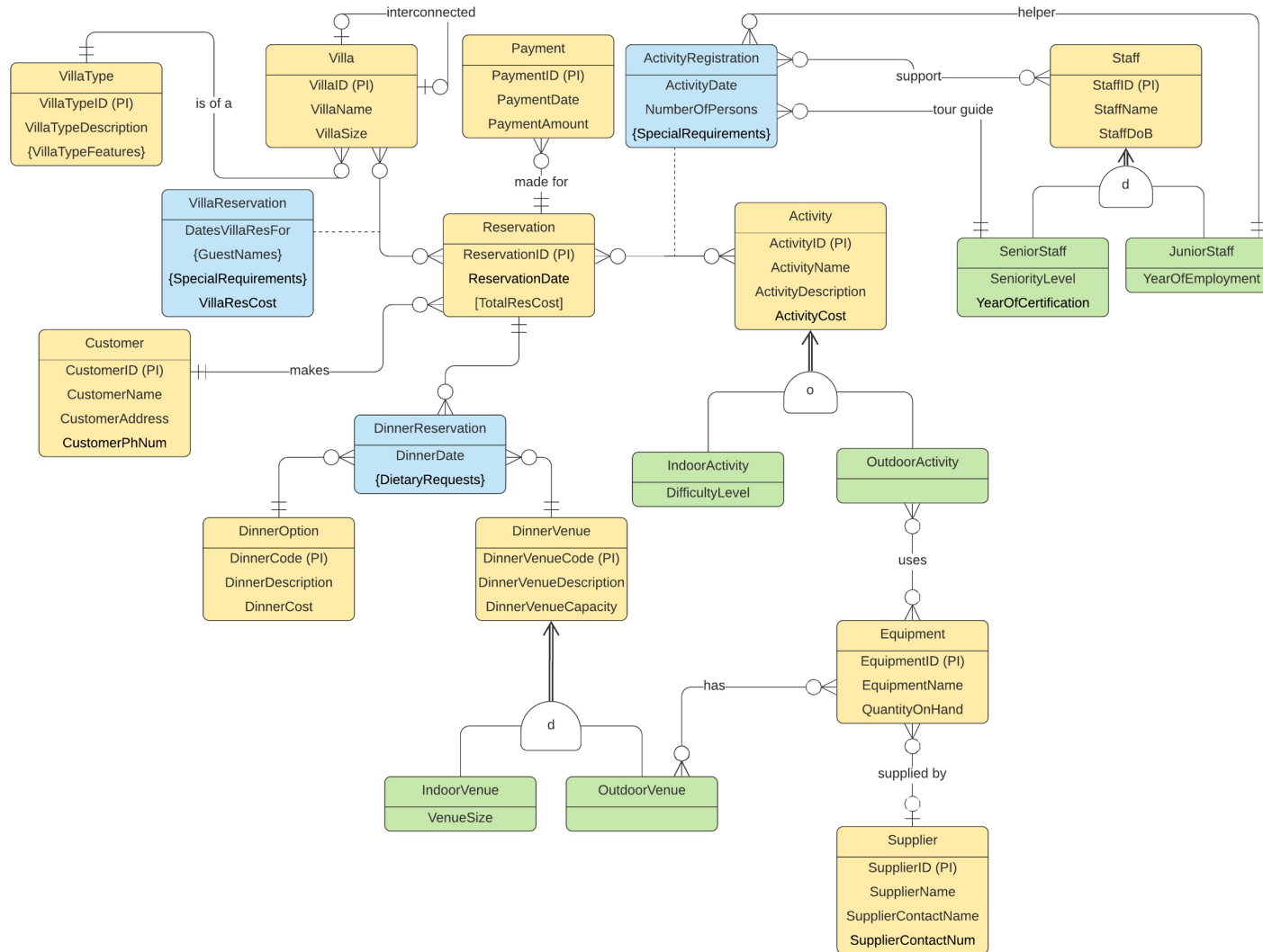


COMP1350 2020 – ASSIGNMENT ONE

Task 1: EER Diagram



Assumptions, if any:

- A customer can make more than one reservation (e.g. if they come back for another holiday some time later)
- A VillaType can be created without yet assigning any Villa to it
- Down payment does not have to be made upon making a reservation (reservation does not need to have a payment assigned to it straight away)
- Guests do not have to register as customers (as just their names are stored)
- Equipment will be from only one supplier maximum (i.e. one EquipmentID will not be made up of equipment from different suppliers)
- Indoor activities do not use equipment (outdoor activities do exclusively)
- It is possible for an outdoor activity to use no equipment
- Indoor venues do not use equipment (outdoor venues do exclusively)
- A venue can only be either indoor or outdoor (not both)
- It is possible for an outdoor venue to not use equipment
- Dietary requests are taken per dinner reservation (not per guest in reservation)
- A customer can only choose one dinner option and one dinner venue for each dinner reservation
- A staff member cannot be both a junior and senior staff member
- Tour guides, junior staff, and support staff can be assigned to multiple different activity reservations
- Support staff may be either senior or junior staff for the purposes of activity reservations
- The reservation for villas, dinner, and activities are all done on the same date (by the customer)
- A reservation will only be under a single customer's name
- A villa can be reserved by many customers (just not for the same date) – i.e. can be reserved on same date, but not for use on same dates

Task 2: Logical Transformation

Step 1: Strong Entities

Reservation (ReservationID (pk), ReservationDate, TotalResCost)

Customer (CustomerID (pk), CustomerName, CustomerAddress, CustomerPhNo)

DinnerOption (DinnerCode (pk), DinnerDescription, DinnerCost)

DinnerVenue (DinnerVenueCode (pk), DinnerVenueDescription, DinnerVenueCapacity)

Equipment (EquipmentID (pk), EquipmentName, QuantityOnHand)

Step 2: Weak Entities

No weak entities

Step 3: 1:1 Relationships

No 1:1 relationships

Step 4: 1:M Relationships

Reservation (ReservationID (pk), ReservationDate, TotalResCost, CustomerID (fk))

Step 5: M:N Relationships

No M:N relationships

Step 6: Multi-Valued Attributes

No multi-valued attributes

Step 7: Associate Entities

DinnerReservation (ReservationID (pk, fk), DinnerCode (pk, fk), DinnerVenueCode (pk, fk), DinnerDate)

Step 8:

a) For all inheritance

DinnerVenue (DinnerVenueCode (pk), DinnerVenueDescription, DinnerVenueCapacity)

IndoorVenue (DinnerVenueCode (pk, fk), VenueSize)

OutdoorVenue (DinnerVenueCode (pk, fk))

Repeat Steps 2 – 7:

Step 2: No weak entities

Step 3: No 1:1 relationships

Step 4: No 1:M relationships

Step 5: Has (DinnerVenueCode (pk, fk), EquipmentID (pk, fk))

Step 6: DietaryRequests (ReservationID (pk, fk), DinnerCode (pk, fk), DinnerVenueCode (pk, fk), DietaryRequestName (pk))

Step 7: No n-ary relationship associative entity

Final Table List:

Reservation (ReservationID (pk), ReservationDate, TotalResCost, CustomerID (fk))

Customer (CustomerID (pk), CustomerName, CustomerAddress, CustomerPhNo)

DinnerOption (DinnerCode (pk), DinnerDescription, DinnerCost)

DinnerVenue (DinnerVenueCode (pk), DinnerVenueDescription, DinnerVenueCapacity)

Equipment (EquipmentID (pk), EquipmentName, QuantityOnHand)

DinnerReservation (ReservationID (pk, fk), DinnerCode (pk, fk), DinnerVenueCode (pk, fk), DinnerDate)

IndoorVenue (DinnerVenueCode (pk, fk), VenueSize)

OutdoorVenue (DinnerVenueCode (pk, fk))

Has (DinnerVenueCode (pk, fk), EquipmentID (pk, fk))

DietaryRequests (ReservationID (pk, fk), DinnerCode (pk, fk), DinnerVenueCode (pk, fk), DietaryRequestName (pk))

Application of 8b, 8c, 8d

8b: Total

IndoorVenue (IndDinnerVenueCode (pk), DinnerVenueDescription, DinnerVenueCapacity, VenueSize)

OutdoorVenue (OutDinnerVenueCode (pk), DinnerVenueDescription, DinnerVenueCapacity)

8c: Disjoint

DinnerVenue (DinnerVenueCode (pk), DinnerVenueDescription, DinnerVenueCapacity, VenueSize, DinnerVenueType)

8d: Overlap

No Overlap

Task 3: Normalisation

DinnerCode	MenuItemID	MenuItemName	DinnerCost	PortionSize	DressCode	DressCodeDescription	1NF
DIN1	ENTR1	Spring Roll	\$125	1	D1	Formal Attire	
DIN1	MAINS1	Pumpkin Quinoa Salad	\$125	2	D1	Formal Attire	
DIN1	DESS1	Banoffee Pie	\$125	2	D1	Formal Attire	
DIN2	ENTR1	Spring Roll	\$75	1	D2	Smart Casual	
DIN2	MAINS1	Pumpkin Quinoa Salad	\$75	1	D2	Smart Casual	
DIN2	DESS1	Banoffee Pie	\$75	1	D2	Smart Casual	
			^		^	^	
		^			*	*	
Reservation							
FD:	(DinnerCode, MenuItemID) -> PortionSize, MenuItemName, DinnerCost, DressCode, DressCodeDescription						1NF
	DinnerCode (PK, FK)	MenuItemID (PK, FK)	PortionSize				
	Dinner						
PD 1:	DinnerCode -> DressCode , DinnerCost, DressCodeDescription						2NF
	DinnerCode (PK)	DressCode	DinnerCost				
	MenuItem						
PD 2:	MenuItemID -> MenuItemName						
	MenuItemID (PK)	MenuItemName					
	Dress						
	DressCode -> DressCodeDescription						3NF
TD:	DressCode	DressCodeDescription					