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Part A+B

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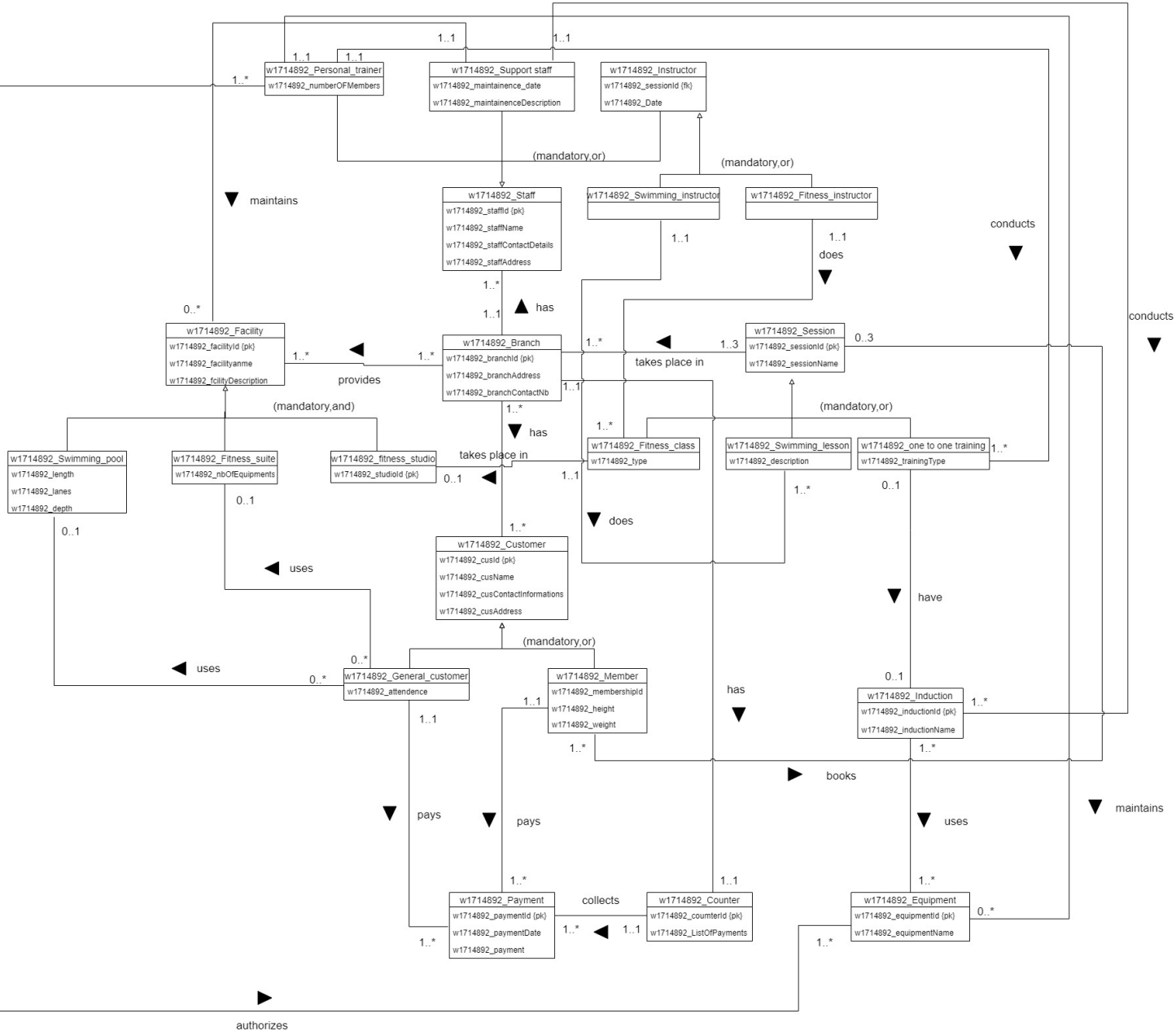
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## PART A

### 1) CONCEPTUAL ERD FOR AKKTIVATION

#### AKKTIVATION



## 2) DATA DICTIONARY 01

Entity name	Description
w1714892_Branch	A general term describing all the branches in Akktivation fitness company.
w1714892_Staff	A general term describing all staff employed by Akktivation.
w1714892_Customer	A general term describing all the customers who are interested in Akktivation services.
w1714892_Facility	A general term describing facilities in Akktivation.
w1714892_Session	A general term describing session take place in Akktivation.
w1714892_Counter	A general term describing counter in Akktivation.

General entity	Specialised entity	Explanation
w1714892_Staff	w1714892_Personal trainer	Specific term to describe person conduct one to one session, it inherits from general Staff entity
w1714892_Staff	w1714892_Support staff	Specific term to describe person, who maintain the facilities and particularly the equipment available in every branch to make sure it is in pristine condition, it inherits from general Staff entity
w171489_Staff	w1714892_Instructor	Specific term to describe the person who delivers booked sessions, it inherits from the general Staff entity
w1714892_Customer	w1714892_General_customer	Specific term to describe the person who gets services in Akktivation and pay every time when they come, it inherits from general Customer entity
w1714892_Customer	w1714892_Member	Specific term to describe the person who gets services in Akktivation and pay a membership fee, it inherits from general Customer entity
w1714892_Facility	w1714892_Swimming pool	Specific term to describe, swimming pool in Akktivation, inherits from general Facility

		entity
w1714892_Facility	w1714892_Fitness suite	Specific term to describe, standard gym with specialized fitness equipment in Akktivation, inherits from general Facility entity
w1714892_Facility	w1714892_fitness_studio	Specific term to describe, fitness studios in Akktivation, inherits from general Facility entity
w1714892_Session	w1714892_Fitness class	Specific term to describe, fitness classes in Akktivation, inherits from general Session entity
w1714892_Session	w1714892_Swimming_lesson	Specific term to describe, swimming lessons in Akktivation, inherits from general Session entity
w1714892_Session	w1714892_one to one training	Specific term to describe, one to one training programs in Akktivation, inherits from general Session entity
w1714892_Instructor	w1714892_Swimming_instructor	Specific term to describe a person who does the swimming lessons in Akktivation inherits from general Instructor entity
w1714892_Instructor	w1714892_Fitness_instructor	Specific term to describe a person who does the fitness classes in Akktivation inherits from general Instructor entity

### 3) DATA DICTIONARY 02

- Binary

Entity Name	Multiplicity	Relationship	Multiplicity	Entity Name	Justification for the Multiplicity
w1714892_Branch	1..1	Has	1..*	w1714892_Staff	<ul style="list-style-type: none"> <li>• Each branch has at least one or more staff member.</li> <li>• Each staff member has only one branch.</li> <li>• All branches have staff members.</li> <li>• All Staff members have branches.</li> </ul>
w1714892_Branch	1..1	Has	1..1	w1714892_Counter	<ul style="list-style-type: none"> <li>• All branches have counters.</li> <li>• Each branch has only one counter.</li> <li>• Each counter has only one branch.</li> <li>• All counters have a branch.</li> </ul>
w1714892_Session	1..*	Takes place in	1..3	w1714892_Branch	<ul style="list-style-type: none"> <li>• All sessions take place in branches.</li> <li>• Each session takes place in only three branches.</li> <li>• All branches have taken place sessions.</li> <li>• Three branches take place for one or many sessions.</li> </ul>
w1714892_Branch	1..*	provides	1..*	w1714892_Facility	<ul style="list-style-type: none"> <li>• Each branch provides at least one or more facilities.</li> <li>• All branches provide facilities.</li> <li>• Each facility is provided by at least one or more branches.</li> <li>• All facilities are provided by branches.</li> </ul>
w1714892_Branch	1..*	has	1..*	w1714892_Customer	<ul style="list-style-type: none"> <li>• Each branch has at least one or more customers.</li> <li>• All branches have customers.</li> <li>• Each customer has been at least for one or more branches.</li> <li>• All customers have been many branches.</li> </ul>
w1714892_fitness_class	0..1	takes place in	1..1	w1714892_Fitness_studio	<ul style="list-style-type: none"> <li>• Each fitness class takes place in only one fitness studio.</li> <li>• All fitness classes take place in the fitness studio.</li> <li>• Not all fitness studios are taken place in fitness classes.</li> <li>• Each fitness studio is taken</li> </ul>

					place only one fitness class.
w1714892_Swimming_instructor	1..1	does	1..*	w1714892_Swimming_lesson	<ul style="list-style-type: none"> <li>All swimming instructors do swimming lessons.</li> <li>All swimming lessons are done by swimming instructors.</li> <li>Each swimming instructor does many swimming lessons.</li> <li>Each swimming lesson was done by only one swimming instructor.</li> </ul>
W1714892_Fitness_instructor	1..1	does	1..*	w1714892_Fitness class	<ul style="list-style-type: none"> <li>All fitness instructors do fitness classes.</li> <li>All fitness classes are done by fitness instructors.</li> <li>Each fitness instructor does many fitness classes.</li> <li>Each fitness class is done by only one fitness instructor.</li> </ul>
W1714892_one_to_one_training	0..1	has	0..1	w1714892_Induction	<ul style="list-style-type: none"> <li>Not all one to one trainer has an induction.</li> <li>Not all induction has only for induction.</li> <li>Each induction has only for one "one to one training"</li> <li>Each one to one training has only one induction.</li> </ul>
W1714892_Induction	1..*	Uses	1..*	w1714892_Equipment	<ul style="list-style-type: none"> <li>All equipments are used to induction sessions.</li> <li>All induction sessions use equipment.</li> <li>Each equipment is used to one or many induction sessions.</li> <li>Each induction session uses one or more equipments.</li> </ul>
w1714892_Counter	1..1	Collects	1..*	w1714892_Payment	<ul style="list-style-type: none"> <li>All payments are collected by a counter.</li> <li>All counters collect payment.</li> <li>Each payment is collected by only one counter.</li> <li>Each counter collects one or more payments.</li> </ul>
W1714892_Member	1..1	pays	1..*	w1714892_Payment	<ul style="list-style-type: none"> <li>All members pay the payment.</li> <li>All payments are paid by members</li> <li>Each member pays one or more payments.</li> <li>Each payment is paid by only</li> </ul>

					one member.
w1714892_General_customer	1..1	pays	1..*	w1714892_Payment	<ul style="list-style-type: none"> <li>All general customers pay payment.</li> <li>All payments are paid by general customers.</li> <li>Each general customer pays one or more payments.</li> <li>Each payment is paid by only one general customer.</li> </ul>
w1714892_Member	1..*	books	0..3	w1714892_Session	<ul style="list-style-type: none"> <li>Not all members book sessions.</li> <li>All sessions are booked by members.</li> <li>Each member book only three sessions.</li> <li>Each session is booked by one or more members.</li> </ul>
w1714892_Personal_trainer	1..*	authorizes	1..*	w1714892_Equipment	<ul style="list-style-type: none"> <li>All personal trainers authorize equipment.</li> <li>All equipment are authorized by personal trainers.</li> <li>Each personal trainer authorizes one or more equipment.</li> <li>Each equipment is authorized by one or more personal trainers.</li> </ul>
w1714892_General_customer	0..*	uses	0..1	w1714892_Swimming_pool	<ul style="list-style-type: none"> <li>Not all general customers use swimming pool.</li> <li>Not all swimming pools are used by the general customer.</li> <li>Each general customer uses only one swimming pool.</li> <li>Each swimming pool can be used by one or more general customer.</li> </ul>
w1714892_General_customer	0..*	uses	0..1	w1714892_Fitness_suite	<ul style="list-style-type: none"> <li>Not all general customer use fitness suite.</li> <li>Not all fitness suites are used by the general customer.</li> <li>Each general customer uses only one fitness suite.</li> <li>Each fitness suite can be used by one or more general customer.</li> </ul>
w1714892_Personal_trainer	1..1	conducts	1..*	w1714892_one_to_one_training	<ul style="list-style-type: none"> <li>All personal trainers conduct the one to one training sessions.</li> <li>All one to one training session conduct by the personal</li> </ul>



					<p>trainer.</p> <ul style="list-style-type: none"> <li>Each personal trainer conducts one or many one to one training session.</li> <li>Each one to one training session conduct by only one personal trainer.</li> </ul>
w1714892_Personal_trainer	1..1	conducts	0..1	w1714892_Induction	<ul style="list-style-type: none"> <li>Not all personal trainers conduct induction session.</li> <li>All induction sessions conducted by personal trainers.</li> <li>Each personal trainer conducts only one induction session.</li> <li>Each induction session conducts by only one personal trainer.</li> </ul>
w1714892_Support_staff	1..1	maintains	0..*	w1714892_Facility	<ul style="list-style-type: none"> <li>Not all support staff member maintain the facility.</li> <li>All facilities maintain by support staff.</li> <li>Each support staff maintain zero or many facilities.</li> <li>Each facility maintains by only one support staff member.</li> </ul>
w1714892_Support_staff	1..1	maintains	0..*	w1714892_Equipments	<ul style="list-style-type: none"> <li>Not all support staff maintains equipment.</li> <li>All equipment maintains by support staff.</li> <li>Each support staff maintains zero or more equipment.</li> <li>Each equipment maintains by only one support staff.</li> </ul>

#### 4) DATA DICTIONARY 03

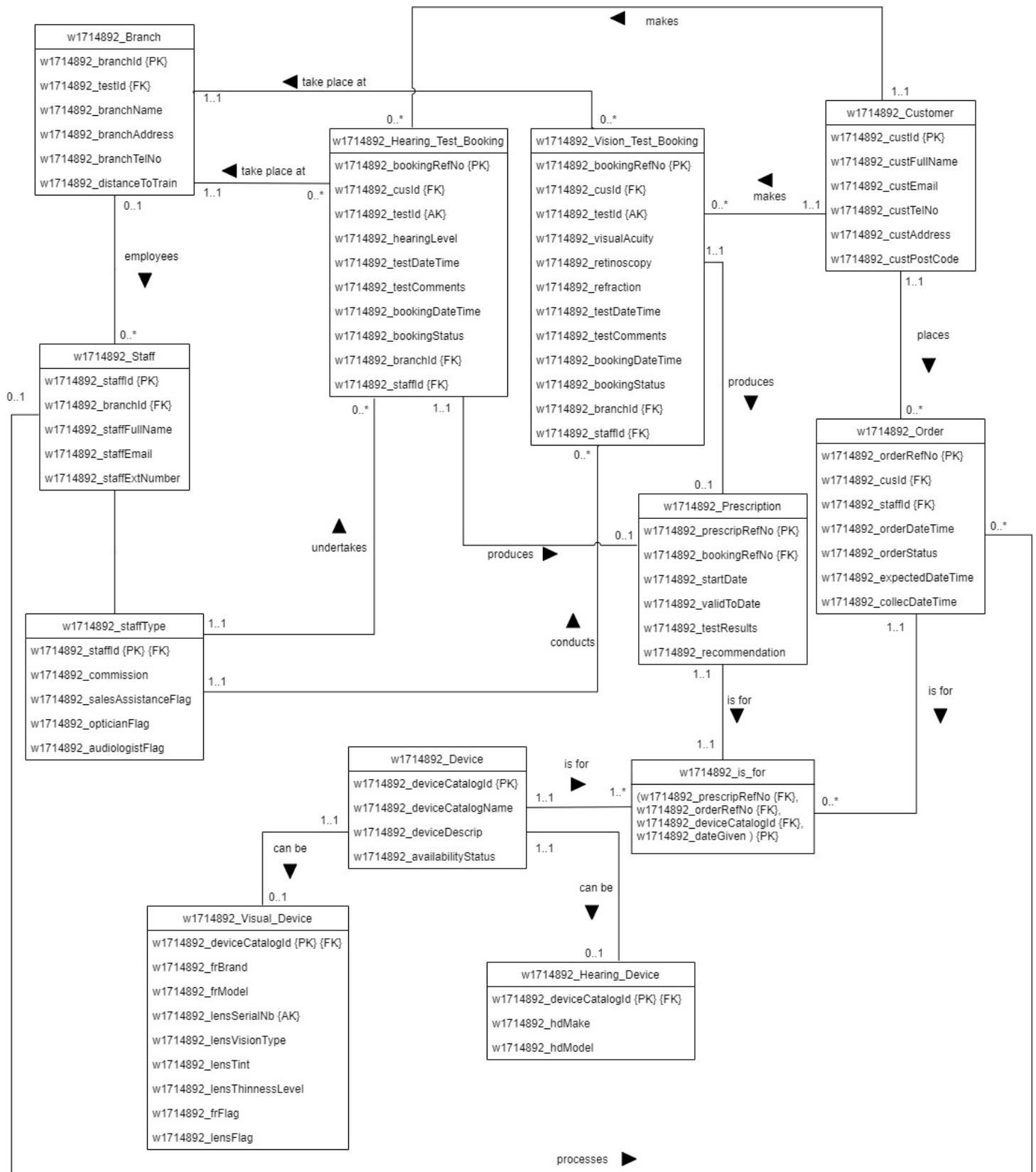
Entity name	Attributes for this entity (include PK)	Justification
w1714892_Branch	w1714892_branchId {pk}	Uniquely identifying a branch
	w1714892_branchAddress	Address of the branch
	w1714892_branchContactNb	The contact number of the branch
w1714892_Staff	w1714892_staffId {pk}	Uniquely identifying a staff member

	w1714892_staffName	Full name of the staff member
	w1714892_staffContactDetails	Contact details of the staff member
	w1714892_staffAddress	Address of the staff member
w1714892_Customer	w1714892_cusId {pk}	Uniquely identifying a customer
	w1714892_cusName	Full name of the customer
	w1714892_cusContactInformations	Contact information about the customer
	w1714892_cusAddress	Address of the customer
w1714892_Facility	w1714892_facilityId {pk}	Uniquely identifying a facility
	w1714892_facilityName	Name of the facility
	w1714892_facilityDescription	Description of the facility
w1714892_Session	w1714892_sessionId {pk}	Uniquely identifying a session
	w1714892_sessionName	Name of the session
w1714892_Counter	w1714892_counterId {pk}	Uniquely identifying a counter
	w1714892_ListOfPayments	Payment list of the Akktivation
w1714892_Personal trainer	w1714892_numberOFMembers	Number of members trained by personal trainer
w1714892_Support staff	w1714892_maintenance_date	Maintenance date when the support staff worked
	w1714892_maintenanceDescription	Description of the maintenance
w1714892_Instructor	w1714892_sessionId {fk}	Session id as a foreign key
	w1714892_Date	Working date of the instructor
w1714892_Swimming_instructor		
w1714892_Fitness_instructor		
w1714892_Fitness class	w1714892_type	Type of the fitness class
w1714892_Swimming_lesson	w1714892_description	Description of the swimming lesson
w1714892_one to one training	w1714892_trainingType	Training type of the one to one training program
w1714892_Induction	w1714892_inductionId {pk}	Uniquely identifying an induction session
	w1714892_inductionName	Name of the induction session
w1714892_Equipment	w1714892_equipmentId {pk}	Uniquely identifying an equipment

	w1714892_equipmentName	Name of the equipment
w1714892_Payment	w1714892_paymentId {pk}	Uniquely identifying a payment
	w1714892_paymentDate	date of pay
	w1714892_payment	Amount of the payment
w1714892_General_customer	w1714892_attendance	Attendance of a general customer
w1714892_Member	w1714892_membershipId	Uniquely identifying a member
	w1714892_height	Height of the member
	w1714892_weight	Weight of the member
w1714892_Swimming pool	w1714892_length	Length of the swimming pool
	w1714892_lanes	How many lanes swimming pool has
	w1714892_depth	Depth of the swimming pool
w1714892_Fitness suite	w1714892_nbOfEquipments	Number of equipment
w1714892_fitness_studio	w1714892_studioId {pk}	Uniquely identifying a fitness studio

## PART B

### 5) Logical ERD



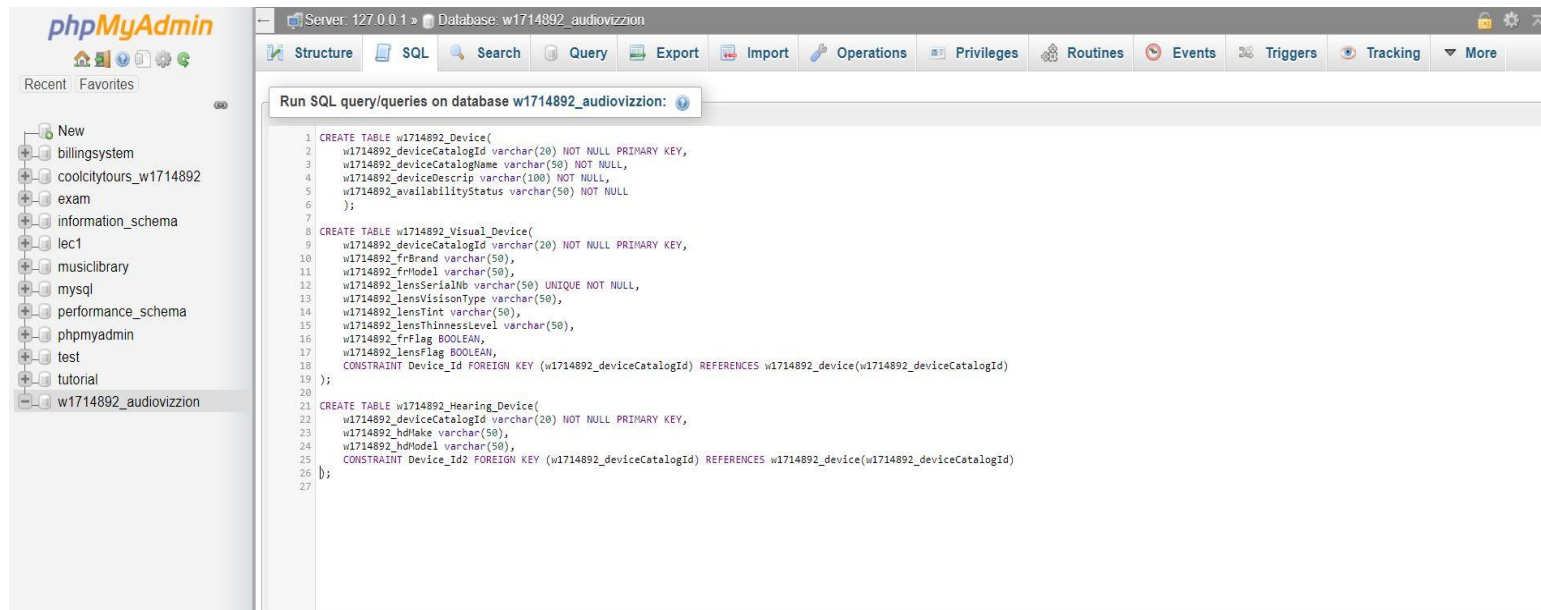
## 6) Step-by-step guide

1. Firstly, according to the Rules of Logical Data Modeling Methodology, I chose to normalize one to many relationships. In the beginning, I started to normalize the relationship between Branch and Test entities. I added Branch's primary key to the Test entity as a foreign key because of parent table on the "one" side.
2. Then I came to the relationship between Branch entity and Staff entity. I added Branche's primary key to Staff entity as the foreign key.
3. Then I considered the relationship between Booking entity and the Customer entity. I added custId to booking entity as a foreign key.
4. By following that procedure, I normalized the relationship between Customer and Order entities. I added Customer's primary key to the Order as the foreign key.
5. And also, the relationship between Staff entity and the Order entity. "One" (Staff) side primary key used as the foreign key of the "many" (Order) side. Multiplicities remained the same in all the one to many relationships.
6. According to the Rules of Logical Data Modeling Methodology, I chose to normalize one to one relationships which are mandatory on both sides. In this scenario, I chose the relationship between Test entity and the Booking entity. I merged two tables and create Test\_Booking table and choose one primary key from Booking, and the testId is the alternative key.
7. According to the Rules of Logical Data Modeling Methodology, then I considered one to one relationships which are optional on one side. There is one relationship regarding that. That is the relationship between Test entity and the Prescription entity. In this scenario, the Parent table is on the "mandatory" side (Test\_Booking). Child table on the "optional" side (Prescription). I created FK on the Prescription table as a copy of the PK of the Test\_Booking table.
8. After that, I came to ternary relationships as mentioned in the Rules of Logical Data Modeling Methodology. There were three original parent tables. (Device, prescription, Order). Then created child table linked with all parent tables with their primary keys as it's the foreign key. (All four tables) All of the is the primary key of the child table (is\_for). Multiplicities and relationships were added by their behaviour.
9. According to the Rules of Logical Data Modeling Methodology, next is the generalization with {Mandatory, And} relationships. I combined the attributes of two entities and created

one table. PK of the new table is PK of a general entity but there is no primary key in the general entity Visual\_Device. And also I used flags to differentiate between records of previous sub-entities.(frFlag, lensFlag).

10. Then I considered about generalization with {Optional, And} relationships. I created Staff and StaffType Tables and a 1:1 relationship in the Staff side and optional in the StaffType side. After that, sub-entities merged together, which becomes the Child table. PK of the StaffType table is the same as the PK of Staff table. FK of the StaffType table references PK of the Staff table. And I used flags to differentiate between records of previous sub-entities.
11. Then I considered about generalization with {Mandatory, Or} relationships. In this scenario, I created two tables which are Hearing\_Test\_Booking and Vision\_Test\_Booking. And the primary key for both tables is the primary key of Test\_Booking entity.
12. According to the list, the next is Generalization with {Optional, Or} relationships. In this scenario, I added three tables to two 1:1 relationships and optional on one side. Device entity became the parent entity. Visual\_Device and the Hearing\_Device are the sub-entities. The primary key of the sub-entities same as the primary key of the parent table. Foreign key of the Child table references the primary key of the Device table.
13. And all the relationship names between entities remained the same. Multiplicities also remained the same.

## 7) Create tables



### a) Create Device table

```
CREATE TABLE w1714892_Device(  
  
    w1714892_deviceCatalogId varchar(20) NOT NULL PRIMARY KEY,  
  
    w1714892_deviceCatalogName varchar(50) NOT NULL,  
  
    w1714892_deviceDescrip varchar(100) NOT NULL,  
  
    w1714892_availabilityStatus varchar(50) NOT NULL  
  
);
```

### b) Create Visual Device table

```
CREATE TABLE w1714892_Visual_Device(  
  
    w1714892_deviceCatalogId varchar(20) NOT NULL PRIMARY KEY,  
  
    w1714892_frBrand varchar(50),  
  
    w1714892_frModel varchar(50),  
  
    w1714892_lensSerialNb varchar(50) UNIQUE NOT NULL,  
  
    w1714892_lensVisionType varchar(50),  
  
    w1714892_lensTint varchar(50),
```

```

w1714892_lensThinnessLevel varchar(50),

w1714892_frFlag BOOLEAN,

w1714892_lensFlag BOOLEAN,

CONSTRAINT Device_Id FOREIGN KEY (w1714892_deviceCatalogId) REFERENCES
w1714892_device(w1714892_deviceCatalogId)

);

```

### c) Create Hearing Device table

```

CREATE TABLE w1714892_Hearing_Device(

w1714892_deviceCatalogId varchar(20) NOT NULL PRIMARY KEY,

w1714892_hdMake varchar(50),

w1714892_hdModel varchar(50),

CONSTRAINT Device_Id2 FOREIGN KEY (w1714892_deviceCatalogId) REFERENCES
w1714892_device(w1714892_deviceCatalogId));

```

The screenshot shows the phpMyAdmin interface for a database named 'w1714892\_audiovizzion'. The left sidebar shows a tree of databases and tables, including 'w1714892\_device', 'w1714892\_hearing\_device', and 'w1714892\_visual\_device'. The main panel displays three SQL queries and their results, all of which returned an empty result set (zero rows).

**Query 1:** CREATE TABLE w1714892\_Device( w1714892\_deviceCatalogId varchar(20) NOT NULL PRIMARY KEY, w1714892\_deviceCatalogName varchar(50) NOT NULL, w1714892\_deviceDescrip varchar(100) NOT NULL, w1714892\_availabilityStatus varchar(50) NOT NULL )

**Query 2:** CREATE TABLE w1714892\_Visual\_Device( w1714892\_deviceCatalogId varchar(20) NOT NULL PRIMARY KEY, w1714892\_frBrand varchar(50), w1714892\_frModel varchar(50), w1714892\_lensSerialNb varchar(50) UNIQUE NOT NULL, w1714892\_lensVisionType varchar(50), w1714892\_lensTint varchar(50), w1714892\_lensThinnessLevel varchar(50), w1714892\_frFlag BOOLEAN, w1714892\_lensFlag BOOLEAN, CONSTRAINT Device\_Id FOREIGN KEY (w1714892\_deviceCatalogId) REFERENCES w1714892\_device(w1714892\_deviceCatalogId) )

**Query 3:** CREATE TABLE w1714892\_Hearing\_Device( w1714892\_deviceCatalogId varchar(20) NOT NULL PRIMARY KEY, w1714892\_hdMake varchar(50), w1714892\_hdModel varchar(50), CONSTRAINT Device\_Id2 FOREIGN KEY (w1714892\_deviceCatalogId) REFERENCES w1714892\_device(w1714892\_deviceCatalogId) )



Server: 127.0.0.1 » Database: w1714892\_audiovizzion

Structure SQL Search Query Export Import Operations Privileges Routines Events Triggers Tracking More

Filters

Containing the word:

Table	Action	Rows	Type	Collation	Size	Overhead
w1714892_device	⚙️ Browse ⚙️ Structure 🔍 Search 📄 Insert 🗑️ Empty 🚫 Drop	0	InnoDB	latin1_swedish_ci	16 Kib	-
w1714892_hearing_device	⚙️ Browse ⚙️ Structure 🔍 Search 📄 Insert 🗑️ Empty 🚫 Drop	0	InnoDB	latin1_swedish_ci	16 Kib	-
w1714892_visual_device	⚙️ Browse ⚙️ Structure 🔍 Search 📄 Insert 🗑️ Empty 🚫 Drop	0	InnoDB	latin1_swedish_ci	32 Kib	-
3 tables	Sum	0	InnoDB	latin1_swedish_ci	64 Kib	0 B

Check all With selected:

Print Data dictionary

Create table

Name:  Number of columns:

Go

## 8) Insert to tables

BEGIN;

```
INSERT INTO `w1714892_device`(`w1714892_deviceCatalogId`, `w1714892_deviceCatalogName`,
`w1714892_deviceDescrip`, `w1714892_availabilityStatus`)
```

```
VALUES ('glasses1', 'Emporio Armani Ultra-Light frame', 'Brand new grey and blue ultra-light frame,
latest trend in 2019', 'In stock');
```

```
INSERT INTO `w1714892_visual_device`(`w1714892_deviceCatalogId`, `w1714892_frBrand`,
`w1714892_frModel`, `w1714892_lensSerialNb`, `w1714892_lensVisionType`, `w1714892_lensTint`,
`w1714892_lensThinnessLevel`, `w1714892_frFlag`, `w1714892_lensFlag`)
```

```
VALUES('glasses1','Emporio Armani','Empo324','','','true,true);
```

COMMIT;

Server: 127.0.0.1 » Database: w1714892\_audiovizzion

Structure SQL Search Query Export Import Operations Privileges Routines Events Triggers Tracking More

Run SQL query/queries on database w1714892\_audiovizzion:

```
1 BEGIN;
2 INSERT INTO `w1714892_device`(`w1714892_deviceCatalogId`, `w1714892_deviceCatalogName`, `w1714892_deviceDescrip`, `w1714892_availabilityStatus`)
3 VALUES ('glasses1', 'Emporio Armani Ultra-Light frame', 'Brand new grey and blue ultra-light frame, latest trend in 2019', 'In stock');
4 INSERT INTO `w1714892_visual_device`(`w1714892_deviceCatalogId`, `w1714892_frBrand`, `w1714892_frModel`, `w1714892_lensSerialNb`, `w1714892_lensVisionType`, `w1714892_lensTint`,
5 `w1714892_lensThinnessLevel`, `w1714892_frFlag`, `w1714892_lensFlag`)
6 VALUES('glasses1','Emporio Armani','Empo324','','','true,true);
7 COMMIT;
```

Clear Format Get auto-saved query

Server: 127.0.0.1 » Database: w1714892\_audiovizzion

Structure SQL Search Query Export Import Operations Privileges Routines Events Triggers Tracking More

Show query box

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0005 seconds.)

BEGIN

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0470 seconds.)

INSERT INTO `w1714892\_device`(`w1714892\_deviceCatalogId`, `w1714892\_deviceCatalogName`, `w1714892\_deviceDescrip`, `w1714892\_availabilityStatus`) VALUES ('glasses1', 'Emporio Armani Ultra-Light frame', 'Brand new grey and blue ultra-light frame, latest trend in 2019', 'In stock')

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0041 seconds.)

INSERT INTO `w1714892\_visual\_device`(`w1714892\_deviceCatalogId`, `w1714892\_frBrand`, `w1714892\_frModel`, `w1714892\_lensSerialNb`, `w1714892\_lensVisionType`, `w1714892\_lensTint`, `w1714892\_lensThinnessLevel`, `w1714892\_frFlag`, `w1714892\_lensFlag`) VALUES('glasses1','Emporio Armani','Empo324','','','true,true')

[Edit inline] [Edit] [Create PHP code]

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0288 seconds.)

COMMIT

[Edit inline] [Edit] [Create PHP code]

BEGIN;

INSERT INTO `w1714892\_device`(`w1714892\_deviceCatalogId`, `w1714892\_deviceCatalogName`, `w1714892\_deviceDescrip`, `w1714892\_availabilityStatus`)

VALUES ('glasses2','Optimo Single Vision Lens','Optimal single vision lens, 2020 style, anti-scratch and anti-shock','In stock');

INSERT INTO `w1714892\_visual\_device`(`w1714892\_deviceCatalogId`, `w1714892\_frBrand`, `w1714892\_frModel`, `w1714892\_lensSerialNb`, `w1714892\_lensVisionType`, `w1714892\_lensTint`, `w1714892\_lensThinnessLevel`, `w1714892\_frFlag`, `w1714892\_lensFlag`)

VALUES('glasses2','','','opto456321987','Single vision for short-sightedness','Clear','Ultra-thin',true,true);

COMMIT;

Server: 127.0.0.1 » Database: w1714892\_audiovizzion

Structure SQL Search Query Export Import Operations Privileges Routines Events Triggers Tracking More

Run SQL query/queries on database w1714892\_audiovizzion:

```

1 BEGIN;
2 INSERT INTO `w1714892_device`(`w1714892_deviceCatalogId`, `w1714892_deviceCatalogName`, `w1714892_deviceDescrip`, `w1714892_availabilityStatus`)
3 VALUES ('glasses2','Optimo Single Vision Lens','Optimal single vision lens, 2020 style, anti-scratch and anti-shock','In stock');
4 INSERT INTO `w1714892_visual_device`(`w1714892_deviceCatalogId`, `w1714892_frBrand`, `w1714892_frModel`, `w1714892_lensSerialNb`, `w1714892_lensVisionType`, `w1714892_lensTint`,
5 `w1714892_lensThinnessLevel`, `w1714892_frFlag`, `w1714892_lensFlag`)
6 VALUES('glasses2','','','opto456321987','Single vision for short-sightedness','Clear','Ultra-thin',true,true);
7 COMMIT;

```

phpMyAdmin

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- test
- tutorial
- w1714892\_audiovizzion
  - New
  - w1714892\_device
  - w1714892\_hearing\_device
  - w1714892\_visual\_device

Server: 127.0.0.1 » Database: w1714892\_audiovizzion

Structure SQL Search Query Export Import Operations Privileges Routines Events Triggers Tracking More

Show query box

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0005 seconds.)

```
BEGIN
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0375 seconds.)

```
INSERT INTO `w1714892_device`(`w1714892_deviceCatalogId`, `w1714892_deviceCatalogName`, `w1714892_deviceDescrip`, `w1714892_availabilityStatus`) VALUES ('glasses2','Optimo Single Vision Lens','Optimal single vision lens, 2020 style, anti-scratch and anti-shock','In stock')
```

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0437 seconds.)

```
INSERT INTO `w1714892_visual_device`(`w1714892_deviceCatalogId`, `w1714892_frBrand`, `w1714892_frModel`, `w1714892_lensSerialNb`, `w1714892_lensVisionType`, `w1714892_lensTint`, `w1714892_lensThinnessLevel`, `w1714892_frFlag`, `w1714892_lensFlag`) VALUES('glasses2','','opto456321987','Single vision for short-sightedness','Clear','Ultra-thin',true,true)
```

[Edit inline] [Edit] [Create PHP code]

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0401 seconds.)

```
COMMIT
```

[Edit inline] [Edit] [Create PHP code]

BEGIN;

INSERT INTO `w1714892\_device`(`w1714892\_deviceCatalogId`, `w1714892\_deviceCatalogName`,  
`w1714892\_deviceDescrip`, `w1714892\_availabilityStatus`)

VALUES('Support hearing1','Phono Titanium Digital Hearing Aid','Ultra-sensitive digital hearing aid,  
adjustable through an App','Currently being ordered');

INSERT INTO `w1714892\_hearing\_device`(`w1714892\_deviceCatalogId`, `w1714892\_hdMake`,  
`w1714892\_hdModel`)

VALUES('Support hearing1','Phono Titanium','Phono2021');

COMMIT;

phpMyAdmin

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- tutorial

Server: 127.0.0.1 » Database: w1714892\_audiovizzion

Structure SQL Search Query Export Import Operations Privileges Routines Events Triggers Tracking More

Run SQL query/queries on database w1714892\_audiovizzion:

```
1 BEGIN;
2 INSERT INTO `w1714892_device`(`w1714892_deviceCatalogId`, `w1714892_deviceCatalogName`, `w1714892_deviceDescrip`, `w1714892_availabilityStatus`)
3 VALUES('Support hearing1','Phono Titanium Digital Hearing Aid','Ultra-sensitive digital hearing aid, adjustable through an App','Currently being ordered');
4 INSERT INTO `w1714892_hearing_device`(`w1714892_deviceCatalogId`, `w1714892_hdMake`, `w1714892_hdModel`)
5 VALUES('Support hearing1','Phono Titanium','Phono2021');
6 COMMIT;
```

Clear Format Get auto-saved query

phpMyAdmin

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- tutorial
- w1714892\_audiovizzion
  - New
  - w1714892\_device
  - w1714892\_hearing\_device
  - w1714892\_visual\_device

Server: 127.0.0.1 » Database: w1714892\_audiovizzion

Structure | SQL | Search | Query | Export | Import | Operations | Privileges | Routines | Events | Triggers | Tracking | More

Show query box

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0004 seconds.)

BEGIN

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0366 seconds.)

INSERT INTO `w1714892\_device` (`w1714892\_deviceCatalogId`, `w1714892\_deviceCatalogName`, `w1714892\_deviceDescrip`, `w1714892\_availabilityStatus`) VALUES ('Support hearing1', 'Phono Titanium Digital Hearing Aid', 'Ultra-sensitive digital hearing aid, adjustable through an App', 'Currently being ordered')

[Edit inline] [Edit] [Create PHP code]

✓ 1 row inserted. (Query took 0.0043 seconds.)

INSERT INTO `w1714892\_hearing\_device` (`w1714892\_deviceCatalogId`, `w1714892\_hdMake`, `w1714892\_hdModel`) VALUES ('Support hearing1', 'Phono Titanium', 'Phono2021')

[Edit inline] [Edit] [Create PHP code]

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0265 seconds.)

COMMIT

[Edit inline] [Edit] [Create PHP code]

## a) Device table

phpMyAdmin

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- tutorial
- w1714892\_audiovizzion
  - New
  - w1714892\_device
  - w1714892\_hearing\_device
  - w1714892\_visual\_device

Server: 127.0.0.1 » Database: w1714892\_audiovizzion » Table: w1714892\_device

Browse | Structure | SQL | Search | Insert | Export | Import | Privileges | Operations | Tracking | Triggers

✓ Showing rows 0 - 2 (3 total, Query took 0.0022 seconds.)

SELECT \* FROM `w1714892\_device`

Profiling [Edit inline] [Edit] [Explain SQL] [ ]

☐ Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

+ Options

	w1714892_deviceCatalogId	w1714892_deviceCatalogName	w1714892_deviceDescrip	w1714892_availabilityStatus
<input type="checkbox"/> Edit Copy Delete	glasses1	Emporio Armani Ultra-Light frame	Brand new grey and blue ultra-light frame, latest ...	In stock
<input type="checkbox"/> Edit Copy Delete	glasses2	Optimo Single Vision Lens	Optimal single vision lens, 2020 style, anti-scrat...	In stock
<input type="checkbox"/> Edit Copy Delete	Support hearing1	Phono Titanium Digital Hearing Aid	Ultra-sensitive digital hearing aid, adjustable th...	Currently being ordered

☐ Check all | With selected: Edit Copy Delete Export

☐ Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

Query results operations

Print Copy to clipboard Export Display chart Create view



## b) Hearing Device table

phpMyAdmin

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- exam
- information\_schema
- lec1
- musiclibrary
- mysql
- performance\_schema
- phpmyadmin
- test
- tutorial
- w1714892\_audiovizzion

Server: 127.0.0.1 » Database: w1714892\_audiovizzion » Table: w1714892\_hearing\_device

Browse Structure SQL Search Insert Export Import Privileges

Showing rows 0 - 0 (1 total, Query took 0.0021 seconds.)

```
SELECT * FROM `w1714892_hearing_device`
```

Show all Number of rows: 25 Filter rows: Search this table

+ Options

	w1714892_deviceCatalogId	w1714892_hdMake	w1714892_hdModel
<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	Support hearing1	Phono Titanium	Phono2021

Check all With selected: Edit Copy Delete Export

## c) Visual Device table

Server: 127.0.0.1 » Database: w1714892\_audiovizzion » Table: w1714892\_visual\_device

Browse Structure SQL Search Insert Export Import Privileges Operations Tracking Triggers

rows 0 - 1 (2 total, Query took 0.0033 seconds.)

```
"w1714892_visual_device"
```

all Number of rows: 25 Filter rows: Search this table Sort by key: None

	w1714892_deviceCatalogId	w1714892_frBrand	w1714892_frModel	w1714892_lensSerialNb	w1714892_lensVisionType	w1714892_lensTint	w1714892_lensThicknessLevel	w1714892_frFlag	w1714892_lensFlag
<input type="checkbox"/> Copy <input type="checkbox"/> Delete	glasses1	Emporio Armani	Empo324					1	1
<input type="checkbox"/> Copy <input type="checkbox"/> Delete	glasses2			opto456321987	Single vision for short-sightedness	Clear	Ultra-thin	1	1

Check all With selected: Edit Copy Delete Export

## 9) Interfaces

### a) Device Table

← → ↻ 🏠 ⓘ localhost/cw/Device.php

Apps

Device   Hearing Device   Visual Device

## Device

Please fill in this form to insert data.

**Device Catalog Id:**

glasses3

**Device Catalog Name:**

Vision care

**Device Description:**

Brand new red and purple ultra-light frame, latest trend in 2018

**Availability Status:**

coming soon

submit

← → ↻ 🏠 ⓘ localhost/cw/InsertDevice.php

Apps

Inserted

phpMyAdmin

Server: 127.0.0.1 » Database: w1714892\_audiovizzion » Table: w1714892\_device

Showing rows 0 - 3 (4 total. Query took 0.0012 seconds.)

SELECT \* FROM `w1714892\_device`

Number of rows: 25 Filter rows: Search this table Sort by key: None

	w1714892_deviceCatalogId	w1714892_deviceCatalogName	w1714892_deviceDescrip	w1714892_availabilityStatus
<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	glasses3	Vision care	Brand new red and purple ultra-light frame, latest...	coming soon
<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	glasses1	Emporio Armani Ultra-Light frame	Brand new grey and blue ultra-light frame, latest...	In stock
<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	glasses2	Optimo Single Vision Lens	Optimal single vision lens, 2020 style, anti-scrat...	In stock
<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	Support hearing1	Phono Titanium Digital Hearing Aid	Ultra-sensitive digital hearing aid, adjustable th...	Currently being ordered

Check all With selected: Edit Copy Delete Export

Number of rows: 25 Filter rows: Search this table Sort by key: None

- Device.php

```

<!Doctype html>
<html>
<head>
  <title>Insert data in to Device</title>
  <style>
    * {box-sizing: border-box}

body {
  font-family: Arial, Helvetica, sans-serif;
  background-color: #ebebe0;
}

* {
  box-sizing: border-box;
}
/* Add padding to containers */
.container {
  padding: 16px;
  background-color: white;
}

/* Full-width input fields */
input[type=text] {
  width: 40%;
  padding: 15px;
  margin: 5px 0 22px 0;

```

```

display: inline-block;
border: none;
background: #b3e6ff;
}

input[type=text]:focus {
  background-color: #ddd;
  outline: none;
}

/* Overwrite default styles of hr */
hr {
  border: 1px solid #f1f1f1;
  margin-bottom: 25px;
}

/* Set a style for the submit/register button */
.submitbtn {
  background-color: #00779e;
  color: white;
  padding: 16px 20px;
  margin: 8px 455px;
  border: none;
  cursor: pointer;
  width: 10%;
  opacity: 0.9;
  font-size: 20px;
}

.submitbtn:hover {
  opacity: 1;
}

/* Add a blue text color to links */
a {
  color: dodgerblue;
}

/*nav bar*/
ul {
  list-style-type: none;
  margin: 0;
  padding: 0;
  overflow: hidden;
  background-color: #333;
}

li {

```



```

float: left;
}

li a {
display: block;
color: white;
text-align: center;
padding: 14px 16px;
text-decoration: none;
}

li a:hover {
background-color: #111;
}

</style>

</head>

<body>

<ul>
<li><a class="active" href="http://localhost/cw/Device.php">Device</a></li>
<li><a href="http://localhost/cw/Hearing_Device.php">Hearing Device</a></li>
<li><a href="http://localhost/cw/Visual_Device.php">Visual Device</a></li>
</ul>

<form action="insertDevice.php" method="post">
<div calss="container">
<h1>Device</h1>
<p>Please fill in this form to insert data.</p>
<hr>
<!-- <div class="center"> -->
<label for="deviceCatalogId"><b>Device Catalog Id:</b></label>
<br>
<input type="text" name="deviceCatalogId">
<br>

<label for="deviceCatalogName"><b>Device Catalog Name:</b></label>
<br>
<input type="text" name="deviceCatalogName" >
<br>

<label for="deviceDescription"><b>Device Description:</b></label>
<br>
<input type="text" name="deviceDescription" >
<br>

```

```

<label for="availabilityStatus"><b>Availability Status:</b></label>
<br>
<input type="text" name="availabilityStatus" >
<br>

    <br>
    <input type="submit" class="submitbtn" name="submit" value="submit">
<!-- </div> -->
</div>
</form>

    </body>
</html>

```

- insertDevice.php

```

<?php
if (isset($_POST['submit'])){
    $deviceCatalogId = $_POST ['deviceCatalogId'];
    $deviceCatalogName = $_POST['deviceCatalogName'];
    $deviceDescription = $_POST ['deviceDescription'];
    $availabilityStatus = $_POST['availabilityStatus'];

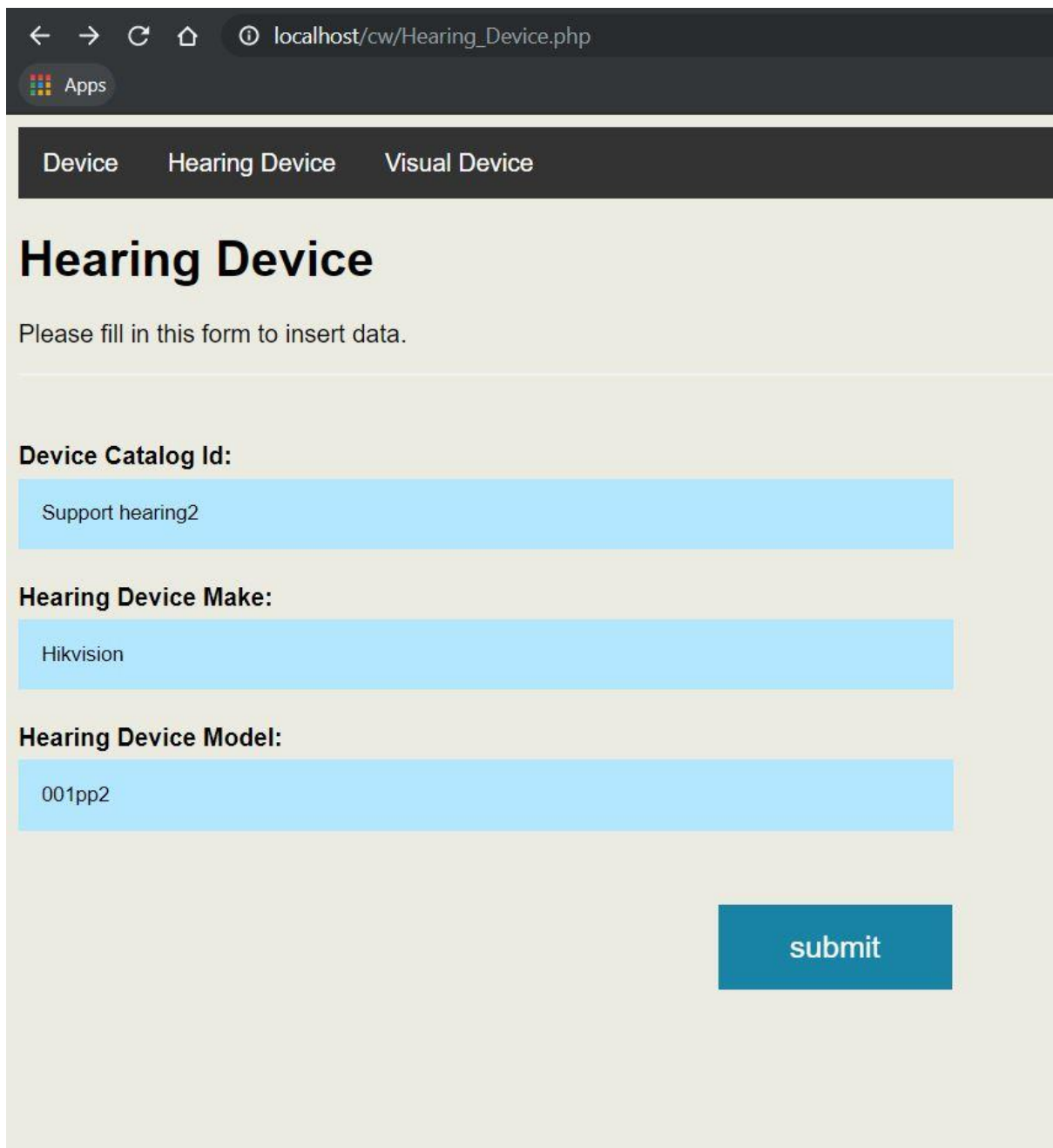
    // Create connection
    $dbconnect = mysqli_connect('localhost','root','','w1714892_audiovizzion');

    $sql = mysqli_query($dbconnect, "insert into w1714892_device(w1714892_deviceCa
atalogId,w1714892_deviceCatalogName,w1714892_deviceDescrip,w1714892_availabilit
yStatus)
values(' $deviceCatalogId','$deviceCatalogName','$deviceDescription','$availab
ilityStatus')");

    if($sql){
        echo "Inserted";
    }
    else{
        echo "Error";
    }
}
?>

```

## b) Hearing Device table



localhost/cw/Hearing\_Device.php

Apps

Device Hearing Device Visual Device

# Hearing Device

Please fill in this form to insert data.

**Device Catalog Id:**

Support hearing2

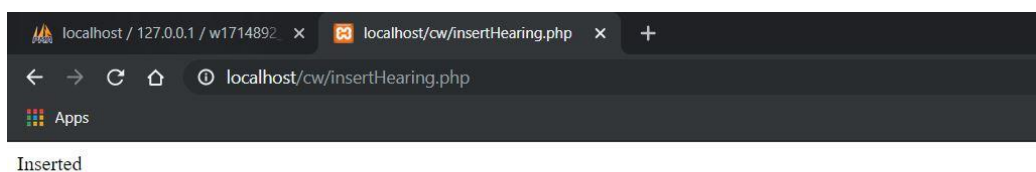
**Hearing Device Make:**

Hikvision

**Hearing Device Model:**

001pp2

submit



- Hearing\_Device.php

```
<!Doctype html>
<html>
<head>
  <title>Insert data in to Hearing Device</title>
  <style>
    * {box-sizing: border-box}

body {
  font-family: Arial, Helvetica, sans-serif;
  background-color: #ebebe0;
}

* {
  box-sizing: border-box;
}
/* Add padding to containers */
.container {
  padding: 16px;
  background-color: white;
}

/* Full-width input fields */
input[type=text] {
  width: 40%;
  padding: 15px;
  margin: 5px 0 22px 0;
  display: inline-block;
  border: none;
  background: #b3e6ff;
}

input[type=text]:focus {
  background-color: #ddd;
  outline: none;
}

/* Overwrite default styles of hr */
hr {
  border: 1px solid #f1f1f1;
  margin-bottom: 25px;
}

/* Set a style for the submit/register button */
.submitbtn {
  background-color: #00779e;
  color: white;
```

```

padding: 16px 20px;
margin: 8px 455px;
border: none;
cursor: pointer;
width: 10%;
opacity: 0.9;
font-size: 20px;
}

.submitbtn:hover {
  opacity: 1;
}

/* Add a blue text color to links */
a {
  color: dodgerblue;
}

/*nav bar*/
ul {
  list-style-type: none;
  margin: 0;
  padding: 0;
  overflow: hidden;
  background-color: #333;
}

li {
  float: left;
}

li a {
  display: block;
  color: white;
  text-align: center;
  padding: 14px 16px;
  text-decoration: none;
}

li a:hover {
  background-color: #111;
}

</style>
</head>

<body>

```

```

<ul>
<li><a href="http://localhost/cw/Device.php">Device</a></li>
<li><a class="active" href="http://localhost/cw/Hearing_Device.php">Hearing
Device</a></li>
<li><a href="http://localhost/cw/Visual_Device.php">Visual Device</a></li>
</ul>

<form action="insertHearing.php" method="post">
<div calss="container">
<h1>Hearing Device</h1>
<p>Please fill in this form to insert data.</p>
<hr>
<br>
<label for="deviceCatalogId"><b>Device Catalog Id:</b></label>
<br>
<input type="text" name="deviceCatalogId">
<br>

<label for="hdMake"><b>Hearing Device Make:</b></label>
<br>
<input type="text" name="hdMake" >
<br>

<label for="hdModel"><b>Hearing Device Model:</b></label>
<br>
<input type="text" name="hdModel" >
<br>

<br>
<input type="submit" class="submitbtn" name="submit" value="submit">
</div>
</div>
</form>

</body>
</html>

```

- insertHearing.php

```

<?php
if (isset($_POST['submit'])){
    $deviceCatalogId = $_POST ['deviceCatalogId'];
    $hdMake = $_POST['hdMake'];
    $hdModel = $_POST ['hdModel'];

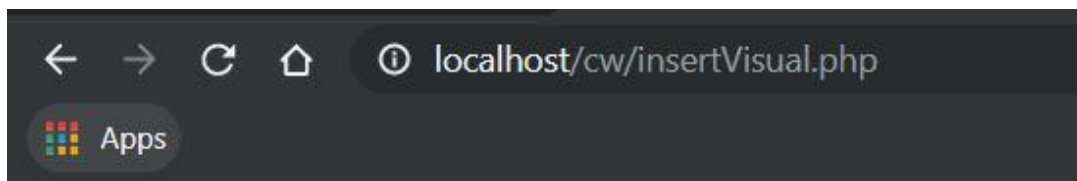
    // Create connection
    $dbconnect = mysqli_connect('localhost','root','','w1714892_audiovizzion');

```

```
$sql = mysqli_query($dbconnect, "insert into w1714892_hearing_device(w1714892_
deviceCatalogId,w1714892_hdMake,w1714892_hdModel)
values('$deviceCatalogId','$hdMake','$hdModel')");

if($sql){
    echo "Inserted";
}
else{
    echo "Error";
}
}
?>
```

c) Visual Device table



Device

Hearing Device

Visual Device

## Visual Device

Please fill in this form to insert data.

**Device Catalog Id:**

glasses3

**Frame Brand:**

Apple

**Frame Model:**

ModelX

**Lens Serial Number:**

123asd

**Lens Vision Type:**

**Lens Tint:**

**Lens Thickness Level:**

12nm

**Frame Flag:**

true

**Lens Flag:**

true

submit



Server: 127.0.0.1 » Database: w1714892\_audiovizzion » Table: w1714892\_visual\_device

vs 0 - 2 (3 total, Query took 0.0012 seconds)

1714892\_visual\_device

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Number of rows: 25 Filter rows: Search this table Sort by key: None

	w1714892_deviceCatalogId	w1714892_frBrand	w1714892_frModel	w1714892_lensSerialNb	w1714892_lensVisionType	w1714892_lensTint	w1714892_lensThinnessLevel	w1714892_frFlag	w1714892_lensFlag
Copy Delete	glasses3	Apple	ModelX	123asd			12nm	0	0
Copy Delete	glasses1	Emporio Armani	Empo324					1	1
Copy Delete	glasses2			opto456321987	Single vision for short-sightedness	Clear	Ultra-thin	1	1

- Visual\_Device.php

```

<!DOCTYPE html>
<html>
<head>
  <title>Insert data in to Visual Device</title>
  <style>
    * {box-sizing: border-box}

body {
  font-family: Arial, Helvetica, sans-serif;
  background-color: #ebebe0;
}

* {
  box-sizing: border-box;
}
/* Add padding to containers */
.container {
  padding: 16px;
  background-color: white;
}

/* Full-width input fields */
input[type=text] {
  width: 40%;
  padding: 15px;
  margin: 5px 0 22px 0;
  display: inline-block;
  border: none;
  background: #b3e6ff;
}

input[type=text]:focus {
  background-color: #ddd;

```

```

    outline: none;
}

/* Overwrite default styles of hr */
hr {
    border: 1px solid #f1f1f1;
    margin-bottom: 25px;
}

/* Set a style for the submit/register button */
.submitbtn {
    background-color: #00779e;
    color: white;
    padding: 16px 20px;
    margin: 8px 455px;
    border: none;
    cursor: pointer;
    width: 10%;
    opacity: 0.9;
    font-size: 20px;
}

.submitbtn:hover {
    opacity: 1;
}

/* Add a blue text color to links */
a {
    color: dodgerblue;
}

/*nav bar*/
ul {
    list-style-type: none;
    margin: 0;
    padding: 0;
    overflow: hidden;
    background-color: #333;
}

li {
    float: left;
}

li a {
    display: block;
    color: white;
    text-align: center;

```

```

padding: 14px 16px;
text-decoration: none;
}

li a:hover {
    background-color: #111;
}
</style>
</head>

<body>
<ul>
    <li><a href="http://localhost/cw/Device.php">Device</a></li>
    <li><a href="http://localhost/cw/Hearing_Device.php">Hearing Device</a></li>
    <li><a class="active" href="http://localhost/cw/Visual_Device.php">Visual De
vice</a></li>
</ul>

<form action="insertVisual.php" method="post">
<div calss="container">
    <h1>Visual Device</h1>
    <p>Please fill in this form to insert data.</p>
    <hr>
    <label for="deviceCatalogId"><b>Device Catalog Id:</b></label>
    <br>
    <input type="text" name="deviceCatalogId">
    <br>
    <label for="frBrand"><b>Frame Brand:</b></label>
    <br>
    <input type="text" name="frBrand" >
    <br>
    <label for="frModel"><b>Frame Model:</b></label>
    <br>
    <input type="text" name="frModel" >
    <br>
    <label for="lensSerialNb"><b>Lens Serial Number:</b></label>
    <br>
    <input type="text" name="lensSerialNb" >
    <br>
    <label for="lensVisionType"><b>Lens Vision Type:</b></label>
    <br>
    <input type="text" name="lensVisionType" >
    <br>
    <label for="lensTint"><b>Lens Tint:</b></label>
    <br>
    <input type="text" name="lensTint" >
    <br>

```

```

<label for="lensThinnessLevel"><b>Lens Thiness Level:</b></label>
<br>
<input type="text" name="lensThinnessLevel" >
<br>
<label for="frFlag"><b>Frame Flag:</b></label>
<br>
<input type="text" name="frFlag" >
<br>
<label for="lensFlag"><b>Lens Flag:</b></label>
<br>
<input type="text" name="lensFlag" >
<br>
<br>
<input type="submit" class="submitbtn" name="submit" value="submit">
</div>
</form>

</body>
</html>

```

- insertVisual.php

```

<?php
if (isset($_POST['submit'])){
    $deviceCatalogId = $_POST ['deviceCatalogId'];
    $frBrand = $_POST['frBrand'];
    $frModel = $_POST ['frModel'];
    $lensSerialNb = $_POST['lensSerialNb'];
    $lensVisionType = $_POST['lensVisionType'];
    $lensTint = $_POST['lensTint'];
    $lensThinnessLevel = $_POST['lensThinnessLevel'];
    $frFlag = $_POST['frFlag'];
    $lensFlag = $_POST['lensFlag'];

    // Create connection
    $dbconnect = mysqli_connect('localhost','root','','w1714892_audiovizzion');

    $sql = mysqli_query($dbconnect,"insert into w1714892_visual_device(w1714892_de
viceCatalogId,w1714892_frBrand,w1714892_frModel,w1714892_lensSerialNb,w1714892
_lensVisionType,w1714892_lensTint,w1714892_lensThinnessLevel,w1714892_frFlag,w
1714892_lensFlag)
values(' $deviceCatalogId','$frBrand','$frModel','$lensSerialNb','$lensVisionT
ype','$lensTint','$lensThinnessLevel','$frFlag','$lensFlag')");
}

```

```
if($sql){
    echo "Inserted";
}
else{
    echo "Error";
}
}
?>
```

## 10) References

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