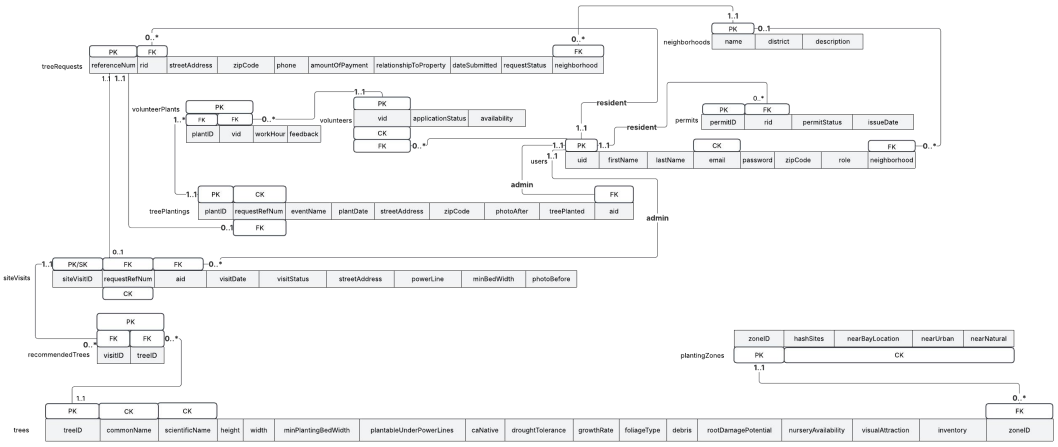
3NF check

This markdown is used to check whether all the tables are 3NF

Lucid chart link:

https://lucid.app/lucidchart/f1f7215e-2354-460b-b016-aa8e63016f8f/edit?existing=1&docId=f1f7215e-2354-460b-b016-aa8e63016f8f&shared=true&invitationId=inv_cca6c043-c155-49d0-98e5-1d6aa21fdf81&page=dyL3MCm0_-v4#

Schemes



Assumptions:

1. a treePlanting event can have many volunteers attanded, a volunteern can attand more than 1 treePlanting events, many to many
2. an admin can visit many sites, one site only has 1 admin, 1 to many
3. an admin can observe many treePlanting events, 1 to many
4. a neibourhood has many trees, a specific tree can be planted in many neighbourhood, many to many
5. a neighbourhood can have many treeRequests, a treeRequest can only be submitted in one neighbourhood, 1 to many
6. a neighbouthood has many residents, one resident can only live in one neighbourhood, 1 to many
7. a request form can only request 1 tree, one type of tree can appears on many requst forms, 1 to many
8. a tree specie can be planted in many events, one planting event can only plant one tree, 1 to many
9. a tree can be recommended in many siteVisits events, a siteVisit will only recommend 1 tree, 1 to many
10. a tree can have many plantZones, each plantZone could have many tree species, many to many

- users
  - 1NF: No composite attribute, all the value of any attribute in a tuple is a single values from the domain of the attribute
  - 2NF: Every non-prime attribute is fully dependent on the PK
    - FD in this scheme:
    - {uid} -> {firstName, lastName, password, zipCode, role}
  - 3NF: Every non-prime attribute is non-transitively dependent on every key(no transitive dependencies)
    - There's no transitive dependencies here
- volunteers:
  - 1NF: No composite attribute, all the value of any attribute in a tuple is a single values from the domain of the attribute
  - 2NF: Every non-prime attribute is fully dependent on the PK
    - FD in this scheme:
    - {vid} -> {applicationstatus, availability}
  - 3NF: Every non-prime attribute is non-transitively dependent on every key(no transitive dependencies)
    - There's no transitive dependencies here

- permits:
  - 1NF: No composite attribute, all the value of any attribute in a tuple is a single values from the domain of the attribute
  - 2NF: Every non-prime attribute is fully dependent on the PK
    - FD in this scheme:
    - {permitID} -> {permitStatus, issueDate}
  - 3NF: Every non-prime attribute is non-transitively dependent on every key(no transitive dependencies)
    - There's no transitive dependencies here
- neighborhoods:
  - 1NF: No composite attribute, all the value of any attribute in a tuple is a single values from the domain of the attribute
  - 2NF: Every non-prime attribute is fully dependent on the PK
    - FD in this scheme:
    - {name} -> {district, description}
  - 3NF: Every non-prime attribute is non-transitively dependent on every key(no transitive dependencies)
    - There's no transitive dependencies here
- treeRequests:
  - 1NF: No composite attribute, all the value of any attribute in a tuple is a single values from the domain of the attribute
  - 2NF: Every non-prime attribute is fully dependent on the PK
    - FD in this scheme:
      - {referenceNum} -> {streetAddress, zipCode, phone, amountOfPayment, relationshipToProperty, dateSubmitted, requestStatus}
  - 3NF: Every non-prime attribute is non-transitively dependent on every key(no transitive dependencies)
    - There's no transitive dependencies here
    - Although it might seems that one street address will determine one zipCode...there's an exception. Places like campus or airport can have multiple zipCode while they have the same street address. So that's not an transitive dependency.
- treePlantings:
  - 1NF: No composite attribute, all the value of any attribute in a tuple is a single values from the domain of the attribute
  - 2NF: Every non-prime attribute is fully dependent on the PK
    - FD in this scheme:
    - {plantID} -> {eventName, plantDate, streetAddress, zipCode, photoAfter, treePlanted}
  - 3NF: Every non-prime attribute is non-transitively dependent on every key(no transitive dependencies)
    - There's no transitive dependencies here
- volunteerPlants:
  - 1NF: No composite attribute, all the value of any attribute in a tuple is a single values from the domain of the attribute
  - 2NF: Every non-prime attribute is fully dependent on the PK

- FD in this scheme:
- {plantID, vid} -> {workHour, feedback}
- 3NF: Every non-prime attribute is non-transitively dependent on every key(no transitive dependencies)
- There's no transitive dependencies here

- siteVisits:
- 1NF: No composite attribute, all the value of any attribute in a tuple is a single values from the domain of the attribute
- 2NF: Every non-prime attribute is fully dependent on the PK
- FD in this scheme:
- {siteVisitID} -> {visitDate, visitStatus, streetAddress, powerLine, minBedWidth, photoBefore}
- 3NF: Every non-prime attribute is non-transitively dependent on every key(no transitive dependencies)
- There's no transitive dependencies here

- recommendedTrees:
- 1NF: No composite attribute, all the value of any attribute in a tuple is a single values from the domain of the attribute
- 2NF: Every non-prime attribute is fully dependent on the PK
- FD in this scheme:
- All the attribute in this table is part of the PK, so there's no non-prime attribute
- 3NF: Every non-prime attribute is non-transitively dependent on every key(no transitive dependencies)
- There's no transitive dependencies here

- trees:
- 1NF: No composite attribute, all the value of any attribute in a tuple is a single values from the domain of the attribute
- 2NF: Every non-prime attribute is fully dependent on the PK
- FD in this scheme:
- {treeID} -> {scientificName, height, width, minPlantingBedWidth, plantableUnderPowerLines, caNative, droughtTolerance, growthRate, foliageType, debris, rootDamagePotential, nurseryAvailability, visualAttraction, inventory}
- 3NF: Every non-prime attribute is non-transitively dependent on every key(no transitive dependencies)
- There's no transitive dependencies here

- plantingZones:
- 1NF: No composite attribute, all the value of any attribute in a tuple is a single values from the domain of the attribute
- 2NF: Every non-prime attribute is fully dependent on the PK
- FD in this scheme:
- All the attribute in this table is part of the PK or CK, so there's no non-prime attribute
- 3NF: Every non-prime attribute is non-transitively dependent on every key(no transitive dependencies)
- There's no transitive dependencies here