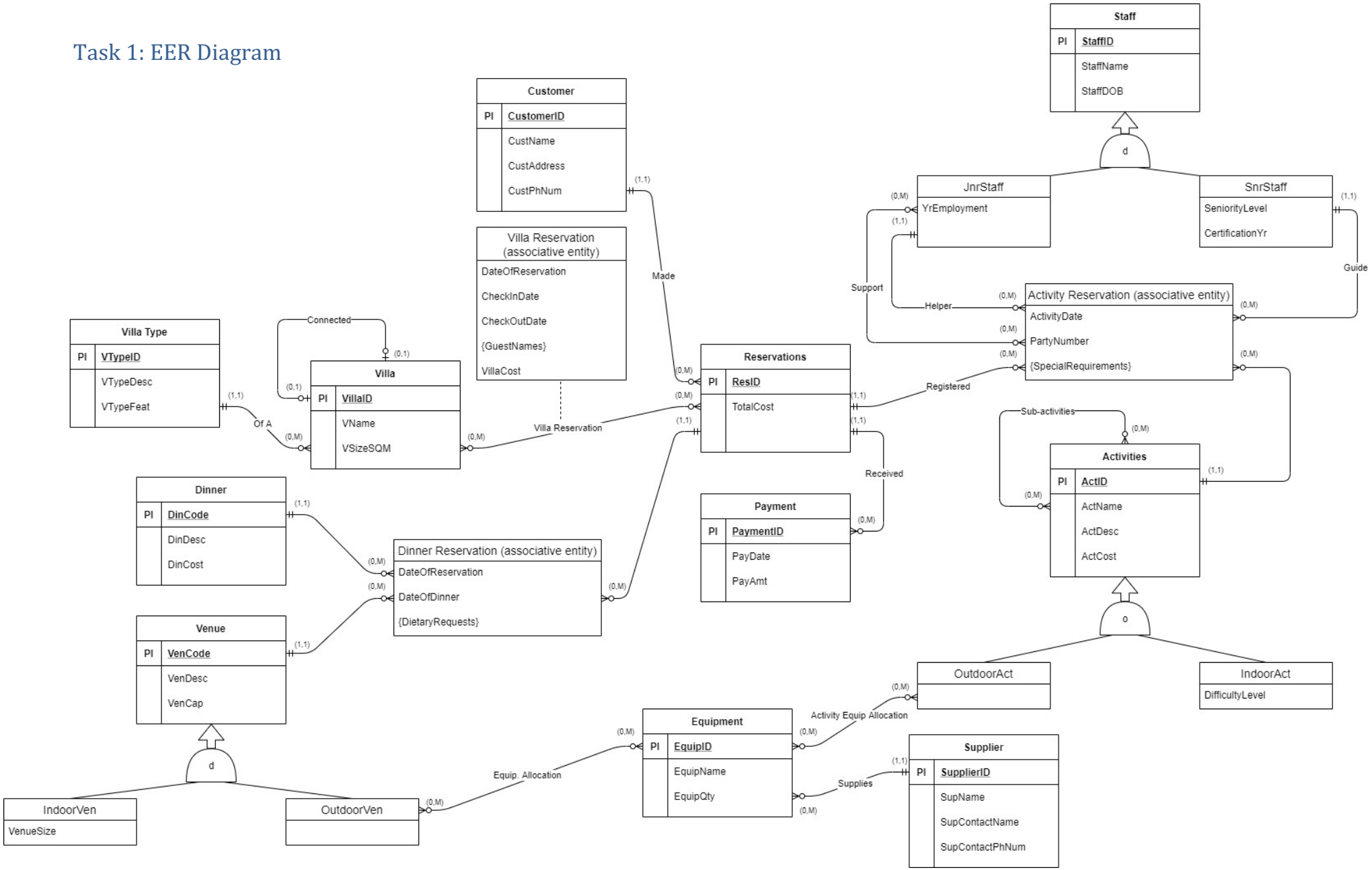
COMP1350 2020 – ASSIGNMENT ONE

Task 1: EER Diagram



Task 2: Logical Transformation

Step 1: Strong Entities

- Reservations (**ResID** (pk), TotalCost)
- Dinner (**DinCode** (pk), DinDesc, DinCost)
- Venue (**VenCode** (pk), VenDesc, VenCap)
- Equipment (**EquipID** (pk), EquipName, EquipQty)
- Supplier (**SupplierID** (pk), SupName, SupContactName, SupContactPhNum)

Step 2: Weak Entities

- No weak entities

Step 3: One-One Relationships

- No One-One relationships

Step 4: One-Many Relationships

- Equipment (**EquipID** (pk), EquipName, EquipQty, SupplierID (fk))

Step 5: Many-Many Relationships

- No Many-Many relationships

Step 6: Multi-valued attributes

- No Multi-valued attributes

Step 7: Associative Entities/Ternary Relationships

- Dinner Reservation (**ResID** (pk) (fk), **DinCode** (pk) (fk), **VenCode** (pk) (fk), DateOfReservation, DateOfDinner)

Step 8A: Applies for Total/Partial; Overlap/Disjoint

- IndoorVen (**VenCode** (pk) (fk), VenueSize)
- OutdoorVen (**VenCode** (pk) (fk))

Steps 2-7

Step 2: Weak Entities

- No weak entities

Step 3: One-One Relationships

- No One-One relationships

Step 4: One-Many Relationships

- No One-Many Relationships

Step 5: Many-Many Relationships

- Equip. Allocation (**VenCode** (pk) (fk), **EquipID** (pk) (fk))

Step 6: Multi-valued Attributes

- Dietary Requests (**ResID** (pk) (fk), **DinCode** (pk) (fk), **VenCode** (pk) (fk), **DietaryRequest** (pk))

Step 7: Associative Entities/Ternary Relationships

- No Associative Entities/Ternary Relationships

Final Tables

- Reservations (**ResID** (pk), TotalCost)
- Dinner (**DinCode** (pk), DinDesc, DinCost)
- Venue (**VenCode** (pk), VenDesc, VenCap)
- Equipment (**EquipID** (pk), EquipName, EquipQty, SupplierID (fk))
- Supplier (**SupplierID** (pk), SupName, SupContactName, SupContactPhNum)
- Dinner Reservation (**ResID** (pk) (fk), **DinCode** (pk) (fk), **VenCode** (pk) (fk), DateOfReservation, DateOfDinner)
- IndoorVen (**VenCode** (pk) (fk), VenueSize)
- OutdoorVen (**VenCode** (pk) (fk))
- Equip. Allocation (**VenCode** (pk) (fk), **EquipID** (pk) (fk))
- Dietary Requests (**ResID** (pk) (fk), **DinCode** (pk) (fk), **VenCode** (pk) (fk), **DietaryRequest** (pk))

Step 8b: Applies for Total; Overlap/Disjoint

- IndoorVen (**VenCode** (pk), VenueSize, VenDesc, VenCap)
- OutdoorVen (**VenCode** (pk), VenDesc, VenCap)

Step 8c: Applies for Total/Partial; Only for Disjoint

- Venue (**VenCode** (pk), VenDesc, VenCap, VenueSize, VenueType)

Step8d: Applies for Total/Partial; Only for Overlap

- No Overlap

Task 3: Normalisation

Full-Functional Dependency:

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

Partial Dependency:

PD1:

(**DinnerCode** (pk)) -> DinnerCost, *DressCode (fk)*, ~~DressCodeDescription~~

PD2:

(**MenuItemID** (pk)) -> MenuItemName

Transitive Dependency:

(**DressCode** (pk)) -> DressCodeDescription

1st Normalised Form (1NF)

1NF						
DinnerCode (pk)	**MenuItemID (pk)**	MenuItemName	DinnerCost	PortionSize	DressCode	DressCodeDescription
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

2nd Normalised Form (2NF)

DinnerCode (pk)	DinnerCost	DressCode	DressCodeDescription
DIN1	$125	D1	Formal Attire
DIN2	$75	D2	Smart Casual

MenuItemID (pk)	MenuItemName
ENTR1	Spring Roll
MAINS1	Pumpkin Quinoa Salad
DESS1	Banoffee Pie

DinnerCode (pk)	**MenuItemID (pk)**	PortionSize
DIN1	ENTR1	1
DIN1	MAINS1	2
DIN1	DESS1	2
DIN2	ENTR1	1
DIN2	MAINS1	1
DIN2	DESS1	1

3rd Normalised Form (3NF)

DinnerCode (pk)	DinnerCost	**DressCode (fk)**
DIN1	$125	D1
DIN2	$75	D2

DressCode (pk)	DressCodeDescription
D1	Formal Attire
D2	Smart Casual

MenuItemID (pk)	MenuItemName
ENTR1	Spring Roll
MAINS1	Pumpkin Quinoa Salad
DESS1	Banoffee Pie

DinnerCode (pk)	**MenuItemID (pk)**	PortionSize
DIN1	ENTR1	1
DIN1	MAINS1	2
DIN1	DESS1	2
DIN2	ENTR1	1
DIN2	MAINS1	1
DIN2	DESS1	1