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Individual Report - PART A & B

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QUESTION 01

a) Identifying the building blocks of the Conceptual EERD:

Entities

1. Client
2. Booking
3. Accommodation
4. Apartment
5. Room
6. CateringService
7. InHouseDinning
8. RoomDinning
9. BookableExperience
10. OnsiteExperience
11. FitnessClass
12. CraftWorkshop
13. CookingClass
14. OffsiteExperience
15. Excursion
16. Hike
17. Staff
18. Guide
19. Driver
20. Chef
21. Instructor
22. Fitness
23. Craft
24. HouseKeepingAttendent

Specializations

[01] Booking (Superclass) {Mandatory,And}

1) Accommodation (subclass) {Mandatory, Or}

1. Apartment (subclass)
2. Room (subclass)

2) BookableExperience (subclass) {Mandatory, And}

1. OnSiteExperience (subclass) {Optional, And}
 - a. FitnessClass (subclass)
 - b. CraftWorkshop (subclass)
 - c. CookingClass (subclass)
2. OffsiteExperience (subclass) {Optional, And}
 - a. Excursion (subclass)
 - b. Hike (subclass)

3) CateringService (subclass) {Mandatory, Or}

1. InHouseDinning (subclass)
2. RoomDinning (subclass)

[02] Staff (superclass) {Mandatory, Or}

- 1) Guide (subclass)
- 2) Driver (subclass)
- 3) Chef (subclass)
- 4) Housekeeping (subclass)
- 5) Instructor(subclass) {Mandatory, Or}
 1. Fitness (subclass)
 2. Craft (subclass)

Relationships & Multiplicities

1. Client (1.. 1) place (1.. *) Booking
2. CateringService (1.. *) cater (1.. 1) Accommodation
3. OnsiteExperience (1.. *) takes place (1.. *) Accommodation
4. Housekeeping (1.. 1) maintain (1.. *) Accommodation
5. Chef (1.. *) take care (1.. *) CateringService
6. Chef (1.. 1) conducts (1.. *) CookingClass
7. Fitness (1.. 1) run (1.. *) fitnessClass
8. Craft (1.. 1) conducts (1.. *) CraftWorkshop
9. Guide (1.. 1) oversee (1.. *) OffsiteExperience
10. Excursion (1.. *) run by (1.. *) Driver

Attributes and primary keys

➤ Client:

- clientID (Primary Key)
- clientName
- clientEmail
- clientContactNo
- clientAddress

➤ Booking:

- bookingID (Primary Key)
- checkInDate
- checkOutDate
- totalPrice
- specialRequestDetail

➤ Accommodation:

- accommodationID (Primary Key)
- accommodationLocation
- accommodationDescription
- accommodationAvailability
- noOfGuest

- Apartment:
 - apartmentNo
 - apartmentSize
 - apartmentAmenities

- Room:
 - roomNo
 - roomSize
 - roomAmenities

- CateringService:
 - cateringServiceID (Primary Key)
 - serviceType
 - menuOptions
 - cateringCapacity
 - cateringAvailability

- InHouseDinning:
 - inHouseServiceHours

- RoomDinnng:
 - roomServiceHours

- BookableExperience:
 - bookableExperienceID (Primary Key)
 - experienceServiceType
 - experienceLocation
 - experienceCapacity
 - experienceAvailability

- OnSiteExperience:
 - typeOfOnsite
 - experienceLocation
- FitnessClass:
 - fitnessType
- CraftWorkshop:
 - craftType
- CookingClass:
 - cookType
- OffExperience:
 - location
 - typeOfOffsite
- Excursion:
 - duration
- Hike:
 - difficultyLevel
 - walkingPath
- Staff:
 - staffID (Primary Key)
 - staffName
 - staffEmailAddress
 - staffSalary
- Guide:
 - guideRank
 - guideLangSpoke
- Driver:
 - busNumber
 - vehicleDetail
- Chef:
 - chefType

- Instructor:
 - instructorType
- FitnessInstructor:
 - fitnessInstrucType
- CraftInstructor:
 - craftType
- HouseKeepingAttendent:
 - diurnalTarget
 - attendantType

- b) Formulated five Business Questions (BQs) for Vacoliday's Board of Directors to investigate the company and Reflective commentary.

Business Questions formulated:

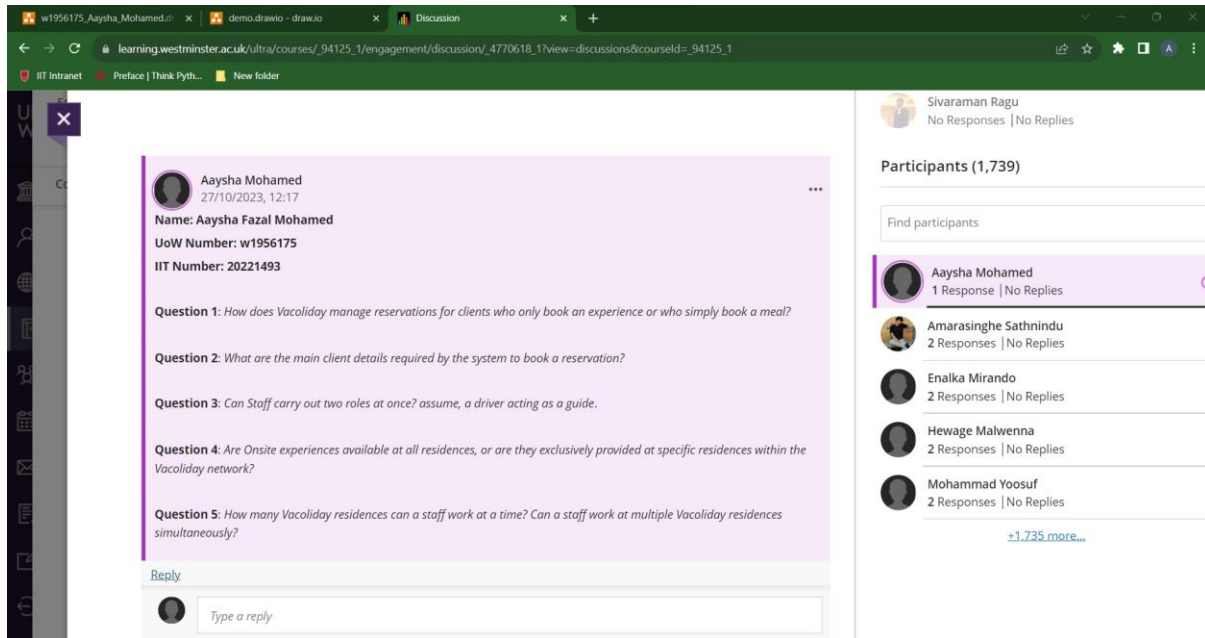


Figure 1 [A screenshot of Coursework Q&A Forum on Blackboard]

Reflective Commentary:

- A client can book one or more booking types (such as Accommodation, BookableExperience, CateringService). But the client must place at least one booking type.

This question delves into the flexibility and diversity of Vacoliday's services. Understanding how the reservation system handles different types of bookings. (such as Accommodation, BookableExperience, CateringService)

- Client details such as name, email, and contact address are the main details required by the system to register them as a client.

Identifying the essential client details needed for reservation management is fundamental to designing a user-friendly and efficient system.

- Staff have well-defined roles, and they can play only a single role at a time.

In the Vacoliday context, it reflects the flexibility for staff members to take on different roles (such as being a guide or a driver), but it ensures that they are assigned to at least one role.

- Onsite experiences take place in all residences in an allocated area at a specific given time.

Understanding the availability of onsite experiences across Vacoliday residences is essential for designing relationships between entities. This information impacts how the database models the connection between residences and onsite experiences, influencing queries related to available activities at specific locations.

- Vacoliday residences a staff member can't work at multiple Vacoliday residences simultaneously.

In the context of Vacoliday, where residences are spread around the town of Vacomedita, the assumption would be that staff members, such as Guides, Drivers, Chefs, Housekeeping Attendants, and Instructors, are assigned to a specific residence or property. This assignment allows them to provide services and support to guests at that specific location.

Database design for complex business models like Vacoliday requires detailed understanding, continuous stakeholder engagement, and flexibility to accommodate the evolving needs of the system.

Other Assumptions:

1. "Clients can place multiple bookings at once, but they must book at least one reservation type with Vacoliday."
2. "The client can book one or more Onsite experiences at the same time." There might be other onsite experiences that are provided by Vacoliday which can be subject to change according to the seasons and client preferences.
3. "The client can book one or more offsite experiences." This might be subject to change according to client preferences. Clients can request other offsite experiences other than excursion and hike.
4. "The client can either book InhouseDinning in a dining suite or RoomDinning" Clients must choose one of the above meal options.

5. "Catering Service can be catered to one or more accommodations at the same time."

This ensures effective and efficient meal options for all the clients.

6. "Accommodation can be maintained by housekeeping attendant." Housekeeping attendants can maintain their allocated accommodation. One or many housekeeping attendants can be allocated to specific accommodation.

7. "Chef can take care of one or more catering services simultaneously." Many chefs can also be allocated to a specific catering service. This ensures the smooth running of the catering service for fast and more convenient service.

8. "All staff can be allocated to their specific class or experience and one or more allocated specific staff could be a part of the same class or experience."

Allocating staff to specific classes or experiences can help ensure that the right people are working on the right tasks. By matching staff members' skills and interests to specific classes or experiences, you can increase the likelihood of high-quality work and job satisfaction. Additionally, allocating multiple staff members to the same class or experience can help ensure that there is sufficient coverage and support for the task at hand.

QUESTION 02: Entity Data Dictionary Table

<i>Entity Name</i>	<i>Brief Explanation</i>
Client (Aliases: Holiday Maker)	General term describing the entity that represents the person or organization who makes a booking for accommodation and other services.
Booking	General term describing an entity that stores information about the reservation made by the client.
Accommodation	General term describing accommodation types offered to clients by Vacoliday.
Apartment	General term describing the special type of accommodation (apartment) provided by Vacoliday. Which is typically larger with one or more bedrooms and other rooms like kitchens, bathrooms, washing rooms, dining rooms, and lounges.
StandAloneRoom	General term describing the special type of accommodation (stand-alone) rooms provided by Vacoliday. Which is typically a bedroom with an en-suite bathroom.
CateringService	General term describing various Catering Service (Meal Option) options (in-house dining and room dining experience) that are provided by VocalHoliday to its clients.
InHouseDinning	General term describes a special catering service that can be taken in one of the dining suites available at Vacoliday residences.
RoomDinning	General term describes a special catering service that can be delivered to a client's accommodation if pre-booked in advance.
BookableExperience	General term describing the entity refers to various activities or experiences that clients can book in addition to other services (experiences include onsite and offsite experience) provided by Vacoliday.
OnSiteExperience	General term describing all experiences that can take place onsite at a specific residence. (Fitness, Cooking, or craft workshop)
FitnessClass	General term describing an entity that represents various fitness classes offered to clients. (such as Yoga, Pilates, or any other well-being physical activities)
CraftWorkshop	General term describing an entity representing various craft workshop classes offered to its clients.
CookingClass	General term describing different cooking classes taught how to prepare local dishes by a chef offered to clients.
OffSiteExperience	General term describing all excursions and hikes that take place in the area surrounding Vacomedita.

Excursion	General term that describes a specific offsite excursion to places of interest offered to clients.
Hike	General term that describes a specific offsite experience to places of interest through walking experience offered to clients.
Staff	General term describing all staff employed by Vacoliday and providing excellent services to clients.
Guide	General term describing a specific type staff recitation to all guide who leads the tour session for clients.
Driver	General term describing all drivers driving buses to accompany clients to places of interest beauty spots and other landmarks across the stunning Vacomedita region.
Chef	General term describing all chefs who take care of meals and culinary experiences and prepares delicious local dishes and may also lead cooking classes for holidaymakers. (Clients)
Instructor	General term describing all Instructors who provide guidance and expertise in various skills. Instructors may specialize in fitness or crafts.
FitnessInstructor	General term describing all fitness instructors in leading fitness classes such as yoga, Pilates, or other well-being activities and guides customers in physical activities to enhance their overall well-being.
CraftInstructor	General term describing all craft instructors who lead craft workshops, teaching clients local craft skills. Provides hands-on instruction and fosters creativity during crafting sessions.
HouseKeepingAttendent	General term describing all housekeeping attendance responsible for the good maintenance of allocated accommodations. Ensures cleanliness, comfort, and overall well-being of holidaymakers (clients) during their stay in their allocated accommodation.

QUESTION 03: Specialisation Data Dictionary Table

<i>General Entity</i>	<i>Specialized Entity</i>	<i>Brief Explanation</i>
Booking	Accommodation	Booking represents the overall reservation system, including accommodations, bookable experiences, and catering services.
	BookableExperiences	Clients can place multiple bookings at once, but they must make at least one booking. {Mandatory, AND}
	CateringService	
Accommodation	Apartment	This represents the types of accommodations offered by Vacoliday, which can be either Apartments or Rooms. The client who requests accommodation must either book an apartment or a Room.
	Room	{Mandatory, OR}
BookableExperience	OnsiteExperience	BookableExperience represents experiences that can be booked through Vacoliday, this can be categorized into Onsite and Offsite experiences.
	OffsiteExperience	The client is capable of booking either an onsite or offsite experience. {Mandatory, OR}
OnsiteExperience	FitnessClass	Onsite experience Includes FitnessClass, CraftWorkshop, and CookingClass, representing on-site activities for customers.
	CraftWorkshop	The client can book one or more Onsite experiences at the same time.
	CookingClass	{Optional, AND}

OffsiteExperience	Excursion	<p>This includes Excursions and Hike, representing off-site activities exploring the area.</p> <p>The client can book one or more Offsite experiences at the same time.</p> <p>{Optional, AND}</p>
	Hike	
CateringService	InhouseDinning	<p>CateringService represents meal options that are included within Vacoliday this can either be InhouseDinning or RoomDinning.</p> <p>The client can either book InhouseDinning in a dining suite or RoomDinning which will be delivered to the specific accommodation.</p> <p>{Mandatory, OR}</p>
	RoomDinning	
Staff	Guide	<p>Staff Includes a collective body of individuals employed at Vacoliday, such as Guide, Driver, Chef, and Instructor.</p> <p>The staff must either be a Guide or Driver or Chef or instructor or HouseKeepingAttendent.</p> <p>{Mandatory, OR}</p>
	Driver	
	Chef	
	Instructor	
	HouseKeepingAttendent	
Instructor	Fitness	<p>Instructors can be further categorized into Fitness and Craft Instructors, representing specialized instructors for activities.</p> <p>The instructor can either be a Fitness or Craft instructor.</p> <p>{Mandatory, OR}</p>
	Craft	

QUESTION 04: Relationship & Multiplicities Data Dictionary Table

<i>Entity Name</i>	<i>Multiplicity</i>	<i>Relationship</i>	<i>Multiplicity</i>	<i>Entity Name</i>	<i>Brief justifications for the multiplicity (4 statements for each relationship)</i>
Client	1.. 1	place	1.. *	Booking	One client must place at least one booking.
					One client can place at most many bookings.
					One booking must have at least one client.
					One booking must have at most one client.
CateringService	1.. *	cater	1.. 1	Accommodation	A catering service must cater to at least one accommodation.
					A catering service can cater to at most many accommodations.
					An accommodation must be catered to at least one catering service.
					An accommodation can be catered to at most one catering service.
OnsiteExperience	1.. *	takes place	1.. *	Accommodation	An OnsiteExperience takes place at least in one accommodation.
					An OnsiteExperience takes place at most in more than one accommodation.
					An accommodation can host at least one OnsiteExperience.
					An accommodation can host at most more than one onsite experience.
Housekeeping Attendant	1.. 1	maintain	1.. *	Accommodation	HouseKeepingAttendant maintains at most one accommodation.
					Housekeeping maintains at least one accommodation.
					An accommodation can be maintained by at least one Housekeeping attendant.
					An accommodation can be maintained by at most more than one housekeeping attendant.
Chef	1.. *	take care	1.. *	CateringService	A chef can take care of at least one catering service.
					A chef can take care of at most more than one catering service
					Catering service can be taken care of by at least one chef.
					Catering service can be taken care of by at most more than one chef.

Chef	1.. 1	conducts	1.. *	CookingClass	A chef can conduct at least one cooking class.
					A chef can conduct at most one cooking class.
					A cooking class can be conducted by at least one chef.
					A cooking class can at most be conducted by more than one chef.
Fitness	1.. 1	run	1.. *	FitnessClass	A fitness instructor can run at least one fitness class.
					A fitness instructor at most can run one fitness class at a time.
					Fitness class can be conducted by at least one fitness instructor
					Fitness class can be at most conducted by more than one fitness instructor.
Craft	1.. 1	conducts	1.. *	CraftWorkshop	A craft instructor can conduct at least one craft class.
					A craft instructor at most can conduct one craft class at a time.
					Craft class can be conducted by at least one craft instructor
					Craft class can be at most conducted by more than one craft instructor.
Guide	1.. 1	oversee	1.. *	OffsiteExperience	A guide can oversee at least one OffsiteExperience.
					A guide at most can oversee one OffsiteExperience at a time.
					An OffsiteExperience can be overseen by at least one guide.
					An OffsiteExperience can be at most conducted by more than one guide.
Excursion	1.. 1	run by	1.. *	Driver	An Excursion can be run by at least one driver.
					An Excursion at most can be run by more than one driver.
					A driver may lead at least one excursion.
					A driver may lead at most one excursion at a time.

QUESTION 05

a) Main attributes and primary keys (PKs) of the entities for Vacoliday.

1. Client Entity - clientID {PK}
2. Booking Entity - bookingID {PK}
3. Accommodation Entity - accommodationID {PK}
4. CateringService Entity - cateringServiceID {PK}
5. BookableExperience Entity - bookableExperienceID {PK}
6. Staff Entity - staffID {PK}

b) Attributes Data Dictionary Table and primary keys.

<i>Entity Name</i>	<i>Attribute for each entity (Including PK)</i>	<i>Brief explanation</i>
Client	clientID {PK}	Unique identifier for each client
	clientName	Full name of the client (Composite attribute)
	clientEmail	Email address of the client
	clientContactNo	The contact number of the client. (Multivalued Attribute)
	clientAddress	The residential address of the client.
Booking	bookinID {PK}	Unique identifier for each booking.
	checkInDate	Date when the client checks into the accommodation.
	checkOutDate	Date when the client checks out of the accommodation.
	totalPrice	The total cost of the booking, including accommodation, catering, and any additional services. (Derived Attribute)
	specialRequestDetail	Any special requests or needs that the client has.

Accommodation	accommodationID {PK}	Unique identifier for each accommodation type.
	acomodationLocation	Location of the accommodation.
	acomodationDescription	Detailed description of the accommodation.
	acomodationAvailability	Whether or not the accommodation is available for booking.
	noOfGuest	Number of guests staying in the accommodation.
Apartment	apartmentNo	Number of specific apartment units within a building or complex.
	apartmentSize	Size of the apartment
	apartmentAmenities	List of amenities included in the apartment
Room	roomNo	Number of specific apartment units within a building or complex.
	roomSize	Size of the room.
	roomAmenities	List of amenities included in the room.
CateringService	CateringServiceID {PK}	Unique identifier for each catering service.
	serviceType	Type of catering service (e.g., breakfast, lunch, dinner).
	menuOptions	List of menu options available for the catering service.
	cateringCapacity	Maximum number of guests that the catering service can accommodate.
	cateringAvailability	Whether or not the catering service is available for booking.
InHouseDinning	InHouseServiceHours	List of available allocated dining time.
RoomDinnng	roomServiceHours	List of available allocated dining times.

BookableExperience	bookableExperienceID {PK}	Unique identifier for each bookable experience.
	experienceServiceType	Type of experience (on-site or off-site)
	experienceLocation	Location of the specific experience.
	experienceCapacity	The maximum number of participants that can attend the experience.
	experienceAvailability	Whether or not the experience is currently available for booking.
OnSiteExperience	typeOfOnsite	The specific type of onsite experiences provided by Vacoliday.
	experienceLocation	The location where the specific experience takes place
FitnessClass	fitnessType	Indicates the type of fitness class options (yoga, Pilates, or any other wellness activity, etc.) provided by Vacoliday.
CraftWorkshop	craftType	Specific types of local craft being taught (ceramics, painting, weaving, etc.)
CookingClass	cookType	Type of local dish being taught by Vacoliday.
OffExperience	location	The specific location where the experience takes place.
	typeOfOffsite	Type of off-site experience
Excursion	duration	Total duration of the off-site experience
Hike	difficultyLevel	Level of difficulty of the excursion (easy, moderate, challenging)
	walkingPath	The specific path for visitors/customers who prefer to spend their session by walking.

Staff	staffID {PK}	Uniquely identifies a member of staff.
	staffName	The staff member's full name (Composite Attribute)
	staffEmailAddress	This attribute stores the email address of the staff member to communicate with other staff members and send them important information.
	staffSalary	This attribute stores the salary of the staff member. It is used to calculate their pay and to track their compensation history. The money that someone paid each month by their employer. (Derived Attribute)
Guide	guideRank	Tour guides are ranked by considering their experiences and customers' feedback.
	guideLangSpoke	List of languages spoken by the guide.
Driver	busNumber	Bus license number.
	vehicleDetail	This entity stores information about the vehicles owned or operated by the company. It can be used to track vehicle maintenance, insurance, and other important information.
Chef	chefType	Type of chef (Mediterranean, Italian, Asian, etc.)
Instructor	instructorType	Type of instructor (fitness instructor, craft instructor, cooking class instructor).
FitnessInstructor	fitnessInstrucType	The specific type of fitness instructor-(yoga, Pilates, or any other wellness activity, etc.)
CraftInstructor	craftType	The specific type of craft instructor is specialized in.
HouseKeepingAttendant	diurnalTarget	The complete duties for a day.
	attendantType	The type of attendant (housekeeper, laundry attendant, pool attendant, gardener).

QUESTION 06

CONCEPTUAL EERD QUALITY & NOTATIONS

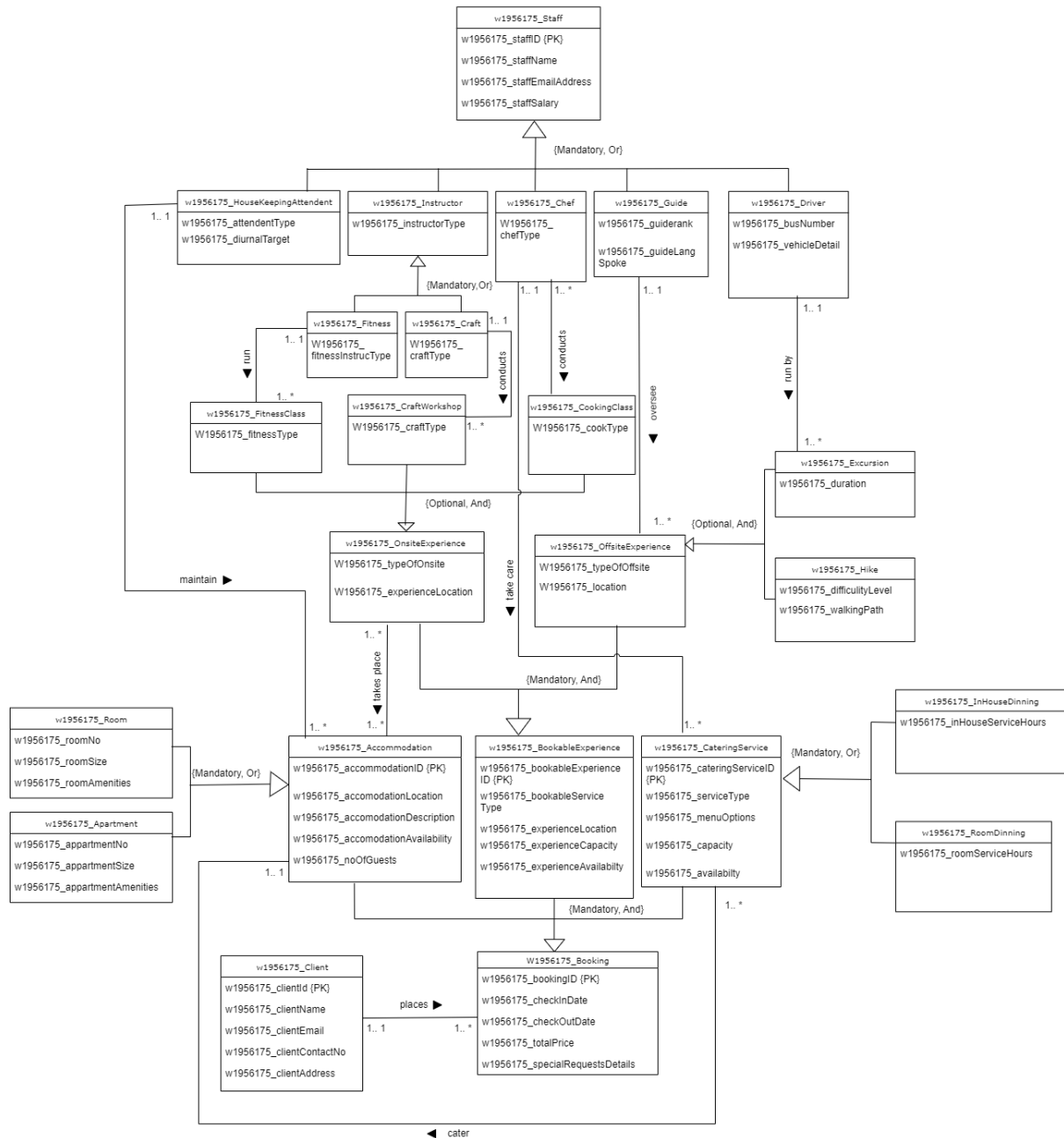


Figure 2 [Vacoliday Conceptual EERD]

QUESTION 07

LOGICAL ERD

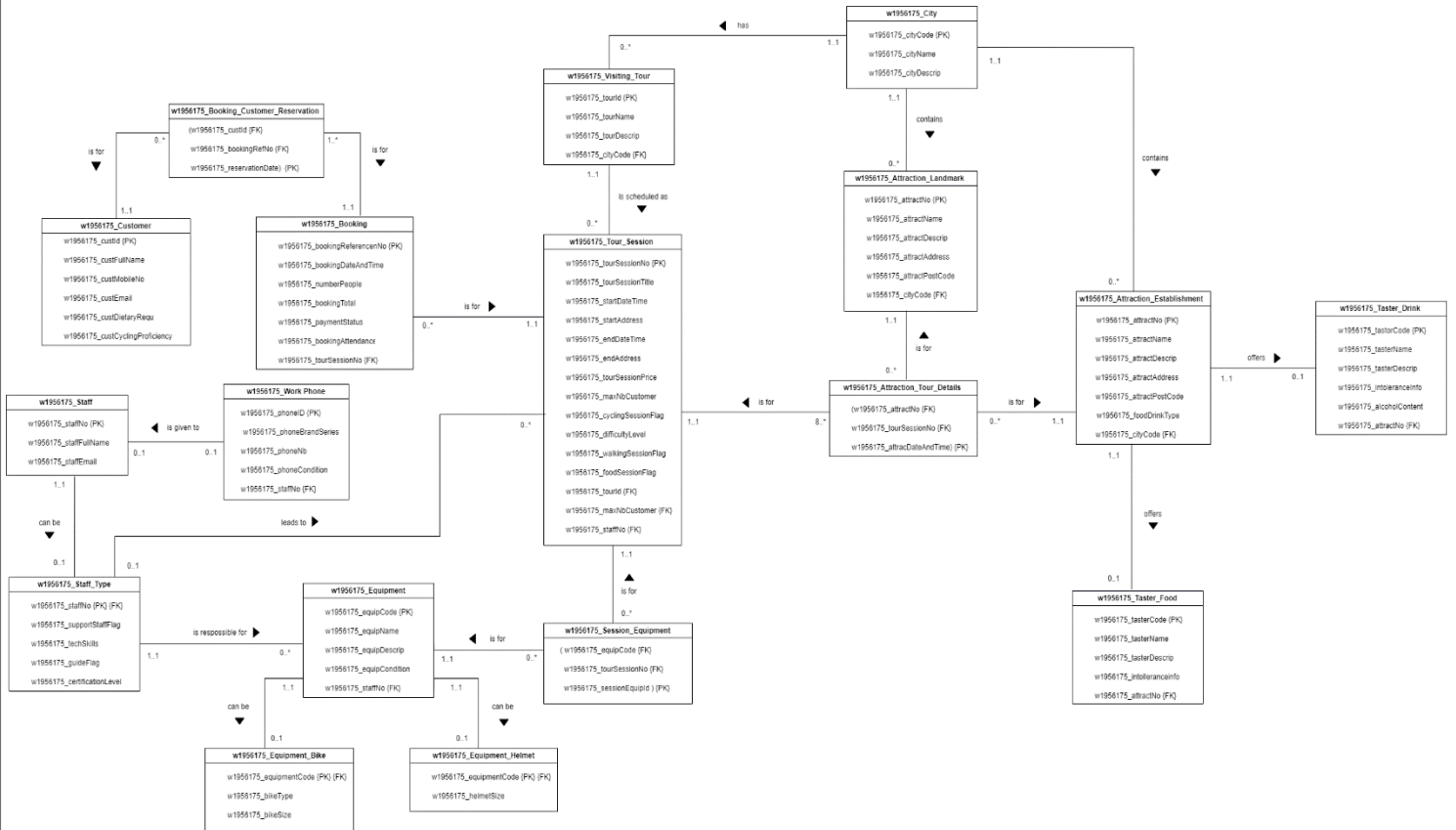


Figure 3 [Tourmato Logical ERD]

- The Child class of customer and booking is named “Booking_Customer_Reservation”, this signifies the relationship between them.
- The child class of equipment and cycling session is named “Session_Equipment”.
- “Tour_Attraction_Details” Signifies the relationship in-between attraction and tour session. This entity is shared between Attraction_Establishment and Attraction_Landmark.

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