



INFORMATICS
INSTITUTE OF
TECHNOLOGY

UNIVERSITY OF
WESTMINSTER

Database System Coursework Part A+B

Module: 5COSC020W

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Tutorial Group : **K-L5**

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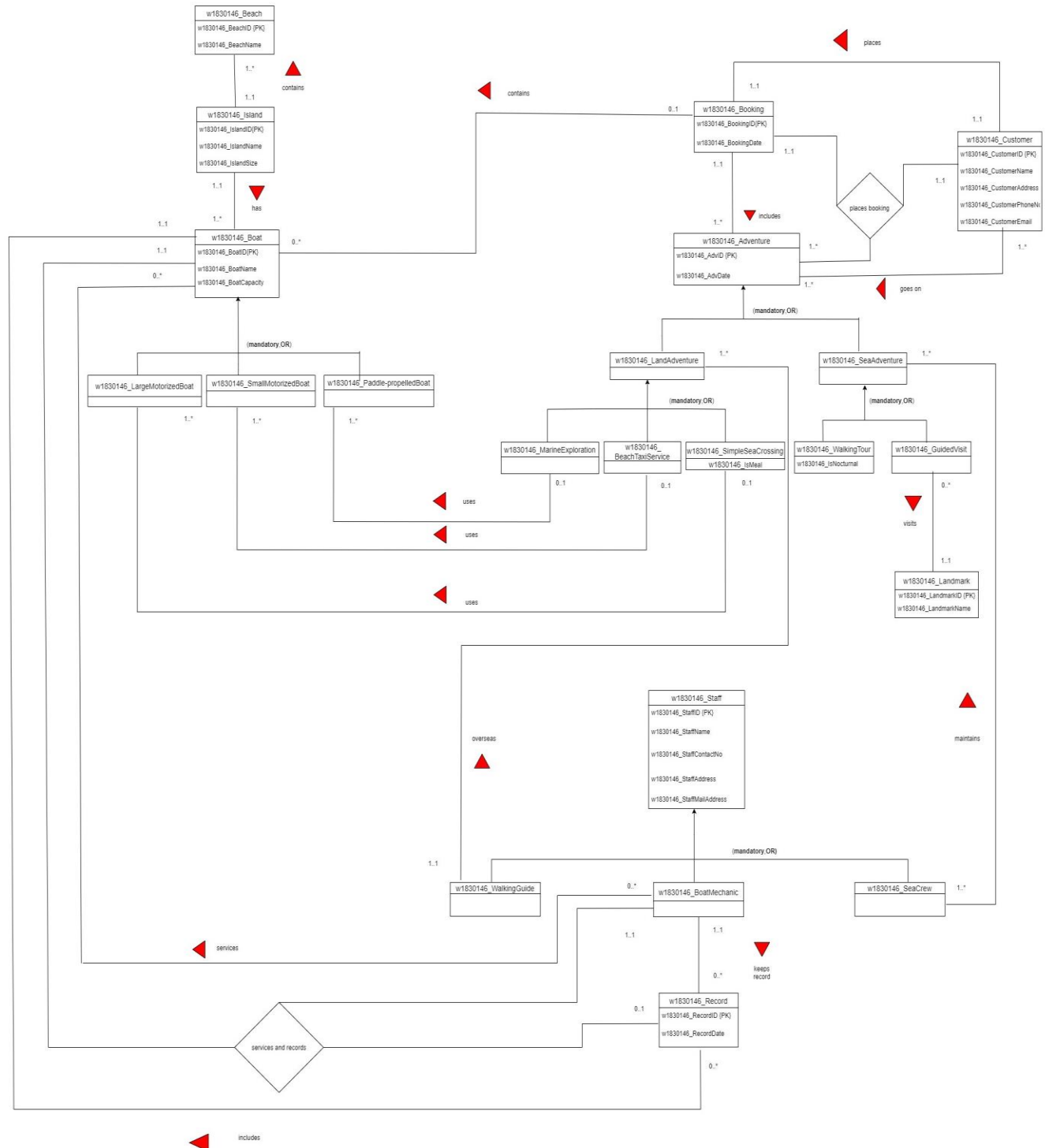
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1. Conceptual ERD



2. Data Dictionary

Entity name	Brief Description
1. W1830146_Adventure	General term explaining all types of activities that can be done at ArchipelagoCrazy Company
2. W1830146_LandAdventure	General term explaining the tours that are done on land
3. w1830146_SeaAdventure	General term explaining the tours that can be done on sea
4. W1830146_WalkingTour	General term explaining all the walking tours that are facilitated by the ArchipelagoCrazy Company
5. W1830146_GuidedVisit	General term explaining all the guided visits that are facilitated by the ArchipelagoCrazy Company
6. W1830146_MarineExploration	General term explaining the sea tours used to explore an island locally and access the remote bays and creeks
7. W1830146_BeachTaxiService	General term explaining the sea tours used to travel to the main beautiful beaches
8. W1830146_SimpleSeaCrossing	General term explaining sea tours to carry people from the mainland to the islands and also between different islands
9. W1830146_Boat	General term explaining the boats used in sea adventures
10. W1830146_LargeMotorizedBoat	General term explaining all the boats used for simple sea crossings
11. W1830146_SmallMotorizedBoat	General term explaining all the boats used for Beach Taxi Services
12. W1830146_Paddle-propelledBoat	General term explaining the boats used for Marine Explorations
13. W1830146_Island	General term explaining the twelve islands in which customers travel.
14. W1830146_Beach	General term explaining the coasts that can be seen in the islands
15. W1830146_Staff	General term explaining all the employees working on ArchipelagoCrazy Company
16. W1830146_BoatMechanic	General term explaining the employees who are responsible for boat maintenance
17. W1830146_WalkingGuide	General term explaining the employees who oversee the Land Adventures

18. W1830146_SeaCrew	General term explaining the employees who help organize and manage the Sea Adventures
19. W1830146_Record	General term explaining the service record details of all the watercrafts used at ArchipelagoCrazy
20. W1830146_Customer	General term explaining the customers dealing with ArchipelagoCrazy Company
21. w1830146_Landmark	General term explaining the special places/landmarks found on an island
22. W1830146_Booking	General term explaining all the reservations/bookings made by the customers at ArchipelagoCrazy Company

General entity	Specialized entity	Brief Explanation
W1830146_Adventure	W1830146_LandAdventure	General term explaining the tours that are done on land
	W1830146_SeaAdventure	General term explaining the tours that can be done on sea
W1830146_LandAdventure	W1830146_WalkingTour	General term explaining all the walking tours that are facilitated by the ArchipelagoCrazy Company
	W1830146_GuidedVisit	General term explaining all the guided visits that are facilitated by the ArchipelagoCrazy Company
W1830146_SeaAdventure	W1830146_SimpleSeaCrossing	General term explaining sea tours to carry people from the mainland to the islands and also between different islands

	W1830146_BeachTaxiService	General term explaining sea tours used to travel to the main beautiful beaches
	W1830146_MarineExploration	General term explaining sea tours to explore an island locally and access the remote bays and creeks
W1830146_Boat	W1830146_LargeMotorizedBoat	General term explaining all the boats used for simple sea crossings
	W1830146_SmallMotorizedBoat	General term explaining all the boats used for Beach Taxi Services
	W1830146_Paddle-propelledBoat	General term explaining the boats used for Marine Explorations
W1830146_Staff	W1830146_SeaCrew	General term explaining the employees who help organize and manage the Sea Adventures
	W1830146_WalkingGuide	General term explaining the employees who oversee the Land Adventures
	W1830146_BoatMechanic	General term explaining the employees who are responsible for boat maintenance

3.Entities and Relationships

Entity name	Multiplicity	Relationship	Multiplicity	Entity name	Brief justifications for the multiplicity (4 statements for each relationship)
Ternary relationships					
1. w1830146_Customer	1..1	places booking	1..1	w1830146_Booking	One customer may place at least one booking for one adventure
			1..*	w1830146_Adventure	One customer may place one booking for many adventures
w1830146_Booking	1..1	places booking	1..1	w1830146_Customer	One booking may be placed by at least one customer for one adventure
			1..*	w1830146_Adventure	One booking may be placed by one customer for many adventures
w1830146_Adventure	1..*	places booking	1..1	w1830146_Customer	One adventure may be booked by at least one customer in one booking
			1..1	w1830146_Booking	One adventure may be booked by one customer in at least one booking
2. w1830146_Boat	1..1	services and records	1..1	w1830146_BoatMechanic	One boat may not be serviced and recorded by at least one boat mechanic in any record
			0..1	w1830146_Record	One boat may be serviced and recorded by one mechanic in one record
w1830146_BoatMechanic	1..1	services and records	1..1	w1830146_Boat	One boat mechanic may not service and record at least one boat in any record
			0..1	w1830146_Record	One boat mechanic may service and record one boat in one record

w1830146_Record	0..1	services and records	1..1	w1830146_BoatMechanic	One record may be recorded by at least one mechanic for one boat
			1..1	w1830146_Boat	One record may be recorded by one mechanic for one boat
Binary relationships					
3. w1830146_Booking	1..1	includes	1..*	w1830146_Adventure	One booking may at least include one adventure
					One booking may include many adventures
					At least one adventure may be included in one booking
					Maximum One adventure may be included in one booking
4. w1830146_Customer	1..1	places	1..1	w1830146_Booking	One customer may place at least one booking
					One customer may place maximum one booking
					One booking may be placed by at least one customer
					One booking may be placed by maximum one customer
5. w1830146_Customer	1..*	Goes on	1..*	w1830146_Adventure	One customer may go on at least one adventure
					One customer may go on any adventures
					One adventure may be gone by at least one customer
					One adventure may be gone by many customers
6. w1830146_MarineExploration	0..1	uses	1..*	w1830146_Paddle-propelledBoat	One marine exploration may at least use one paddle-propelled boat
					One marine exploration may use many paddle-propelled boats
					One paddle-propelled boat may not be used in any marine exploration
					One paddle-propelled boat may be maximum

					used in one marine exploration
7. w1830146_BeachTaxiService	0..1	uses	1..*	w1830146_SmallMotorizedBoat	One beach taxi service may at least use one small motorized boat
					One beach taxi service may use many small motorized boats
					One small motorized boat may not be used in any beach taxi service
					One small motorized boat may be used maximum in one beach taxi service
8. w1830146_SimpleSeaCrossing	0..1	uses	1..*	w1830146_LargeMotorizedBoat	One simple sea crossing may at least use one large motorized boat
					One simple sea crossing may use many large motorized boats
					One large motorized boat may not be used in any simple sea crossing
					One large motorized boat may be used in maximum one simple sea crossing
9. w1830146_Island	1..1	has	1..*	w1830146_Boat	One island may have at least one boat
					One island may have many boats
					One boat may be found on at least one island
					One boat may be maximum found on one island
10. w1830146_Island	1..1	contains	1..*	w1830146_Beach	One island may contain at least one beach
					One island may contain many beaches
					One beach may be included at least in one island
					One beach may be maximum included in one island

11. w1830146_WalkingGuide	1..1	oversees	1..*	w1830146_LandAdventure	One walking guide may at least oversee one land adventure
					One walking guide may oversee many land adventures
					One land adventure may be over seen by at least one walking guide
					One land adventure may be over seen by maximum one walking guide
12 . w1830146_SeaCrew	1..*	maintains	1..*	w1830146_SeaAdventure	One sea crew member may at least maintain one sea adventure
					One sea crew member may maintain many sea adventures
					One sea adventure may be maintained by at least one sea crew member
					One sea adventure may be maintained by many sea crew members
13. w1830146_BoatMechanic	1..1	Keeps record	0..*	w1830146_Record	One boat mechanic may not keep any service record
					One boat mechanic may keep many service records
					One service record may be at least kept by one boat mechanic
					One service record may be maximum kept by one mechanic
14. w1830146_Record	0..*	includes	1..1	w1830146_Boat	One record may include at least one boat
					One record may include maximum one boat
					One boat may not be included in any record
					One boat may be included in many records

15. w1830146_BoatMechanic	0..*	maintains	0..*	w1830146_Boat	One boat mechanic may not service any boat
					One boat mechanic may service many boats
					One boat may not be serviced by any mechanic
					One boat may be serviced by many mechanics
16. w1830146_Booking	0..1	contains	0..*	w1830146_Boat	One booking may not contain any boat
					One booking may contain many boats
					One boat may not contain in any booking
					One boat may contain maximum in one booking
17. w1830146_GuidedVisit	0..*	visits	1..1	w1830146_Landmark	One guided visit may visit at least one landmark
					One guided visit may visit maximum one landmark
					One landmark may not be visited in any guided visit
					One landmark will be visited in many guided visits

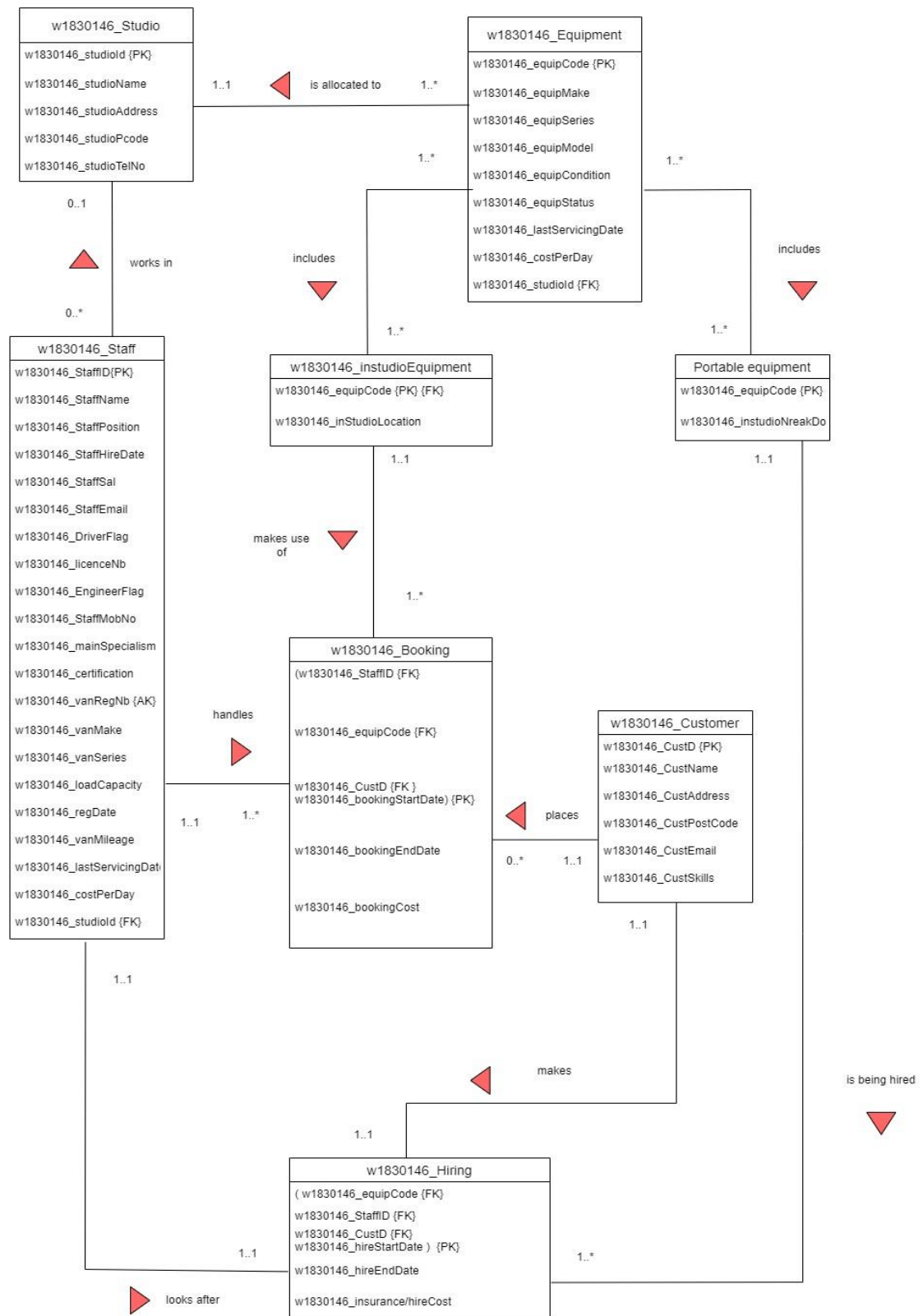
4. Attributes and Primary keys

Entity name	Attributes for this entity (include PK)	Justification
w1830146_Customer	w1830146_CustomerID {PK}	Unique key to identify a customer of ArchipelagoCrazy
	w1830146_CustomerName	Name of the customer
	w1830146_CustomerAddress	Address of the customer
	w1830146_CustomerPhoneNo	Contact number of the customer
	w1830146_CustomerEmail	e-mail address of the customer
w1830146_Booking	w1830146_BookingID {PK}	Unique key of identifying a booking at ArchipelagoCrazy
	w1830146_BookingDate	Date on which the booking is placed
w1830146_Adventure	w1830146_AdvID {PK}	Unique key of identifying an adventure at ArchipelagoCrazy
	w1830146_AdvDate	Date on which the adventure is planned to take place
w1830146_SimpleSeaCrossing	w1830146_IsMeal	States the availability(yes or no) of a meal on board if required
w1830146_WalkingTour	w1830146_IsNocturnal	States the time of the day (day or night) in which the walking tour takes place
w1830146_Landmark	w1830146_LandmarkID {PK}	Unique key of identifying a landmark on an island
	w1830146_LandmarkName	Name of the landmark
w1830146_Boat	w1830146_BoatID{PK}	Unique key of identifying a boat at ArchipelagoCrazy
	w1830146_BoatName	Name of the boat
	w1830146_BoatCapacity	Number of maximum passengers the boat can hold
w1830146_Island	w1830146_IslandID {PK}	Unique key of identifying an island belonging to ArchipelagoCrazy company
	w1830146_IslandName	Name of the island
	w1830146_IslandSize	Land area of the island
w1830146_Beach	w1830146_BeachID {PK}	Unique key of identifying a beach belonging to ArchipelagoCrazy
	w1830146_BeachName	Name of the beach
w1830146_Staff	w1830146_StaffID {PK}	Unique key of identifying a staff member at ArchipelagoCrazy

	w1830146_StaffName	Name of the staff member
	w1830146_StaffContactNo	Contact number of the staff member
	w1830146_StaffAddress	address of the staff member
	w1830146_StaffMailAddress	Email address of the staff member
w1830146_Record	w1830146_RecordID {PK}	Unique key of identifying a service record of a boat at ArchipelagoCrazy
	w1830146_RecordDate	The date in which the boat servicing is done

Part B

5.Logical ERD



6. SQL query

Creating tables

W1830146_Studio

```
1 CREATE TABLE w1830146_Studio(  
2   w1830146_studioId      INTEGER,  
3   w1830146_studioName    VARCHAR(20) NOT NULL,  
4   w1830146_studioAddress VARCHAR(50) NOT NULL,  
5   w1830146_studioPcode   VARCHAR(50) NOT NULL,  
6   w1830146_studioTelNo   INTEGER NOT NULL,  
7   CONSTRAINT S_Sid_pk PRIMARY KEY (w1830146_studioId)  
8 );  
9
```

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0258 seconds.)

```
CREATE TABLE w1830146_Studio( w1830146_studioId INTEGER, w1830146_studioName VARCHAR(20) NOT NULL, w1830146_studioAddress VARCHAR(50) NOT NULL, w1830146_studioPcode VARCHAR(50)  
NOT NULL, w1830146_studioTelNo INTEGER NOT NULL, CONSTRAINT S_Sid_pk PRIMARY KEY (w1830146_studioId) );
```

[\[Edit inline\]](#) [\[Edit\]](#) [\[Create PHP code\]](#)

⚠ Warning: #1280 Name 'S_Sid_pk' ignored for PRIMARY key.

[Table structure](#)[Relation view](#)

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/>	1 w1830146_studioId	int(11)			No	None			Change Drop More
<input type="checkbox"/>	2 w1830146_studioName	varchar(20)	utf8mb4_general_ci		No	None			Change Drop More
<input type="checkbox"/>	3 w1830146_studioAddress	varchar(50)	utf8mb4_general_ci		No	None			Change Drop More
<input type="checkbox"/>	4 w1830146_studioPcode	varchar(50)	utf8mb4_general_ci		No	None			Change Drop More
<input type="checkbox"/>	5 w1830146_studioTelNo	int(11)			No	None			Change Drop More

W1830146_Equipment

```
1 CREATE TABLE w1830146_Equipment(  
2   w1830146_equipCode          INTEGER,  
3   w1830146_equipMake          VARCHAR(50) NOT NULL,  
4   w1830146_equipSeries        VARCHAR(50) NOT NULL,  
5   w1830146_equipModel          VARCHAR(50) NOT NULL,  
6   w1830146_equipCondition      VARCHAR(20) NOT NULL,  
7   w1830146_equipStatus         VARCHAR(50) NOT NULL,  
8   w1830146_lastServicingDate   DATE,  
9   w1830146_costPerDay          DOUBLE NOT NULL,  
10  w1830146_studioId            INTEGER NOT NULL,  
11  CONSTRAINT E_Eid_pk PRIMARY KEY (w1830146_equipCode),  
12  CONSTRAINT E_Sid_fk FOREIGN KEY (w1830146_studioId) REFERENCES w1830146_Studio(w1830146_studioId)  
13  );  
14
```


✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0218 seconds.)

```
CREATE TABLE w1830146_Equipment( w1830146_equipCode INTEGER, w1830146_equipMake VARCHAR(50) NOT NULL, w1830146_equipSeries VARCHAR(50) NOT NULL, w1830146_equipModel VARCHAR(50) NOT NULL, w1830146_equipCondition VARCHAR(20) NOT NULL, w1830146_equipStatus VARCHAR(50) NOT NULL, w1830146_lastServicingDate DATE, w1830146_costPerDay DOUBLE NOT NULL, w1830146_studioId INTEGER NOT NULL, CONSTRAINT E_Eid_pk PRIMARY KEY (w1830146_equipCode), CONSTRAINT E_Sid_fk FOREIGN KEY (w1830146_studioId) REFERENCES w1830146_Studio(w1830146_studioId) );
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

⚠ Warning: #1280 Name 'E_Eid_pk' ignored for PRIMARY key.



Table structure



Relation view

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/> 1	w1830146_equipCode	int(11)			No	None			Change Drop More
<input type="checkbox"/> 2	w1830146_equipMake	varchar(50)	utf8mb4_general_ci		No	None			Change Drop More
<input type="checkbox"/> 3	w1830146_equipSeries	varchar(50)	utf8mb4_general_ci		No	None			Change Drop More
<input type="checkbox"/> 4	w1830146_equipModel	varchar(50)	utf8mb4_general_ci		No	None			Change Drop More
<input type="checkbox"/> 5	w1830146_equipCondition	varchar(20)	utf8mb4_general_ci		No	None			Change Drop More
<input type="checkbox"/> 6	w1830146_equipStatus	varchar(50)	utf8mb4_general_ci		No	None			Change Drop More
<input type="checkbox"/> 7	w1830146_lastServicingDate	date			Yes	NULL			Change Drop More
<input type="checkbox"/> 8	w1830146_costPerDay	double			No	None			Change Drop More
<input type="checkbox"/> 9	w1830146_studioId	int(11)			No	None			Change Drop More

Populating tables

W1830146_Studio

1 INSERT INTO

2 w1830146_studio(w1830146_studioId, w1830146_studioName, w1830146_studioAddress, w1830146_studioPCode, w1830146_studioTelNo)

3 VALUES

4 (001, 'Hit Record', '57/1,Bristol', 'A23 54K', 441172367556),

5 (002, 'Lion Music', '74/3,Belfast City', 'BT12 5BN', 44286230722),

6 (003, 'Presonus', '33/2,Harrow,London', 'HA1 4JE', 442059359801),

7 (004, 'Masterdisk', '4/3,Cardiff', 'PO2 8BH', 442933860356),

8 (005, 'Tonal ', '73/9,Islington,London', 'H63 6FG', 446623846758),

9 (006, 'Sound Rangers', '444,Sutton,London', 'SG4 99K', 443422673452),

10 (007, 'WE Record', '87,Chatham Town,London', 'F47 98G', 4423795455),

11 (008, 'Rogers', '66/9,Park Hills,London', 'H38 867', 446893649767),

12 (009, 'XXX', '637,Wellington', 'N35 69M', 4436897532),

13 (010, 'Tetasion', '55,London', 'Z54 V77',447542894566),

14 (011, 'Bombi', '12/3,Southwark', 'V66 78N', 445438769878);

15

w1830146_studioId

w1830146_studioName

w1830146_studioAddress

w1830146_studioPCode

w1830146_studioTelNo

✔ 11 rows inserted. (Query took 0.0048 seconds.)

INSERT INTO w1830146_studio(w1830146_studioId, w1830146_studioName, w1830146_studioAddress, w1830146_studioPCode, w1830146_studioTelNo) VALUES (001, 'Hit Record', '57/1,Bristol', 'A23 54K', 441172367556), (002, 'Lion Music', '74/3,Belfast City', 'BT12 5BN', 44286230722), (003, 'Presonus', '33/2,Harrow,London', 'HA1 4JE', 442059359801), (004, 'Masterdisk', '4/3,Cardiff', 'PO2 8BH', 442933860356), (005, 'Tonal ', '73/9,Islington,London', 'H63 6FG', 446623846758), (006, 'Sound Rangers', '444,Sutton,London', 'SG4 99K', 443422673452), (007, 'WE Record', '87,Chatham Town,London', 'F47 98G', 4423795455), (008, 'Rogers', '66/9,Park Hills,London', 'H38 867', 446893649767), (009, 'XXX', '637,Wellington', 'N35 69M', 4436897532), (010, 'Tetasion', '55,London', 'Z54 V77',447542894566), (011, 'Bombi', '12/3,Southwark', 'V66 78N', 445438769878);

[Edit inline]

[Edit]

[Create PHP code]

⚠ Warning: #1264 Out of range value for column 'w1830146_studioTelNo' at row 1

⚠ Warning: #1264 Out of range value for column 'w1830146_studioTelNo' at row 2

⚠ Warning: #1264 Out of range value for column 'w1830146_studioTelNo' at row 3















⚠ Warning: #1264 Out of range value for column 'w1830146_studioTelNo' at row 4

⚠ Warning: #1264 Out of range value for column 'w1830146_studioTelNo' at row 5

⚠ Warning: #1264 Out of range value for column 'w1830146_studioTelNo' at row 6

⚠ Warning: #1264 Out of range value for column 'w1830146_studioTelNo' at row 7

⚠ Warning: #1264 Out of range value for column 'w1830146_studioTelNo' at row 8

				w1830146_studioId	w1830146_studioName	w1830146_studioAddress	w1830146_studioPcode	w1830146_studioTelNo
<input type="checkbox"/>	 Edit	 Copy	 Delete	1	Hit Record	57/1,Bristol	A23 54K	2147483647
<input type="checkbox"/>	 Edit	 Copy	 Delete	2	Lion Music	74/3,Belfast City	BT12 5BN	2147483647
<input type="checkbox"/>	 Edit	 Copy	 Delete	3	Presonus	33/2,Harrow,London	HA1 4JE	2147483647
<input type="checkbox"/>	 Edit	 Copy	 Delete	4	Masterdisk	4/3,Cardiff	PO2 8BH	2147483647
<input type="checkbox"/>	 Edit	 Copy	 Delete	5	Tonal	73/9,Islington,London	H63 6FG	2147483647
<input type="checkbox"/>	 Edit	 Copy	 Delete	6	Sound Rangers	444,Sutton,London	SG4 99K	2147483647
<input type="checkbox"/>	 Edit	 Copy	 Delete	7	WE Record	87,Chatham Town,London	F47 98G	2147483647
<input type="checkbox"/>	 Edit	 Copy	 Delete	8	Rogers	66/9,Park Hills,London	H38 867	2147483647
<input type="checkbox"/>	 Edit	 Copy	 Delete	9	XXX	637,Wellington	N35 69M	2147483647
<input type="checkbox"/>	 Edit	 Copy	 Delete	10	Tetasion	55,London	Z54 V77	2147483647
<input type="checkbox"/>	 Edit	 Copy	 Delete	11	Bombi	12/3,Southwark	V66 78N	2147483647

W1830146_Equipment

1	INSERT INTO	
2	w1830146_Equipment(w1830146 equipCode, w1830146 equipMake, w1830146 equipSeries, w1830146 equipModel, w1830146 equipCondition,	w1830146 equipCode
3	w1830146 equipStatus, w1830146 lastServicingDate, w1830146 costPerDay, w1830146 studioId)	w1830146 equipMake
4	VALUES	w1830146 equipSeries
5	(1000, 'CAE', 'mixer', 'AM23', 'brand new', 'available', 'NULL', 345, 010),	w1830146 equipModel
6	(1001, 'American Way', 'monitor', 'H445', 're-conditioned', 'out of stock', '2021-08-07', 200, 005),	w1830146 equipCondition
7	(1002, 'Mesa Boogie', 'controller', 'B457', 're-conditioned', 'available', '2021-07-03', 500, 007),	w1830146 equipStatus
8	(1003, 'Remo', 'interface', 'JJ2', 'brand new', 'available', 'NULL', 300, 004),	w1830146 lastServicingDate
9	(1004, 'Moog Music', 'controller', '4GJ', 'brand new', 'out of stock', 'NULL', 320, 003),	w1830146 costPerDay
10	(1005, 'SFM', 'mixer', 'AN8', 're-conditioned', 'available', '2021-06-23', 100, 004),	w1830146 studioId
11	(1006, 'Eventide', 'microphone', 'M2', 're-conditioned', 'available', '2021-05-20', 470, 001),	
12	(1007, 'Whirlwind', 'recorder', 'D4', 'brand new', 'out of stock', 'NULL', 700, 009),	
13	(1008, 'Yorkville Sound', 'monitor', '3HIL', 'brand new', 'available', 'NULL', 480, 006),	
14	(1009, 'The Music Link', 'microphone', 'B7R', 're-conditioned', 'out of stock', '2021-04-04', 138, 008),	
15	(1010, 'HarrisTeller', 'recorder', 'X8CV', 'brand new', 'available', 'NULL', 140, 003);	

11 rows inserted. (Query took 0.0079 seconds.)

```
INSERT INTO w1830146_Equipment(w1830146 equipCode, w1830146 equipMake, w1830146 equipSeries, w1830146 equipModel, w1830146 equipCondition, w1830146 equipStatus, w1830146_lastServicingDate, w1830146_costPerDay, w1830146_studioId ) VALUES (1000, 'CAE','mixer', 'AM23', 'brand new','available','NULL',345,010), (1001, 'American Way','monitor', 'H445','re-conditioned','out of stock', '2021-08-07',200,005 ), (1002, 'Mesa Boogie', 'controller', 'B457', 're-conditioned', 'available','2021-07-03',500, 007 ), (1003, 'Remo ', 'interface', 'JJ2', 'brand new', 'available','NULL',300,004), (1004, 'Moog Music', 'controller', '4GJ','brand new', 'out of stock','NULL', 320, 003 ), (1005, 'SFM','mixer', 'AN8', 're-conditioned', 'available','2021-06-23', 100, 004 ), (1006, 'Eventide', 'microphone', 'M2', 're-conditioned','available','2021-05-20', 470, 001 ), (1007, 'Whirlwind', 'recorder', 'D4','brand new', 'out of stock','NULL',700, 009), (1008, 'Yorkville Sound','monitor', '3HIL', 'brand new'...
```

[Edit]

Warning: #1265 Data truncated for column 'w1830146_lastServicingDate' at row 1

Warning: #1265 Data truncated for column 'w1830146_lastServicingDate' at row 4


































Warning: #1265 Data truncated for column 'w1830146_lastServicingDate' at row 5

Warning: #1265 Data truncated for column 'w1830146_lastServicingDate' at row 8

Warning: #1265 Data truncated for column 'w1830146_lastServicingDate' at row 9

Warning: #1265 Data truncated for column 'w1830146_lastServicingDate' at row 11

+ Options

		▼ w1830146 equipCode	w1830146 equipMake	w1830146 equipSeries	w1830146 equipModel	w1830146 equipCondition	w1830146 equipStatus	w1830146_lastServicingDate	w1830146_costPerDay	w1830146_studioId
<input type="checkbox"/>	  	1000	CAE	mixer	AM23	brand new	available	0000-00-00	345	10
<input type="checkbox"/>	  	1001	American Way	monitor	H445	re-conditioned	out of stock	2021-08-07	200	5
<input type="checkbox"/>	  	1002	Mesa Boogie	controller	B457	re-conditioned	available	2021-07-03	500	7
<input type="checkbox"/>	  	1003	Remo	interface	JJ2	brand new	available	0000-00-00	300	4
<input type="checkbox"/>	  	1004	Moog Music	controller	4GJ	brand new	out of stock	0000-00-00	320	3
<input type="checkbox"/>	  	1005	SFM	mixer	AN8	re-conditioned	available	2021-06-23	100	4
<input type="checkbox"/>	  	1006	Eventide	microphone	M2	re-conditioned	available	2021-05-20	470	1
<input type="checkbox"/>	  	1007	Whirlwind	recorder	D4	brand new	out of stock	0000-00-00	700	9
<input type="checkbox"/>	  	1008	Yorkville Sound	monitor	3HIL	brand new	available	0000-00-00	480	6
<input type="checkbox"/>	  	1009	The Music Link	microphone	B7R	re-conditioned	out of stock	2021-04-04	138	8
<input type="checkbox"/>	  	1010	HarrisTeller	recorder	X8CV	brand new	available	0000-00-00	140	3

Query

Write an SQL query to retrieve a list of studio names for those studios that have an address in London, along with the makes, series, and models of the items of equipment in these studios, but only for the equipment that cost more than £125 a day to hire

Run SQL query/queries on table courseworkpartb.w1830146_equipments: 

```
1 SELECT s.w1830146_studioName, e.w1830146_equipMake, e.w1830146_equipSeries, e.w1830146_equipModel
2 FROM w1830146_studio s JOIN w1830146_equipments e
3 ON s.w1830146_studioId = e.w1830146_studioId
4 WHERE s.w1830146_studioAddress LIKE '%London%'
5 AND e.w1830146_costPerDay > 125;
```

✓ Showing rows 0 - 6 (7 total, Query took 0.0270 seconds)

```
SELECT s.w1830146_studioName, e.w1830146_equipMake, e.w1830146_equipSeries, e.w1830146_equipModel FROM w1830146_studio s JOIN w1830146_equipments e ON s.w1830146_studioId =
e.w1830146_studioId WHERE s.w1830146_studioAddress LIKE '%London%' AND e.w1830146_costPerDay > 125;
```

☐ Profiling [\[Edit inline \]](#) [\[Edit \]](#) [\[Explain SQL \]](#) [\[Create PHP code \]](#) [\[Refresh \]](#)

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

+ Options

w1830146_studioName	w1830146_equipMake	w1830146_equipSeries	w1830146_equipModel
Tetason	CAE	mixer	AM23
Tonal	American Way	monitor	H445
WE Record	Mesa Boogie	controller	B457
Presonus	Moog Music	controller	4GJ
Sound Rangers	Yorkville Sound	monitor	3HIL
Rogers	The Music Link	microphone	B7R
Presonus	HarrisTeller	recorder	X8CV

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

7. Comparative Analysis table

No.	Feature	NoSQL DB	Relational DB
1	Schemas	No pre-defined fixed schema. Provide schema-free or schema on-read abilities	Contain a fixed schema
2	Data consistency	Weaker or eventual consistency	ACID transactional consistency (Atomicity, Consistency, Isolation, Durability)
3	storage	Stores data in non-structured format as documents / key-value pairs.	Stores data in structured and normalized manner
4	performance	Can handle structured, unstructured and semi structured data	Can handle only structured data
5	Orientation	Document oriented database	Table and row oriented database
6	workload	<ul style="list-style-type: none"> • Less work load operated (ex: thousands of transactions per second) • Mostly used for rapid development of applications 	<ul style="list-style-type: none"> • High volume of workload at large scale (ex: millions of transactions per second) • Mostly are used mostly for heavy duty transaction applications etc.
7	Infrastructures	Ability to handle data in high volume	Ability to handle moderate volume of data
8	Security	Lacks standardization with poor security	<ul style="list-style-type: none"> • Lacks support for unstructured data • Can assign which tables are confidential and which tables are not. • Possible to set a level of access for any user

9	Structure	Decentralized (Requires fine control of consistency, availability and performance)	Centralized (Can be replicated asynchronously)
10	Implementation	Used to create applications implemented for commodity hardware	Used to create applications implemented for high end hardware
11	Scalability	Supplies both read and write scalabilities	Supply only reading scalability
12	Data retrieving locations	Data retrieved from several locations	Data retrieved from one or few locations
13	Failures	No single failure point	May have a single failure point
14	Languages and indexing	Uses a simple query language with limited indexing	Uses a powerful query language. Due to this limitless indexing can be seen
15	Deployment	Horizontally	Vertically
16	Supporting ability for joints	Limited support for joints	Have many joints which affect for speed

NoSQL databases use data that is not structured enough to create tables or find relationships. They can be used when dealing with comments, posts and kind of big data. Platforms like Facebook uses NoSQL. Also, unlike Relational ones, there is no need to shift between tables as NoSQL databases comprises with documents and key value pairs. These databases depend on a specific DBMS. (Gyorodi et al., 2015) Unlike Relational ones, If switched from one DBMS to another, developers may have to code from the base as it suits the new DBMS. In addition, these NoSQL databases are not much improved over time so that customizations and additional features are not much seen. But SQL databases are developed by millions of contributors over many years. (Iiyukha, 2021)

Relational databases have structured data and have relationships with constraints. Support for complex data types is not seen in relational databases. In the beginning stages its mandatory to analyze logical and structural nature of information unlike in NoSQL. As a result, establishing the database takes time. When compared to NoSQL databases limits CPU usage and thereby create high database efficiency (Iiyukha, 2021). Through the queries it is easy to edit data as well. Deploying primary, foreign keys has lead the SQL databases to be more accurate than NoSQL ones which use keys and documents to store data. Unlike in NoSQL, in SQL, all records are correctly processed and stored. Developers are warned of any isolated entry so that errors don't accumulate over time. (Sahatqija et al., 2018)

Some popular Non-relational databases are MongoDB, Google Cloud Firestore, Cassandra, Redis, Apache HBase, Amazon DynamoDB whereas some Relational databases are MySQL, Oracle, PostgreSQL, MariaDB, Microsoft SQL Server. (Sahatqija et al., 2018)

8. References

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4. Iiyukha, V. (2021). Differences between Relational and Non-relational Database. Jelvix .Available from [Difference Between Relational vs. Non-Relational Database \(jelvix.com\)](https://jelvix.com/Difference-Between-Relational-vs.-Non-Relational-Database) [Accessed 12 December 2021].

The End

w1830146

W.A.L.H.N. Wickrama Arachchi

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