIME	Booking
Salary	INTEGER	FLOAT	Staff
Event_Starts_on	VARCHAR	DATETIME	Event_Booking
Event_Till	VARCHAR	DATETIME	Event_Booking

Changes from ER Model

- There was a typo in er model in weak entity named “Recreational Activity” an attribute named “Price_per_activity” was repeated twice, so for further progress in project we replaced one of “Price_per_activity” with “Guest_Id”
- We changed the attribute type of “Email” in an entity named “Booking” from multivalued to atomic.
- Rename “Datetime” to “Event_Starts_on” and added an attribute “Event_Till” and in subclass “Event _Booking” of entity named “Booking”

Changes from Relational Model to 1 Normalization Form

1. Contact_number of hotel relation is a multivalued attribute . So a new relation Hotel_contact is formed including hotel_id and contact_number as attributes.
2. Address of staff relation is a multivalued attribute. So a new relation Staff_address is formed including employee_id and address.

Changes from Relational Model to 2 Normalization Form

All changes done for 1 normalization form are included.
In most FDs, non-prime attributes are fully functionally dependent on prime attributes. but the following are changes required to make a relational model -> 2NF.

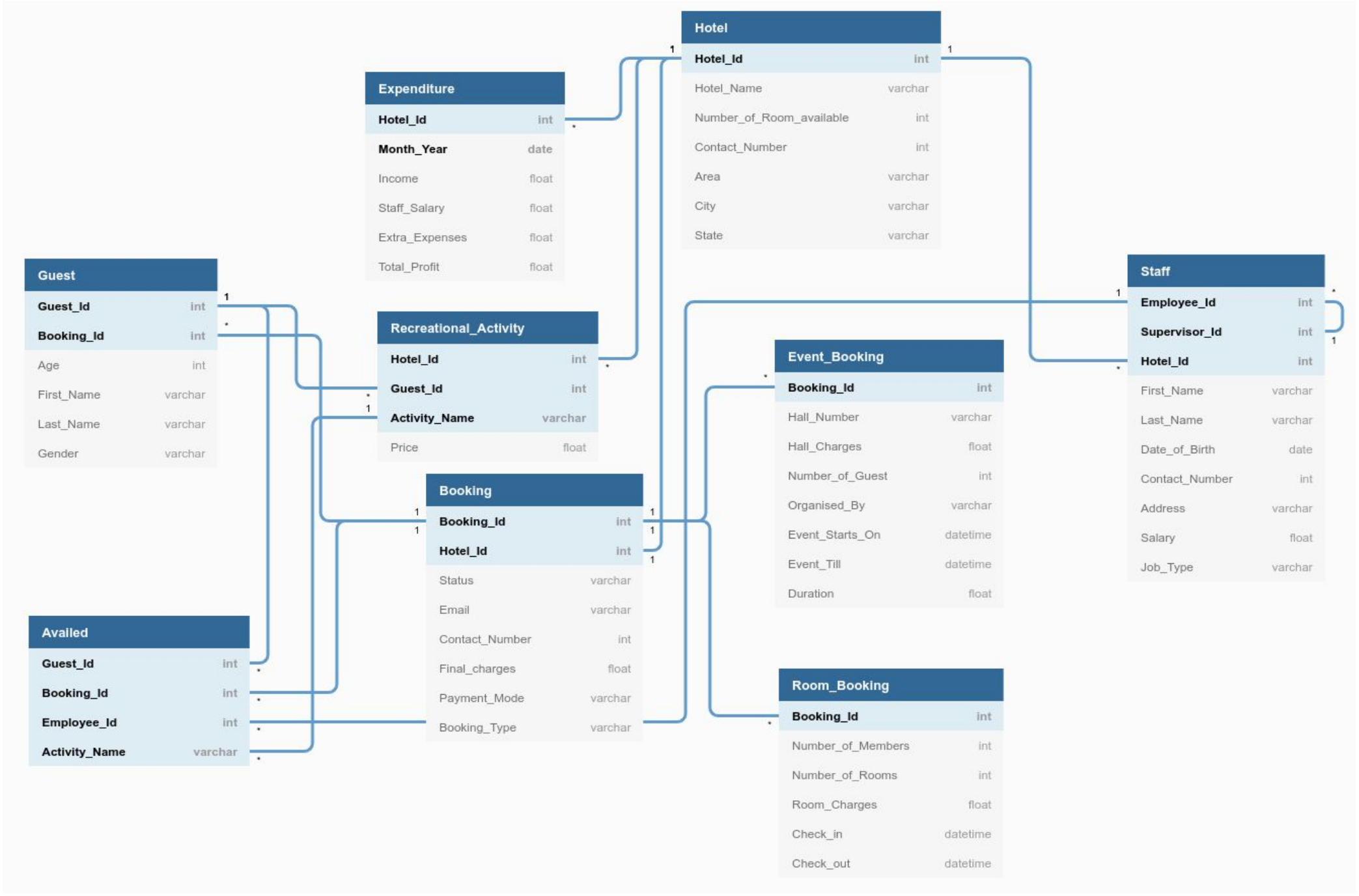
1. FD = {Hotel_Id , Activity_Name} -> Price in Recreational_Activity relation. Here Price is fully functionally dependent on Hotel_Id and Activity_Name. So we have made a new relation Activity_price containing Hotel_Id , Activity_Name and Price as its attributes.
2. FD = {Income , Staff_Salary , Extra_Expenses} -> Total_Profit in Expenditure relation. Here Total_Profit is fully functionally dependent on Income , Staff_Salary and Extra_Expenses . So we made a new relation Ex_Profit containing Total_Profit, Income , Staff_Salary and Extra_Expenses as its attributes.
3. FD = {Hotel_Id , Job_Type} -> Salary in Staff relation. Here Salary is fully functionally dependent on Hotel_Id and Job_Type. So we made a new relation Staff_Salary containing Hotel_Id , Job_Type and Salary as its attributes.
4. FD = { Hall_Charges , Event_Starts_On , Event_Till ,Duration ,Number_of_Rooms, Room_Charges , Check_in , Check_out , Final_charges } -> Final Charges in Booking relation . and Final charges are fully functionally dependent . So, we made a new relation B_Final_Charges containing these attributes.

Changes from Relational Model to 3 Normalization Form

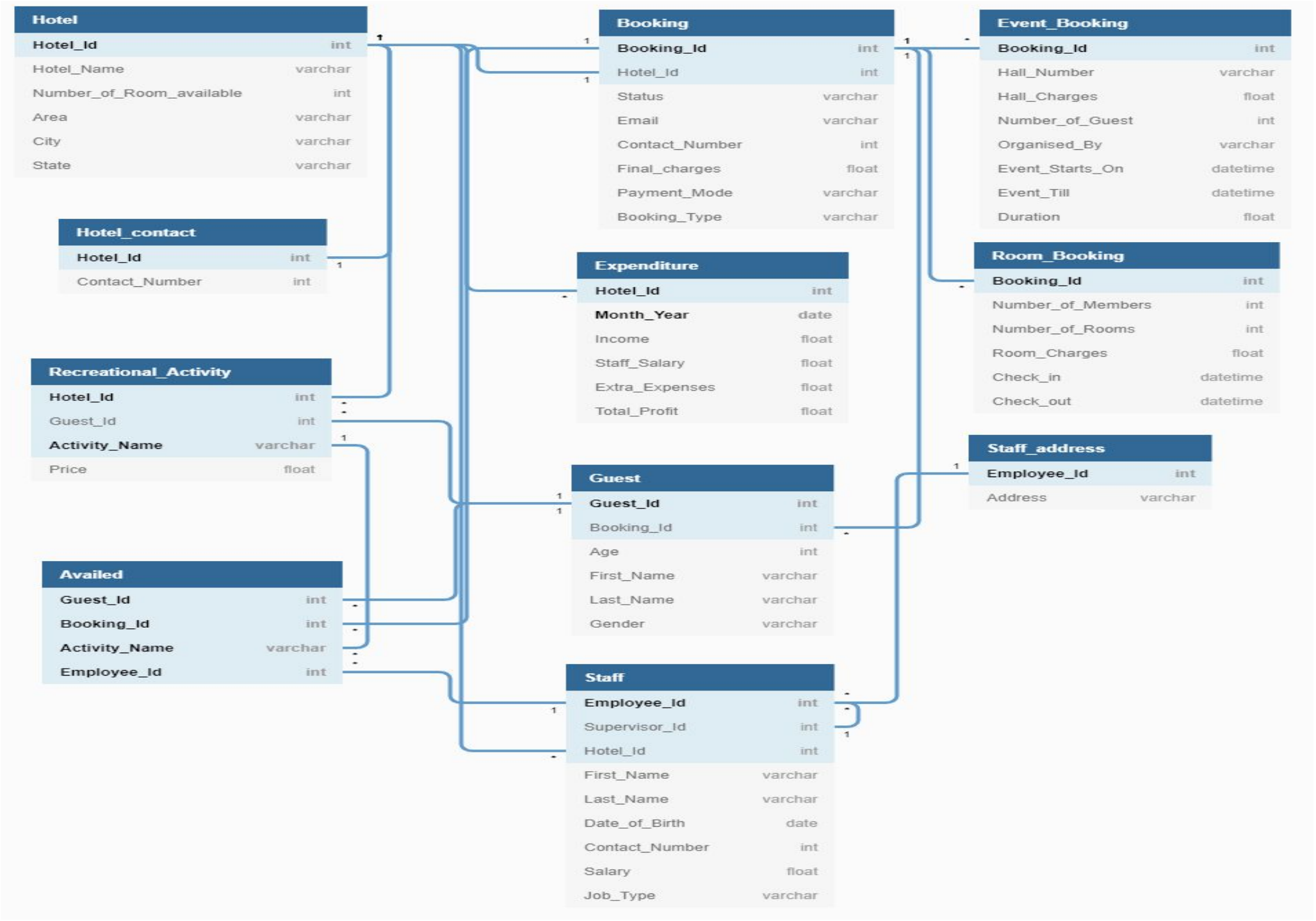
All changes in 1nf and 2nf are included.
In most FDs , no non prime attribute of R is transitively dependent on the primary key. But the following need some changes .

1. FD = {Hotel_Id , Activity_Name} -> Price in relation Activity_price . Here Activity_name is a non-prime attribute . So we changed it to the prime attribute for this relation.
2. FD = {Income , Staff_Salary , Extra_Expenses} -> Total_Profit in relation Ex_Profit. We changed Income , Staff_Salary and Extra_Expenses to prime attributes.
3. FD = {Hotel_Id , Job_Type} -> Salary in relation Staff_Salary . We changed Job_Type from non-prime to prime attribute.
4. FD = { Hall_Charges , Event_Starts_On , Event_Till ,Duration ,Number_of_Rooms, Room_Charges , Check_in , Check_out , Final_charges } -> Final Charges in B_Final_Charges. We changed Hall_Charges , Event_Starts_On , Event_Till ,Duration ,Number_of_Rooms, Room_Charges , Check_in , Check_out and Final_charges to prime attributes.

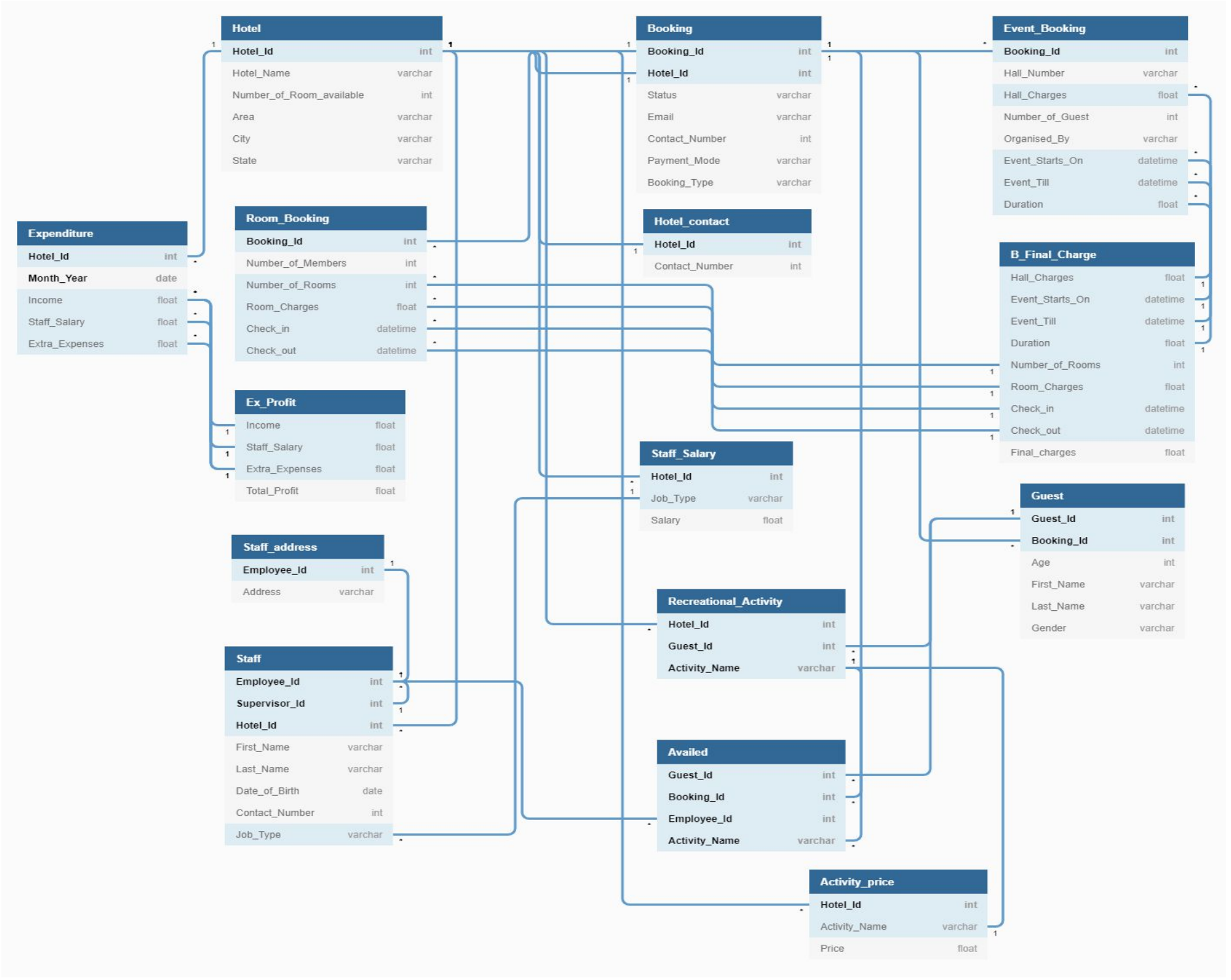
Relational Model



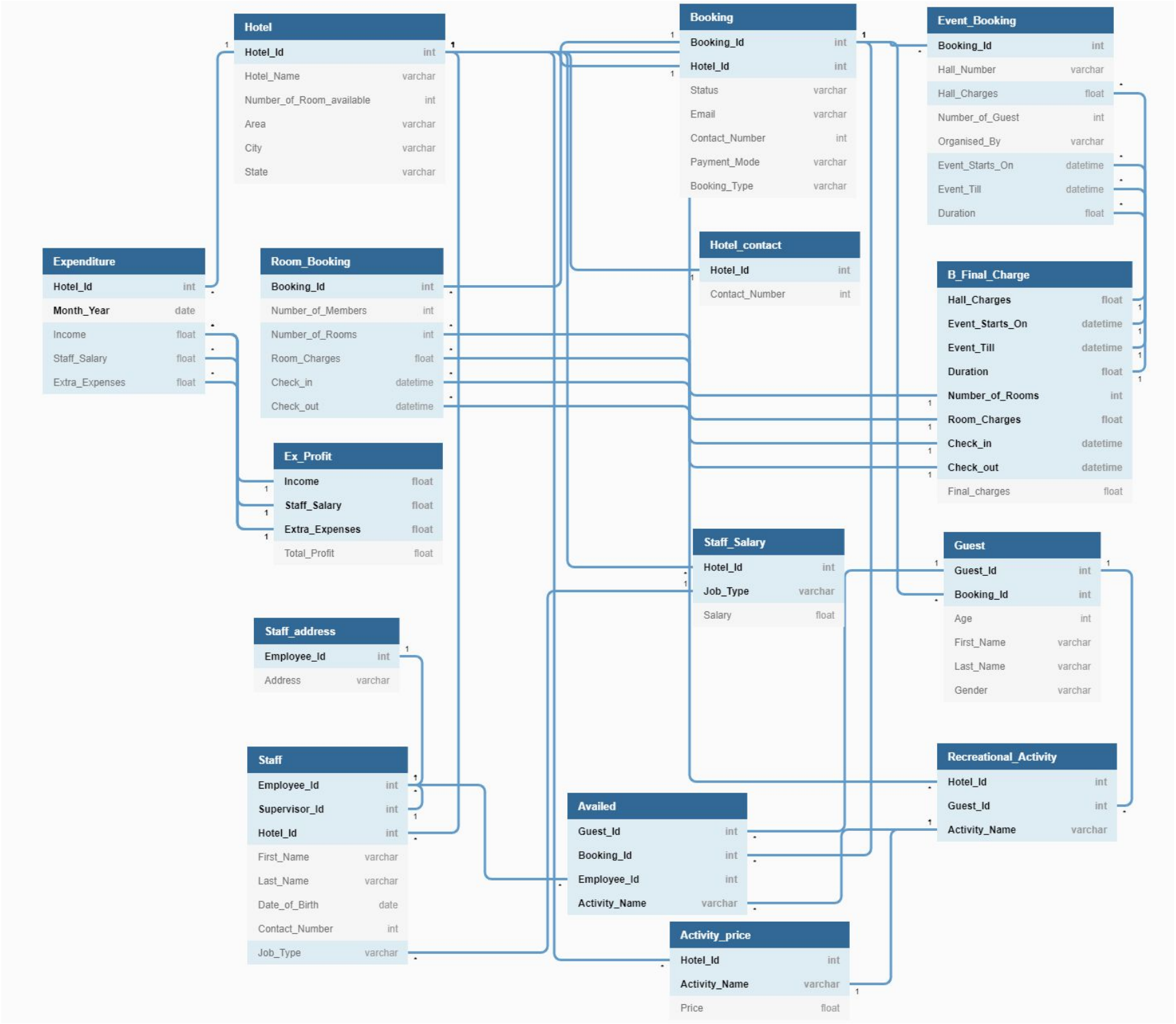
1 NORMALIZATION FORM



2 NORMALIZATION FORM



3 NORMALIZATION FORM



FINAL RELATIONAL MODEL

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HERE WE MARK THE END OF OUR GROUP PROJECT PHASE#3

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