

Listing(listingId, listingURL, hostId, neighborhoodId, roomId, reviewId)

Host(hostId, hostURL, hostName, hostSince, hostAbout, hostResponseTimeId, hostResponseRate, hostAcceptanceRate, hostIsSuperhost, hostPictureURL, hostNeighbourhood, hostListingsCount, hostIdentityVerified, districtId)

HostResponseTime(hostResponseTimeId, hostResponseTime)

Neighborhood(neighborhoodId, latitude, longitude, neighborhood_overview, districtId)

District(districtId, districtName)

Unit(listingId, hostId)

Room(roomId, name, description, pictureURL, roomTypeId, accommodateNum, bathroom, bedroomNum, bedsNum, pricePerNight, minimumNights, MaximumNights, averageReviewId, hostId, availability365, license, propertyID, NeighborhoodID, instantBookable)

Property(propertyID, propertyTypeName)

RoomType(roomTypeID, roomTypeName)

Review(ReviewID, lastReviewTime, ReviewNum, reviewScoreRating, reviewScoreAccuracy, reviewScoreCleanliness, reviewScoreCheckin, reviewScoreCommunication, reviewScoreLocation, reviewScoreValue, reviewPerMonth)

BCNF:

Listing Schema

Functional Dependency 1

listingId -> listingURL, hostId, neighborhoodId, roomId, reviewId (PK)

Functional Dependency 2

listingId, listingURL -> hostId, neighborhoodId, roomId, reviewId (Candidate key)

Functional Dependency 3

listingId, hostId -> listingURL, neighborhoodId, roomId, reviewId(Candidate key)

Functional Dependency 4

listingId, neighborhoodId -> listingURL, hostId, roomId, reviewId(Candidate key)

Functional Dependency 5

listingId, roomId -> listingURL, hostId, neighborhoodId, roomId, reviewId(Candidate key)

Functional Dependency 6

listingId, reviewId -> listingURL, hostId, neighborhoodId, roomId, reviewId(Candidate key)

So the Listing relation is in BCNF since every determinant is a candidate key.

Host Schema:

Functional Dependency 1

hostId -> hostURL, hostName, hostSince, hostAbout, hostResponseTimeId, hostResponseRate, hostAcceptanceRate, hostIsSuperhost, hostPictureURL, hostNeighbourhood, hostListingsCount, hostIdentityVerified, districtId(PK)

Functional Dependency 2

hostId, hostURL -> hostName, hostSince, hostAbout, hostResponseTimeId, hostResponseRate, hostAcceptanceRate, hostIsSuperhost, hostPictureURL, hostNeighbourhood, hostListingsCount, hostIdentityVerified, districtId(Candidate key)

Functional Dependency 3

hostId, hostName -> hostURL, hostSince, hostAbout, hostResponseTimeId, hostResponseRate, hostAcceptanceRate, hostIsSuperhost, hostPictureURL, hostNeighbourhood, hostListingsCount, hostIdentityVerified, districtId(candidate key)

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So host relation is in BCNF since every determinant is a candidate key.

HostResponseTime

Functional Dependency 1:

hostResponseTimeId -> hostResponseTime (PK)

So HostResponseTime relation is in BCNF since every determinant is a candidate key.

Neighborhood

Functional Dependency 1:

neighborhoodId -> latitude, longitude, neighborhood_overview, districtId (PK)

Functional Dependency 2:

neighborhoodId, latitude -> longitude, neighborhood_overview, districtId (CK)

Functional Dependency 3:

neighborhoodId, longitude -> latitude,, neighborhood_overview, districtId (CK)

Functional Dependency 4:

neighborhoodId, neighborhood_overview -> longitude, latitude, districtId (CK)

Functional Dependency 5:

neighborhoodId, districtId -> neighborhood_overview -> longitude, latitude (CK)

So Neighborhood relation is in BCNF since every determinant is a candidate key.

District

Functional Dependency 1:

districtId -> districtName (PK)

So District relation is in BCNF since every determinant is a candidate key.

Unit

Functional Dependency 1:

listingId -> hostId (PK)

So Unit relation is in BCNF since every determinant is a candidate key.

Room

Functional Dependency 1

roomID -> name, description, pictureURL, roomTypeId, accommodateNum, bathroom, bedroomNum, bedsNum, pricePerNight, minimumNights, MaximumNights, averageReviewID, hostID, availability365, license, propertyID, NeighborhoodID, instantBookable (PK)

Functional Dependency 2

roomID, name -> description, pictureURL, roomTypeId, accommodateNum, bathroom, bedroomNum, bedsNum, pricePerNight, minimumNights, MaximumNights, averageReviewID, hostID, availability365, license, propertyID, NeighborhoodID, instantBookable (Candidate key)

Functional Dependency 3

roomID, description -> name, pictureURL, roomTypeId, accommodateNum, bathroom, bedroomNum, bedsNum, pricePerNight, minimumNights, MaximumNights, averageReviewID, hostID, availability365, license, propertyID, NeighborhoodID, instantBookable (Candidate key)

...

So Room relation is in BCNF since every determinant is a candidate key.

Property

Functional Dependency 1:

propertyID -> propertyTypeName(PK)

So Property relation is in BCNF since every determinant is a candidate key.

RoomType

Functional Dependency 1:

roomTypeID -> roomTypeName(PK)

So RoomType relation is in BCNF since every determinant is a candidate key.

Review

Functional Dependency 1

ReviewID -> lastReviewTime, ReviewNum, reviewScoreRating, reviewScoreAccuracy, reviewScoreCleanliness, reviewScoreCheckin, reviewScoreCommunication, reviewScoreLocation, reviewScoreValue, reviewPerMonth(PK)

Functional Dependency 2

ReviewID, ReviewNum -> lastReviewTime, reviewScoreRating, reviewScoreAccuracy, reviewScoreCleanliness, reviewScoreCheckin, reviewScoreCommunication, reviewScoreLocation, reviewScoreValue, reviewPerMonth(Candidate key)

Functional Dependency 3

ReviewID, ReviewNum -> lastReviewTime, reviewScoreRating, reviewScoreAccuracy, reviewScoreCleanliness, reviewScoreCheckin, reviewScoreCommunication, reviewScoreLocation, reviewScoreValue, reviewPerMonth(Candidate key)

...

So the Review relation is in BCNF since every determinant is a candidate key.