DTH Database Management System

Relational Schema Diagram

Group 2-F

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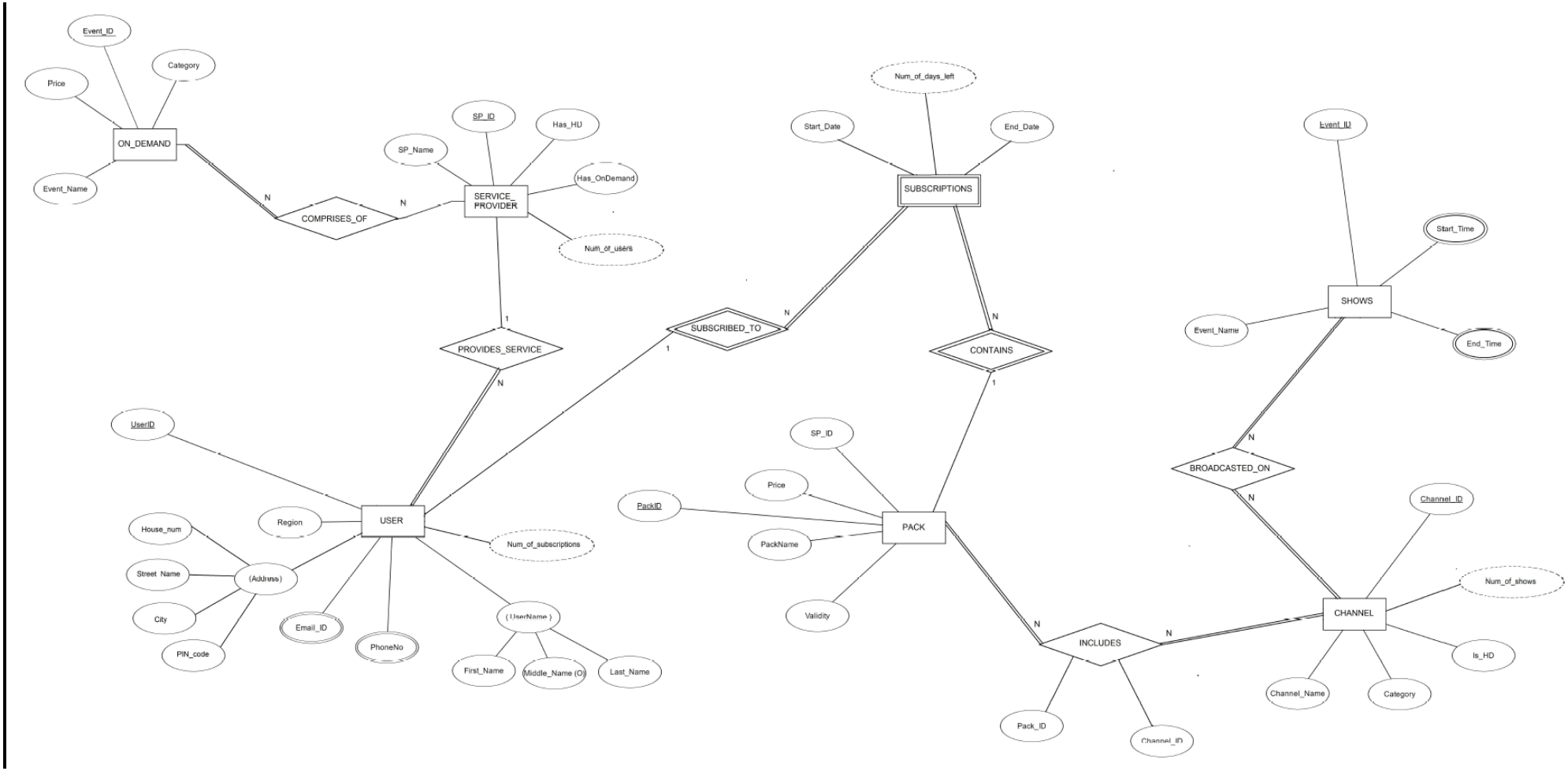
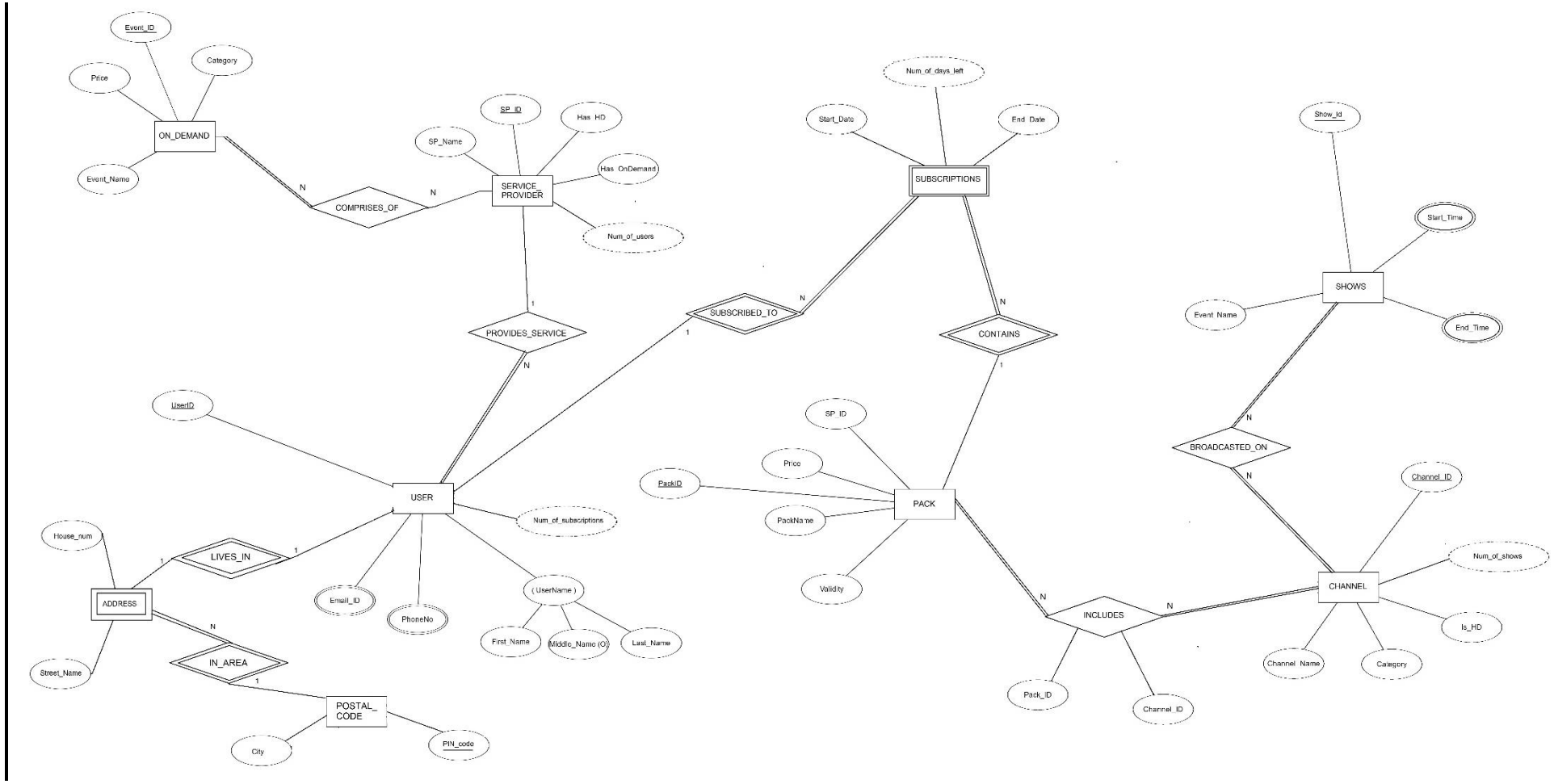
Upon revising our ER Diagram, we found out that all our Entities were in BCNF except one, i.e. ADDRESS. We found out that all the non-prime attributes were not fully dependent on the key (*namely, PIN_Code and City)*. Furthermore, PIN_Code was independent of any attribute and the City attribute could be derived with the PIN_Code attribute. To make the entity BCNF, we decomposed the Address entity to 2 entities, namely ADDRESS and POSTAL_CODE. Also, we made ADDRESS a weak entity, since USER acts as an owner entity. Now, every entity in our Database is in BCNF as all functional dependencies are now only dependent on key.

Previous ER Diagram



Revised ER Diagram



Functional Dependencies And Normalization Proofs:

1. **ON_DEMAND(Event_Id,Price,Category,Event_Name):**
    - Event_Id ->Price,Category,Event_Name
    - Therefore in BCNF
2. **SERVICE_PROVIDER(SP_ID,SP_Name,Has_HD,Has_OnDemand)**
    - SP_ID -> SP_Name, Has_HD, Has_OnDemand
    - Therefore in BCNF
3. **USER(User_ID,Email_Id,PhoneNo,UserName)**
    - User_ID -> UserName,Email_Id,PhoneNo
    - Therefore in BCNF
4. **ADDRESS(User_ID,PIN_code,House_Num,Street_Name)**
    - {User_ID,PIN_code} -> House_Num,Street_Name
    - Therefore in BCNF
5. **POSTAL_CODE(PIN_code,City)**
    - PIN_code -> City
    - Therefore in BCNF
6. **SUBSCRIPTIONS(User_Id,PackID,Start_Date,End_Date)**
    - {User_Id,PackId} -> Start_Date,End_Date
    - Therefore in BCNF
7. **PACK(PackID,Price,SP_ID,PackName,Validity)**
    - PackID -> PackName,Price,SP_ID,Validity
    - Therefore in BCNF

8. **CHANNEL(<u>Channel_ID,</u>Channel_Name,Category,Is_HD)**
    - Channel_ID -> Channel_Name,Category,Is_HD
    - Therefore in BCNF
9. **SHOWS(<u>Show_ID,</u>Event_Name,Start_Time,End_Time)**
    - Show_ID -> Event_Name, Start_Time,End_Time
    - Therefore in BCNF
10. **ON_DEMAND_SP(<u>Sp_Id,Event_Id</u>)**
    - Key: {Sp_Id,Event_Id}. Therefore in BCNF.
11. **PACK_CHANNEL_INFO(<u>Pack_Id,Channel_Id</u>)**
    - Key:{Pack_Id,Channel_Id}.Therefore in BCNF
12. **USER_1(<u>User_Id,Phone_No</u>)**
    - **Key:**{User_Id,Phone_No}. Therefore in BCNF.
13. **USER_2(<u>User_Id,Email_Id</u>)**
    - **Key:**{User_Id,Email_Id}. Therefore in BCNF.

The Relational Schema Diagram