1.1 The Sequoia Sandwhich Company is a local popular high quality delicatessen that sepcializes in homemade sandwiches, salads, soups, and bakery desserts. They also offer catering for groups in the form of sandwich platters, boxed lunches, along with options to add beverages, chips and side salads.

There are currently four locations: Downtown, southwest, rosedale, and the Fresno/Clovis area.

1.2 The fact-finding methods used to gather the data was gathered by prior experience of working for the company, as well as facts collected from the website. The operations on the data will be handled by the person in charge of scheduling which is usually the branch manager at the location. The database will be used to generate reports consisting of information about employees and their availability.

1.3 The part of the enterprise that the conceptual database will be designed for is employee scheduling. Major entity set and relationship sets will include Employee information, Employee Positions, Shift openings, Employee Availability, and specific information about which employees are scheduled for which shifts in what positions.

1.4 Itemized descriptions of Entity sets and relationship sets:

including their names, meaning, attribute names and detail properties of each attributes, cardialities and participation constraints of relationship.

Itemized descriptions of Entity and Relationship Sets

Entity Employee(

EmployeeID integer [primary key],

firstname string [attribute],

lastname string [attribute],

dateEmployed date [attribute],

dateUnemployed date [attribute],

birthday date [attribute],

maxHoursPerWeek integer [attribute],

primary\_phone string [attribute],

secondary\_phone string [attribute])

Entity Role(

RoleID Integer [primary key],

Title string [attribute])

Entity Shift(

ShiftID integer [primary key],

RoleID Integer [foreign key],

title string [attribute],

weekday\_start time [attribute],

weekday\_end time [attribute],

weekend\_start time [attribute],

weekend\_end time [attribute])

Entity Delivery(

deliveryID integer [primary key],

companyTitle string [attribute],

weekdays set [multivalued attribute])

Relationship (Identity Relationship?) Requests\_Off(

requestedBy EmployeeID [foreign key - Employee],

grantedBy EmployeeID [foreign key - Employee],

day\_start date [attribute],

day\_end date [attribute])

Employee:Employee 1:1 - one employee submits request , one employee approves request

participation constraint - none

Relationship Has\_Role(

EmployeeID integer [foreign key].

RoleID integer [foreign key].

is\_training boolean [attribute],

date\_acquired date [attribute].

date\_removed date [attribute].

is\_primary boolean [attribute].

maxDaysPerWeek date [attribute])

Employee:Role n:m - employees may have many different roles, a role may be occupied by many different employees

participation constraint (total) all employee must have at least one role,

(for example, an employee may be trained as a salad and hot sandwich prep, and there are several employees that might be

sandwich preps or salad preps)

Relationship Has\_Shifts(

roleID integer [foreign key])

shiftID integer [foreign key],

Role:Shift 1:1 one shift is occupied by one role

(for example, there may be a 8AM-3PM shift for both a cashier and a janitor, as well as other cashier and janitor shifts)

Relationship Is\_Scheduled\_For(

employeeID integer [foreign key],

shiftID integer [foreign key],

day date [attribute])

Employee:Shift 1:1 - only one employee is scheduled for a specific shift

Relationship Has\_Availability\_For(

EmployeeID integer [foreign key],

shiftID integer [foreign key])

Employee:Shift m:n - many employees may be available for many shifts

participation constraint - at least one employee must be available for each shift

(can two columns have the same name?)

Relationship Cannot\_Work\_With(

employeeID integer [foreign key],

employeeID integer [foreign key])

Employee:Employee 1:1 - some employees cannot work well with others

1.5 User Groups are defined by Employee Roles In descending order of privelage are: managers (branch manager and store owner), shift supervisors, and all other employees (cashiers, janitors, food prep...)

managers-

reading, creating, updating and deleting schedules (past schedules may not be deleted)

reading, creating, updating and deleting employees

reading(view requests off), creating(submit requests off), and updating (approve/deny) requests off

reading, creating, updating, and deleting scheduled weekly deliveries

all employees-

reading schedules

reading (view own requests off only), creating(submit requests off), and updating (cancel own requests off)

reading weekly deliveries (shown on schedule)

For step 2, document the conceptual database design

Conceptual Database Design

2.1 Entity Set Desciption

Entity UVW:

name (use intuitive name

description: what is the purpose of the entity type, what information are held in the entities of the relationship type, and other information about the entities in the set (such the frequencies of insertion, deletions, and updates).

Attribute description

name

descriptin

domain/type

value-range

default value

null value allowed or not?

unique?

single or multiple-value

Simple of Composite

candidate keys:

primary key:

Strong/Weak Entity

Fields to be indexed

Entity XYZ: ...

2.2 Relationship Set Description

Relationship ...:

Name (use intuitive name)

description: What is the relationship type for, the purpose of relations, what are the entities involved, meaning of each descriptive data field. Multiplicities and mapping cardinality.

Entity set involved

Mapping cardinality

Desciptive field

Participation Constraint: Partial/optional or total/mandatory

2.3 Related Entity Set

Describe the following and point out entity types and relationships that are derived with the specialization/generalization process.

Specialization/Generalization Relationships(is-A) Participation constraint Disjoint constraint

Aggregation/has-relationship Composite

2.4 E-R Diagram

Label the entity types with attributes, relationship types, multiplicities.