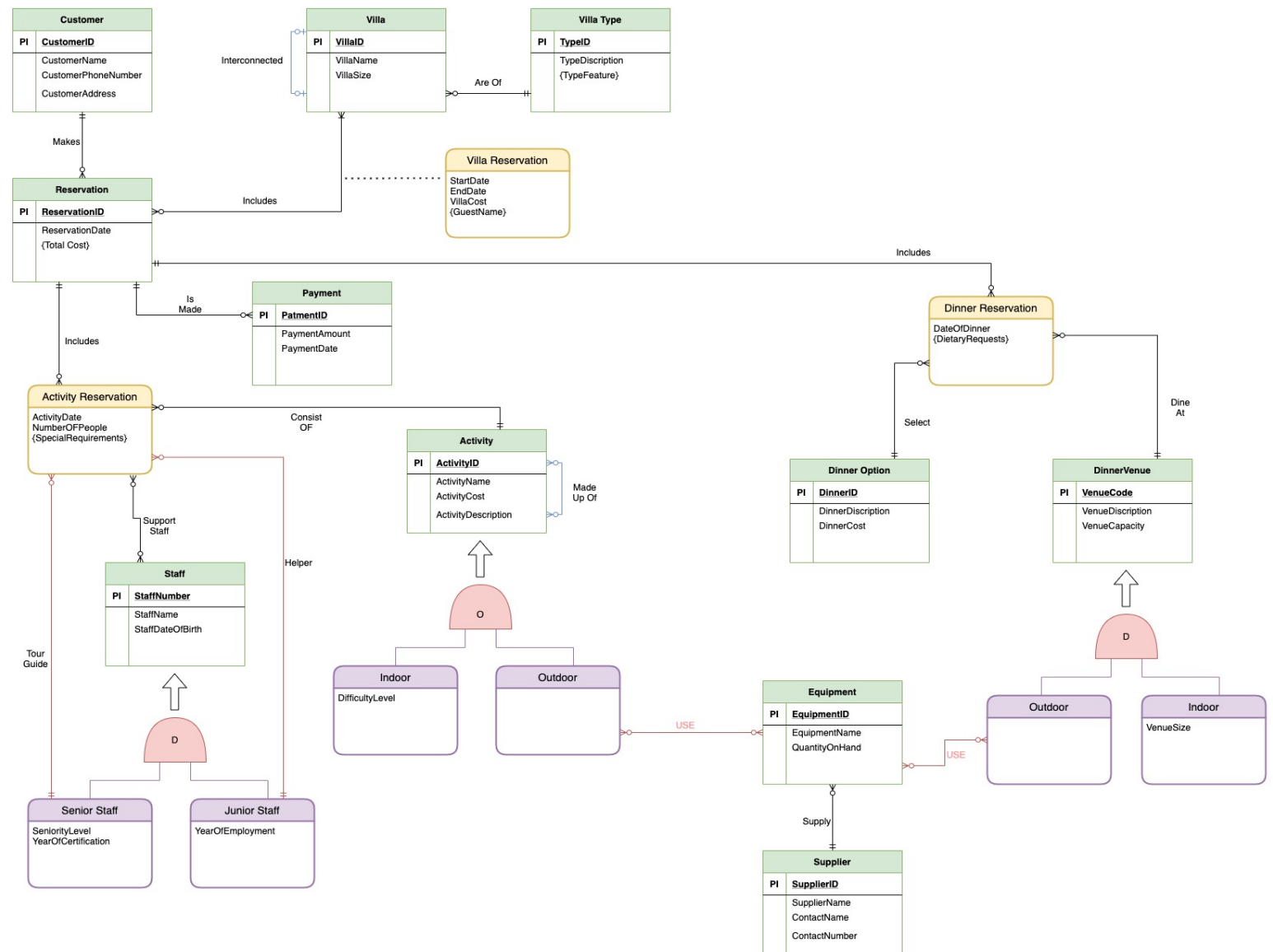# COMP1350 2020 – ASSIGNMENT ONE

Task 1: EER Diagram

Assumptions, if any:

- Total cost is a multivalued attribute as it includes different types of costs.
- A Payment made can be for a maximum of one reservation
- A customer Should reserve at least one villa.
- Reservations do not require pre-payments. Therefore, some reservations might not have any payment made.
- Some equipment might not be used by any activity.
- Support staff is either senior or junior staff.

Task 2: Logical Transformation

Step 1 Strong Entities:

Reservation (ReservationID(PK), ReservationDate)
Customer (CustomerID(PK), CustomerName, CustomerPhoneNumber, CustomerAddress)
Dinner Option (DinnerID(PK), DinnerDescription,Dinnercost)
Dinner Venue (VenueCode(PK), VenueDescription, VenueCapacity)
Equipment (EquipmentID(PK), EquipmentName, QuantityOnHand)
Supplier (SupplierID(PK), SupplierName, ContactName,ContactNumber)

Step 2 Weak entities: NA

Step 3 One to One Relationship: NA

Step 4 One to Many Relationship:

Reservation (ReservationID(PK), ReservationDate, CustomerID(FK))
Equipment (EquipmentID(PK), EquipmentName, QuantityOnHand, SupplierID(FK))

Step 5 Many to Many Relationship: NA

Step 6 Multi Valued Attributes:

Total Cost (ReservationID(PK,FK), TotalCostAmount(PK))

Step 7 Ternary relationship:

Dinner reservation (ReservationID(PK,Fk), DinnerID(PK,FK), VenueCode(PK,FK), DateOfDinner)

Multi Value Attribute in Associative Entity:
Dietary Requests (ReservationID(PK,Fk), DinnerID(PK,FK), VenueCode(PK,FK), Request(PK))

Step 8A: Subtypes

Outdoor (VenueCode(PK,FK))
Indoor (VenueCode(PK,FK), Venue size)

REPEAT STEP 2-7

Step 2 Weak Entity: NA

Step 3 One to One Relationship: NA

Step 4 One to Many Relationship: NA

Step 5 Many to Many Relationship:

Uses (EquipmentID(PK,FK),VenueCode(PK,FK))

Step 6 Multi valued attributes: NA

STEP 7 Ternary relationships: NA

FINAL TABLES:
Dietary Requests (ReservationID(PK,Fk), DinnerID(PK,FK), VenueCode(PK,FK))
Uses (EquipmentID(PK,FK),VenueCode(PK,FK)
Outdoor (VenueCode(PK,FK))
Indoor (VenueCode(PK,FK), Venue size)
Dinner reservation (ReservationID(PK,Fk), DinnerID(PK,FK), VenueCode(PK,FK))
Total Cost (ReservationID(PK,FK), TotalCostName(PK))
Reservation (ReservationID(PK), ReservationDate, CustomerID(FK))
Dinner Venue (VenueCode(PK), VenueDescription, VenueCapacity)
Equipment (EquipmentID(PK), EquipmentName, QuantityOnHand, SupplierID(FK))
Customer (CustomerID(PK), CustomerName, CustomerPhoneNumber, CustomerAddress)
Dinner Option (DinnerID(PK), DinnerDescription, Dinnercost)
Supplier (SupplierID(PK), SupplierName, ContactName,ContactNumber)

Step 8B: Supertype Disintegrated

Outdoor (VenueCode(PK), VenueDescription, Venue Capacity)
Indoor (VenueCode(PK), VenueDescription, Venue Capacity, VenueSize)

Step 8C: Subtypes Disintegrated

Dinner Venue (VenueCode(PK), VenueDescription, VenueCapacity, VenueSize, VenueType)

Step 8D: Not Applicable as only applies to overlap.

Task 3: Normalisation

Full Functional Dependence 1st Normal Form: Reservation

DinnerCode(PK,*FK*), MenuItemID (PK,*FK*) -> ~~MenuItemName~~ , ~~DinnerCost~~, PortionSize ~~DressCode, DressCodeDescription~~

1st Normal Form TO 2nd Normal Form

Partial Dependence 1: Dinner

Dinner Code (PK) -> Dinner Cost, DressCode (*FK*), ~~DressCodeDescription~~

Partial Dependence 2: Menu

MenuItemID (PK) -> MenuItemName

Transitive Dependence 2nd Normal Form TO 3rd Normal Form : Dressing

DressCode(PK) -> DressCodeDescription

FINAL TABLES

Reservation

DinnerCode(PK,*FK*)	MenuItemID (PK,*FK*)	PortionSize

Dinner

Dinner Code (PK)	Dinner Cost	DressCode (*FK*)

Menu

MenuIemID (PK)	MenuItemName

Dressing

DressCode(PK)	DressCodeDescription