

Entities Involved

- User represents all users of the system, including residents, volunteers, and team members. Its attributes include firstName, lastName, email, neighborhood, zipCode, and role. Users that are residents can submit tree requests, participate in planting events as volunteers, or manage site visits and planting activities as a team member.
- TreeRequest tracks requests submitted by residents for tree planting at specific addresses. Its attributes include treeType, payment, address, and status (pending, approved, or planted). Each request is linked to a specific user and progresses through various stages (permit application, site visit, & planting).
- JobSite represents the physical location where trees are planted. Its attributes include address, zipCode, name (site name), neighborhood, and condition. Each job site is associated with a neighborhood for reporting purposes.
- Neighborhood represents Oakland neighborhoods where tree planting activities occur. Its attributes include requests (list of requests in the neighborhood), progress (status of requests), and numberOfTrees planted in the neighborhood.
- TreeSpecies contains information about city-approved tree species available for planting. Its attributes include species characteristics such as name, minimumBasinWidth, commonName, scientificName, heightRange, acceptableUnderPowerLine, droughtTolerance, foliage, rootDamagePotential, numberPlanted, yearsSinceFirstTree, yearsSinceMostRecent, and yearWithMostPlanted.
- Inventory tracks the availability of tree species in inventory. Its attributes include the name (of the species), treeSpecies, quantityAvailable, and dateUpdated.
- SiteVisit represents inspections conducted by team members at job sites before planting approval. Its attributes include scheduledDate, conductedDate and photoURL.
- PlantingEvent tracks events where trees are planted by volunteers under team member supervision. Its attributes include scheduledDate, completedDate, member, and eventLeader.
- Tree represents individual trees planted during events. Its attributes include the name, treeSpecies and date (of planting).
- Employee represents team members who manage site visits and lead planting events. Its attributes include employee details such as firstName, lastName, and email.

Relationships Between Entities

- User requests a TreeRequest. A user can submit multiple tree requests, but each request belongs to only one user (one-to-many).
- TreeRequest is requested to a JobSite. Each tree request is associated with one job site where the tree will be planted (one-to-one).
- JobSite is located in Neighborhood. Each job site is located within one neighborhood, but a neighborhood can have multiple job sites (many-to-one).

- TreeRequest involves a SiteVisit. A single tree request may require multiple site visits for inspection or approval (one-to-many).
- JobSite has a PlantingEvent. Multiple planting events can occur at a single job site over time (many-to-one).
- PlantingEvent plants Tree. A single planting event may involve planting multiple trees, but each tree belongs to only one event (one-to-many).
- Tree is a kind of TreeSpecies. Multiple trees can belong to the same species, but each tree is linked to one specific species (many-to-one).
- TreeSpecies is listed in the Inventory. Each species has an inventory record that tracks its availability for planting (one-to-one).
- Employee conducts the SiteVisit. Multiple employees may participate in or manage site visits at different job sites (many-to-one).
- User volunteers at PlantingEvent. Volunteers participate in multiple planting events, but each event involves multiple volunteers (many-to-many).

Assumptions

- Users must register before submitting a tree request or volunteering for an event.
- Neighborhood data is pre-defined based on Oakland LocalWiki information.
- Photos are stored as URLs pointing to external storage systems.
- Inventory updates are managed manually by administrators.
- Permit applications are handled externally by residents but tracked within the system.

Information to Be Extracted/Presented

- User information that includes details of registered users, including their roles (resident, volunteer, or team member) and associated actions like submitted requests or participation in events.
- Tree requests statuses of all tree requests (*pending, approved, planted, etc.*) along with timestamps for tracking progress that's filtered by neighborhoods or zip codes.
- Site visit dates for visits that are scheduled and conducted and photos taken during visits.
- Planting events details including dates, participating volunteers and supervisors and number of trees planted during each event.
- Inventory of the availability of tree species.
- Neighborhood reports that include the summary of requests submitted per neighborhood, progress of requests, and total number of trees planted in each neighborhood.
- Species statistics that include the number of trees planted per species and historical data for each species such as years since the first tree was planted, since the most recent tree was planted, and year with the highest number of plantings.
- List of volunteers who participated in specific events and their roles.