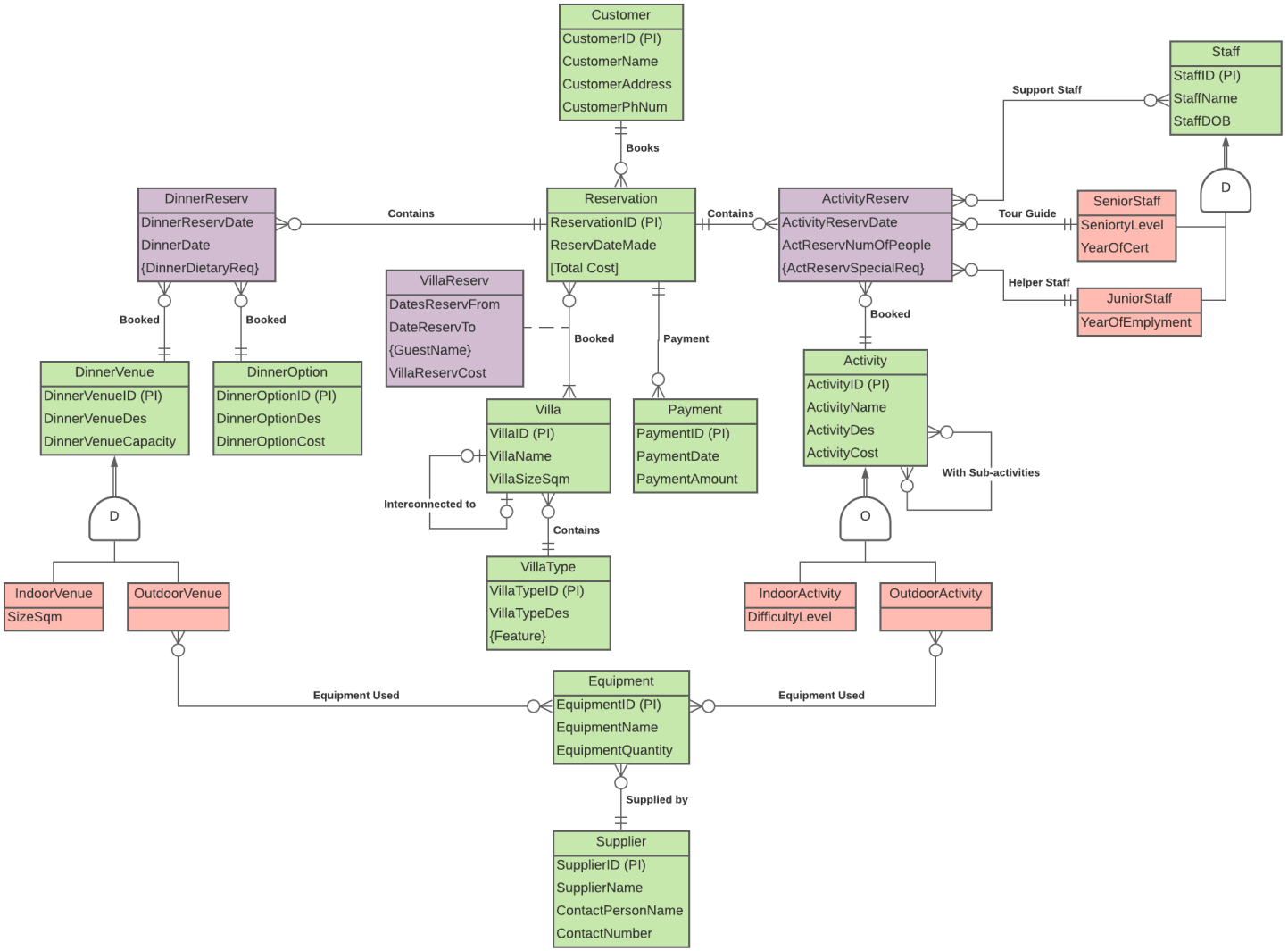
COMP1350 2020 – ASSIGNMENT ONE

Task 1: EER Diagram



Assumptions, if any:

- Equipment can only have one supplier.
- The outdoor activity and outdoor venue can have none or multiple equipment, as an outdoor activity can use no equipment.
- Activity has an overlap rule, as an activity could be indoor and outdoor. E.g. an activity could be a half-day tour with two sub activities, Hiking (outdoor) and Yoga (indoor).
- DinnerVenue has a disjoint rule, as a venue can't be indoor and outdoor it has to be on or the other.
- Staff has a disjoint rule, as a staff can't be a senior and a junior it has to be on or the other.
- The additional support staff can be any type of staff, junior or senior, as an activities may need an extra senior staff or an extra junior staff.

Task 2: Logical Transformation

Step 1: Strong Entity

Reservation(**ReservationID (PK)**, ReservDateMade, [Total Cost])
DinnerOption(**DinnerOptionID (PK)**, DinnerOptionDes, DinnerOptionCost)
DinnerVenue(**DinnerVenueID (PK)**, DinnerVenueDes, DinnerVenueCapacity)
Equipment(**EquipmentID (PK)**, EquipmentName, EquipmentQuantity)
Supplier(**SupplierID (PK)**, SupplierName, ContactPersonName, ContactNumber)

Step 2: Weak Entity

None

Step 3: One-One relationship

None

Step 4: One-Many relationship

Equipment(**EquipmentID (PK)**, EquipmentName, EquipmentQuantity, **SupplierID (FK)**)

Step 5: Many-Many relationship

None

Step 6: Multi-valued Attribute

DinnerDietaryReq(**ReservationID (PK, FK)**, **DinnerVenueID (PK, FK)**, **DinnerOption (PK, FK)**, **DietaryReqName (PK)**)

Step 7: Ternary relationship/Associative Entities

DinnerReserve(**ReservationID (PK, FK)**, **DinnerVenueID (PK, FK)**, **DinnerOption (PK, FK)**, DinnerReservDate, DinnerDate)

Step 8a:

IndoorVenue(**DinnerVenueID (PK, FK)**, SizeSqm)
OutdoorVenue(**DinnerVenueID (PK, FK)**)

Steps 2-7:

Step 2: Weak Entity

None

Step 3: One-One relationship

None

Step 4: One-Many relationship

None

Step 5: Many-Many relationship

EquipmentUsed (**DinnerVenueID (PK, FK)**, **EquipmentID (PK, FK)**)

Step 6: Multi-valued Attribute

None

Step 7: Ternary relationship/Associative Entities

None

Final Tables:

Reservation(**ReservationID (PK)**, ReservDateMade, [Total Cost])
DinnerReserve(**ReservationID (PK, FK)**, **DinnerVenueID (PK, FK)**, **DinnerOption (PK, FK)**, DinnerReservDate, DinnerDate)
DinnerDietaryReq(**ReservationID (PK, FK)**, **DinnerVenueID (PK, FK)**, **DinnerOption (PK, FK)**, **DietaryReqName (PK)**)
DinnerOption(**DinnerOptionID (PK)**, DinnerOptionDes, DinnerOptionCost)
DinnerVenue(**DinnerVenueID (PK)**, DinnerVenueDes, DinnerVenueCapacity)
IndoorVenue(**DinnerVenueID (PK, FK)**, SizeSqm)
OutdoorVenue(**DinnerVenueID (PK, FK)**)
EquipmentUsed (**DinnerVenueID (PK, FK)**, **EquipmentID (PK, FK)**)
Equipment(**EquipmentID (PK)**, EquipmentName, EquipmentQuantity, **SupplierID (FK)**)
Supplier(**SupplierID (PK)**, SupplierName, ContactPersonName, ContactNumber)

Step 8b:

IndoorVenue(**DinnerVenueID (PK)**, DinnerVenueDes, DinnerVenueCapacity, SizeSqm)
OutdoorVenue(**DinnerVenueID (PK)**, DinnerVenueDes, DinnerVenueCapacity)

Step 8c:

DinnerVenue(**DinnerVenueID (PK)**, DinnerVenueDes, DinnerVenueCapacity, SizeSqm, VenueType)

Step 8d:

Cannot do step 8d as it only applies for the Overlap rule and the DinnerVenue is a Disjoint rule

Task 3: Normalisation

1NF

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

PD:
DinnerCode -> DinnerCost, DressCode, DressCodeDescription
MenuItemID -> MenuItemName
Removing PDs

2NF

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

TD:
DressCode -> DressCodeDescription
Removing TDs

3NF

Food
(***DinnerCode, MenuItemID***) -> PortionSize
Dinner
DinnerCode -> DinnerCost, *DressCode*
Menu
MenuItemID -> MenuItemName
Dress Code
DressCode -> DressCodeDescription