**Create Table and Alter Table query**

CREATE TABLE cabin (

ship\_code INT(4) NOT NULL,

cabin\_no INT(5) NOT NULL,

cabin\_capacity INT(1) NOT NULL,

cabin\_class ENUM('B', 'I', 'O', 'S') NOT NULL,

PRIMARY KEY (cabin\_no, ship\_code)

);

ALTER TABLE cabin MODIFY COLUMN ship\_code INT(4) NOT NULL COMMENT 'Identifier for ship';

ALTER TABLE cabin MODIFY COLUMN cabin\_no INT(5) NOT NULL COMMENT 'Cabin number on given ship';

ALTER TABLE cabin MODIFY COLUMN cabin\_capacity INT(1) NOT NULL COMMENT 'Sleeping capacity for cabin';

ALTER TABLE cabin MODIFY COLUMN cabin\_class ENUM('B', 'I', 'O', 'S') NOT NULL COMMENT 'WC class of the cabin (B Balcony, I Interior, O Ocean View, S Suite)';

CREATE TABLE country (

country\_code CHAR(2) NOT NULL,

country\_name VARCHAR(40) NOT NULL,

PRIMARY KEY (country\_code)

) COMMENT='Country information';

ALTER TABLE country MODIFY COLUMN country\_code CHAR(2) COMMENT 'Country code';

ALTER TABLE country MODIFY COLUMN country\_name VARCHAR(40) COMMENT 'Country name';

CREATE TABLE cruise (

cruise\_id INT(6) NOT NULL,

cruise\_name VARCHAR(80) NOT NULL,

cruise\_description VARCHAR(200) NOT NULL,

ship\_code INT(4) NOT NULL,

cruise\_departure\_datetime DATETIME NOT NULL,

cruise\_duration INT(2) NOT NULL,

PRIMARY KEY (cruise\_id)

);

ALTER TABLE cruise MODIFY COLUMN cruise\_id INT(6) NOT NULL COMMENT 'Cruise identifier - used only for a single cruise';

ALTER TABLE cruise MODIFY COLUMN cruise\_name VARCHAR(80) NOT NULL COMMENT 'Name of cruise';

ALTER TABLE cruise MODIFY COLUMN cruise\_description VARCHAR(200) NOT NULL COMMENT 'Description of cruise';

ALTER TABLE cruise MODIFY COLUMN ship\_code INT(4) NOT NULL COMMENT 'Identifier for ship';

ALTER TABLE cruise MODIFY COLUMN cruise\_departure\_datetime DATETIME NOT NULL COMMENT 'Cruise scheduled departure datetime';

ALTER TABLE cruise MODIFY COLUMN cruise\_duration INT(2) NOT NULL COMMENT 'Cruise duration in days';

CREATE TABLE ship (

ship\_code INT(4) NOT NULL,

ship\_name VARCHAR(20) NOT NULL,

ship\_guest\_capacity INT(4) NOT NULL,

country\_code CHAR(2) NOT NULL,

PRIMARY KEY (ship\_code)

);

ALTER TABLE ship MODIFY COLUMN ship\_code INT(4) NOT NULL COMMENT 'Identifier for ship';

ALTER TABLE ship MODIFY COLUMN ship\_name VARCHAR(20) NOT NULL COMMENT 'Name of ship';

ALTER TABLE ship MODIFY COLUMN ship\_guest\_capacity INT(5) NOT NULL COMMENT 'Ships passenger capacity';

ALTER TABLE ship MODIFY COLUMN country\_code CHAR(2) NOT NULL COMMENT 'Country code';

CREATE TABLE passenger (

passenger\_id INT(6) NOT NULL,

passenger\_fname VARCHAR(30),

passenger\_lname VARCHAR(30),

passenger\_dob DATE NOT NULL,

passenger\_gender ENUM('M', 'F', 'X') NOT NULL,

passenger\_contact CHAR(10),

PRIMARY KEY (passenger\_id),

CONSTRAINT passenger\_un UNIQUE (passenger\_contact)

) COMMENT='Table containing information about passengers.';

ALTER TABLE passenger MODIFY COLUMN passenger\_id INT(6) NOT NULL COMMENT 'Unique identifier for a passenger';

ALTER TABLE passenger MODIFY COLUMN passenger\_fname VARCHAR(30) COMMENT 'Passenger first name';

ALTER TABLE passenger MODIFY COLUMN passenger\_lname VARCHAR(30) COMMENT 'Passenger last name';

ALTER TABLE passenger MODIFY COLUMN passenger\_dob DATE NOT NULL COMMENT 'Passenger`s date of birth';

ALTER TABLE passenger MODIFY COLUMN passenger\_gender ENUM('M', 'F', 'X') NOT NULL COMMENT 'Passenger gender(M for male, F for female, or X for non-binary/indeterminate/intersex/unspecified/other)';

ALTER TABLE passenger MODIFY COLUMN passenger\_contact CHAR(10) COMMENT 'Passenger contact phone number';

CREATE TABLE disable\_cabin (

ship\_code INT(4) NOT NULL,

cabin\_no INT(5) NOT NULL,

auxiliary\_facilities ENUM('Y', 'N', 'U') NOT NULL,

PRIMARY KEY (cabin\_no, ship\_code)

);

ALTER TABLE cabin MODIFY COLUMN ship\_code INT(4) NOT NULL COMMENT 'Identifier for ship';

ALTER TABLE cabin MODIFY COLUMN cabin\_no INT(5) NOT NULL COMMENT 'Cabin number on given ship';

ALTER TABLE cabin MODIFY COLUMN cabin\_class ENUM('Y', 'N', 'U') NOT NULL COMMENT 'Y for yes, N for no, U for Unknown';

CREATE TABLE manifest (

manifest\_id INT(7) NOT NULL,

passenger\_id INT(6) NOT NULL,

cruise\_id INT(6) NOT NULL,

manifest\_board\_datetime DATE,

ship\_code INT(4) NOT NULL,

cabin\_no INT(5) NOT NULL,

PRIMARY KEY (manifest\_id),

UNIQUE (passenger\_id, cruise\_id)

);

ALTER TABLE manifest MODIFY COLUMN manifest\_id INT(7) NOT NULL COMMENT 'Unique identifier for a manifest';

ALTER TABLE manifest MODIFY COLUMN passenger\_id INT(6) NOT NULL COMMENT 'Unique identifier for a passenger';

ALTER TABLE manifest MODIFY COLUMN cruise\_id INT(6) NOT NULL COMMENT 'Cruise identifier - used only for a single cruise';

ALTER TABLE manifest MODIFY COLUMN manifest\_board\_datetime DATE COMMENT 'Date/time passenger boarded ship';

ALTER TABLE manifest MODIFY COLUMN ship\_code INT(4) NOT NULL COMMENT 'Identifier for ship';

ALTER TABLE manifest MODIFY COLUMN cabin\_no INT(5) NOT NULL COMMENT 'Cabin number on given ship';

**Insert data query**

INSERT INTO country(country\_code, country\_name)

VALUES('CN', 'China');

INSERT INTO country(country\_code, country\_name)

VALUES('AM', 'Armenia');

INSERT INTO country(country\_code, country\_name)

VALUES('AU', 'Australia');

INSERT INTO country(country\_code, country\_name)

VALUES('BR', 'Brazil');

INSERT INTO country(country\_code, country\_name)

VALUES('CA', 'Canada');

INSERT INTO country(country\_code, country\_name)

VALUES('FO', 'Faroe Islands');

INSERT INTO country(country\_code, country\_name)

VALUES('FJ', 'Fiji');

INSERT INTO country(country\_code, country\_name)

VALUES('FI', 'Finland');

INSERT INTO country(country\_code, country\_name)

VALUES('FR', 'France');

INSERT INTO ship(

ship\_code,

ship\_name,

ship\_guest\_capacity,

country\_code

)

VALUES(110, 'Beijing', 5000, 'CN');

INSERT INTO ship(

ship\_code,

ship\_name,

ship\_guest\_capacity,

country\_code

)

VALUES(

102,

'Carnival Splendor',

1864,

'AM'

);

INSERT INTO ship(

ship\_code,

ship\_name,

ship\_guest\_capacity,

country\_code

)

VALUES(

103,

'Majestic Princess',

2240,

'AU'

);

INSERT INTO ship(

ship\_code,

ship\_name,

ship\_guest\_capacity,

country\_code

)

VALUES(104, 'Queen Mary 2', 4328, 'BR');

INSERT INTO ship(

ship\_code,

ship\_name,

ship\_guest\_capacity,

country\_code

)

VALUES(105, 'Luminos', 1240, 'CA');

INSERT INTO ship(

ship\_code,

ship\_name,

ship\_guest\_capacity,

country\_code

)

VALUES(106, 'Coral Princess', 1860, 'FO');

INSERT INTO ship(

ship\_code,

ship\_name,

ship\_guest\_capacity,

country\_code

)

INSERT INTO cruise(

cruise\_id,

cruise\_name,

cruise\_description,

ship\_code,

cruise\_departure\_datetime,

cruise\_duration

)

VALUES(

2,

'Melbourne to Sydney',

'2 nights at sea from Melbourne to Sydney.',

102,

STR\_TO\_DATE(

'16-Apr-2022 9:00',

'%d-%b-%Y %H:%i'

),

2

);

INSERT INTO cruise(

cruise\_id,

cruise\_name,

cruise\_description,

ship\_code,

cruise\_departure\_datetime,

cruise\_duration

)

VALUES(

4,

'Queensland Islands',

'7 Night Queensland Islands Cruise. Start from Brisbane. Stops at Airlie Beach, Port Douglas, Cairns, Willis Island. Ends at Brisbane.',

110,

STR\_TO\_DATE(

'07-May-2022 14:00',

'%d-%b-%Y %H:%i'

),

7

);

INSERT INTO cruise (

cruise\_id,

cruise\_name,

cruise\_description,

ship\_code,

cruise\_departure\_datetime,

cruise\_duration

) VALUES (

3,

'New Zealand Delight',

'Starts from Melbourne. Cruising in Fiordland National Park. Stops at Dunedin, Lyttelton (Christchurch), Wellington, Tauranga (Rotorua), Auckland. Ends at Melbourne.',

103,

STR\_TO\_DATE(

'16-Apr-2022 9:00',

'%d-%b-%Y %H:%i'

),

13

);

INSERT INTO cruise(

cruise\_id,

cruise\_name,

cruise\_description,

ship\_code,

cruise\_departure\_datetime,

cruise\_duration

)

VALUES(

5,

'Brisbane to Hobart',

'7 nights at sea from Brisbane to Hobart.',

104,

STR\_TO\_DATE(

'08-May-2022 10:30',

'%d-%b-%Y %H:%i'

),

7

);

INSERT INTO cruise(

cruise\_id,

cruise\_name,

cruise\_description,

ship\_code,

cruise\_departure\_datetime,

cruise\_duration

)

VALUES(

8,

'Melbourne to Singapore',

'Starts from Melbourne. Stops at Adelaide, Albany, Fremantle, Bali and Jakarta. Ends at Singapore.',

105,

STR\_TO\_DATE(

'30-Oct-2022 9:30',

'%d-%b-%Y %H:%i'

),

24

);

INSERT INTO cabin(

ship\_code,

cabin\_no,

cabin\_capacity,

cabin\_class

)

VALUES(110, 1001, 4, 'I');

INSERT INTO cabin(

ship\_code,

cabin\_no,

cabin\_capacity,

cabin\_class

)

VALUES(110, 1002, 4, 'O');

INSERT INTO cabin(

ship\_code,

cabin\_no,

cabin\_capacity,

cabin\_class

)

VALUES(110, 2022, 2, 'B');

INSERT INTO cabin(

ship\_code,

cabin\_no,

cabin\_capacity,

cabin\_class

)

VALUES(110, 3001, 4, 'S');

INSERT INTO cabin(

ship\_code,

cabin\_no,

cabin\_capacity,

cabin\_class

)

VALUES(110, 3002, 4, 'S');

INSERT INTO cabin(

ship\_code,

cabin\_no,

cabin\_capacity,

cabin\_class

)

VALUES(102, 2001, 4, 'O');

INSERT INTO cabin(

ship\_code,

cabin\_no,

cabin\_capacity,

cabin\_class

)

VALUES(102, 2011, 4, 'I');

INSERT INTO cabin(

ship\_code,

cabin\_no,

cabin\_capacity,

cabin\_class

)

VALUES(102, 4002, 2, 'S');

INSERT INTO cabin(

ship\_code,

cabin\_no,

cabin\_capacity,

cabin\_class

)

VALUES(102, 4004, 2, 'S');

INSERT INTO cabin(

ship\_code,

cabin\_no,

cabin\_capacity,

cabin\_class

)

VALUES(102, 4033, 3, 'B');

INSERT INTO cabin(

ship\_code,

cabin\_no,

cabin\_capacity,

cabin\_class

)

VALUES(103, 110, 2, 'O');

INSERT INTO cabin(

ship\_code,

cabin\_no,

cabin\_capacity,

cabin\_class

)

VALUES(103, 211, 4, 'B');

INSERT INTO cabin(

ship\_code,

cabin\_no,

cabin\_capacity,

cabin\_class

)

VALUES(104, 142, 4, 'I');

INSERT INTO cabin(

ship\_code,

cabin\_no,

cabin\_capacity,

cabin\_class

)

VALUES(104, 211, 4, 'O');

INSERT INTO cabin(

ship\_code,

cabin\_no,

cabin\_capacity,

cabin\_class

)

VALUES(105, 8032, 3, 'O');

INSERT INTO cabin(

ship\_code,

cabin\_no,

cabin\_capacity,

cabin\_class

)

VALUES(105, 8033, 3, 'O');

INSERT INTO cabin(

ship\_code,

cabin\_no,

cabin\_capacity,

cabin\_class

)

VALUES(105, 9013, 2, 'B');

INSERT INTO cabin(

ship\_code,

cabin\_no,

cabin\_capacity,

cabin\_class

)

VALUES(105, 10101, 6, 'S');

INSERT INTO cabin(

ship\_code,

cabin\_no,

cabin\_capacity,

cabin\_class

)

VALUES(105, 10102, 4, 'S');

INSERT INTO disable\_cabin(

ship\_code,

cabin\_no,

auxiliary\_facilities

)

VALUES(105, 10102, 'Y');

INSERT INTO disable\_cabin(

ship\_code,

cabin\_no,

auxiliary\_facilities

)

VALUES(105, 10101, 'N');

INSERT INTO disable\_cabin(

ship\_code,

cabin\_no,

auxiliary\_facilities

)

VALUES(105, 9013, 'U');

INSERT INTO disable\_cabin(

ship\_code,

cabin\_no,

auxiliary\_facilities

)

VALUES(104, 142, 'Y');

INSERT INTO disable\_cabin(

ship\_code,

cabin\_no,

auxiliary\_facilities

)

VALUES(104, 211, 'N');

INSERT INTO disable\_cabin(

ship\_code,

cabin\_no,

auxiliary\_facilities

)

VALUES(103, 110, 'Y');

INSERT INTO disable\_cabin(

ship\_code,

cabin\_no,

auxiliary\_facilities

)

VALUES(103, 211, 'U');

INSERT INTO disable\_cabin(

ship\_code,

cabin\_no,

auxiliary\_facilities

)

VALUES(102, 4004, 'Y');

INSERT INTO disable\_cabin(

ship\_code,

cabin\_no,

auxiliary\_facilities

)

VALUES(102, 4002, 'U');

INSERT INTO disable\_cabin(

ship\_code,

cabin\_no,

auxiliary\_facilities

)

VALUES(102, 2011, 'N');

INSERT INTO disable\_cabin(

ship\_code,

cabin\_no,

auxiliary\_facilities

)

VALUES(110, 1002, 'Y');

INSERT INTO disable\_cabin(

ship\_code,

cabin\_no,

auxiliary\_facilities

)

VALUES(110, 2022, 'U');

INSERT INTO disable\_cabin(

ship\_code,

cabin\_no,

auxiliary\_facilities

)

VALUES(110, 3001, 'N');

INSERT INTO smoking\_cabin(

ship\_code,

cabin\_no,

ashtrays

)

VALUES(110, 1001, 'N');

INSERT INTO smoking\_cabin(

ship\_code,

cabin\_no,

ashtrays

)

VALUES(110, 2022, 'Y');

INSERT INTO smoking\_cabin(

ship\_code,

cabin\_no,

ashtrays

)

VALUES(110, 3001, 'U');

INSERT INTO smoking\_cabin(

ship\_code,

cabin\_no,

ashtrays

)

VALUES(102, 2001, 'U');

INSERT INTO smoking\_cabin(

ship\_code,

cabin\_no,

ashtrays

)

VALUES(102, 2011, 'N');

INSERT INTO smoking\_cabin(

ship\_code,

cabin\_no,

ashtrays

)

VALUES(103, 110, 'U');

INSERT INTO smoking\_cabin(

ship\_code,

cabin\_no,

ashtrays

)

VALUES(103, 211, 'N');

INSERT INTO smoking\_cabin(

ship\_code,

cabin\_no,

ashtrays

)

VALUES(104, 142, 'Y');

INSERT INTO smoking\_cabin(

ship\_code,

cabin\_no,

ashtrays

)

VALUES(104, 211, 'N');

INSERT INTO smoking\_cabin(

ship\_code,

cabin\_no,

ashtrays

)

VALUES(105, 8033, 'U');

INSERT INTO smoking\_cabin(

ship\_code,

cabin\_no,

ashtrays

)

VALUES(105, 9013, 'N');

INSERT INTO smoking\_cabin(

ship\_code,

cabin\_no,

ashtrays

)

VALUES(105, 10101, 'Y');

INSERT INTO passenger (

passenger\_id,

passenger\_fname,

passenger\_lname,

passenger\_dob,

passenger\_gender,

passenger\_contact

) VALUES (

89,

'Smith',

'Jackson',

STR\_TO\_DATE('07-Oct-1978', '%d-%b-%Y'),

'M',

'0411224509'

);

INSERT INTO passenger (

passenger\_id,

passenger\_fname,

passenger\_lname,

passenger\_dob,

passenger\_gender,

passenger\_contact

) VALUES (

10,

'Smith',

'Harishi',

STR\_TO\_DATE('10-Sep-2014', '%d-%b-%Y'),

'F',

NULL

);

INSERT INTO passenger (

passenger\_id,

passenger\_fname,

passenger\_lname,

passenger\_dob,

passenger\_gender,

passenger\_contact

) VALUES (

87,

'Luna',

'Bob',

STR\_TO\_DATE('10-Sep-1989', '%d-%b-%Y'),

'M',

'0411220912'

);

INSERT INTO passenger (

passenger\_id,

passenger\_fname,

passenger\_lname,

passenger\_dob,

passenger\_gender,

passenger\_contact

) VALUES (

83,

'Kevin',

'Harry',

STR\_TO\_DATE('10-Sep-1989', '%d-%b-%Y'),

'M',

'0411220756'

);

INSERT INTO passenger (

passenger\_id,

passenger\_fname,

passenger\_lname,

passenger\_dob,

passenger\_gender,

passenger\_contact

) VALUES (

70,

'Jack',

'Frank',

STR\_TO\_DATE('15-Sep-2011', '%d-%b-%Y'),

'M',

NULL

);

INSERT INTO passenger (

passenger\_id,

passenger\_fname,

passenger\_lname,

passenger\_dob,

passenger\_gender,

passenger\_contact

) VALUES (

79,

'Potter',

'Lilly',

STR\_TO\_DATE('27-Jun-1991', '%d-%b-%Y'),

'M',

'0411220196'

);

INSERT INTO passenger (

passenger\_id,

passenger\_fname,

passenger\_lname,

passenger\_dob,

passenger\_gender,

passenger\_contact

) VALUES (

60,

'Jesse',

'Knight',

STR\_TO\_DATE('15-Nov-2019', '%d-%b-%Y'),

'F',

NULL

);

INSERT INTO passenger (

passenger\_id,

passenger\_fname,

passenger\_lname,

passenger\_dob,

passenger\_gender,

passenger\_contact

) VALUES (

74,

'Herry',

'Smith',

STR\_TO\_DATE('27-Dec-1993', '%d-%b-%Y'),

'F',

'0411220023'

);

INSERT INTO passenger (

passenger\_id,

passenger\_fname,

passenger\_lname,

passenger\_dob,

passenger\_gender,

passenger\_contact

) VALUES (

50,

'Coco',

'Mavry',

STR\_TO\_DATE('15-Jan-2023', '%d-%b-%Y'),

'F',

NULL

);

INSERT INTO passenger (

passenger\_id,

passenger\_fname,

passenger\_lname,

passenger\_dob,

passenger\_gender,

passenger\_contact

) VALUES (

65,

'Chen',

'Yao',

STR\_TO\_DATE('27-Sep-1996', '%d-%b-%Y'),

'F',

'0411224104'

);

INSERT INTO manifest(

manifest\_id,

passenger\_id,

cruise\_id,

manifest\_board\_datetime,

ship\_code,

cabin\_no

)

VALUES(1, 10, 2, NULL, 103, 110);

INSERT INTO manifest(

manifest\_id,

passenger\_id,

cruise\_id,

manifest\_board\_datetime,

ship\_code,

cabin\_no

)

VALUES(

2,

89,

4,

'2022-05-07 09:00:00',

STR\_TO\_DATE('07-May-2022 09:00', '%d-%b-%Y %H:%i'),

110,

1001

);

INSERT INTO manifest (

manifest\_id,

passenger\_id,

cruise\_id,

manifest\_board\_datetime,

ship\_code,

cabin\_no

) VALUES (

3,

70,

8,

STR\_TO\_DATE('29-Oct-2022 22:30', '%d-%b-%Y %H:%i'),

105,

8032

);

INSERT INTO manifest (

manifest\_id,

passenger\_id,

cruise\_id,

manifest\_board\_datetime,

ship\_code,

cabin\_no

) VALUES (

4,

50,

3,

STR\_TO\_DATE('15-Apr-2022 22:00', '%d-%b-%Y %H:%i'),

103,

211

);

INSERT INTO manifest (

manifest\_id,

passenger\_id,

cruise\_id,

manifest\_board\_datetime,

ship\_code,

cabin\_no

) VALUES (

5,

79,

4,

STR\_TO\_DATE('07-May-2022 08:00', '%d-%b-%Y %H:%i'),

110,

2022

);

**Query Demonstration**

1. Join Query

SELECT

\*

FROM

passenger

JOIN manifest ON passenger.passenger\_id = manifest.passenger\_id;

1. Aggregation query (functions such as min, max, average or count)

SELECT

\*

FROM

passenger

WHERE

passenger\_dob IN(

SELECT

MAX(passenger\_dob) AS max\_dob

FROM

passenger

UNION ALL

SELECT

MIN(passenger\_dob) AS min\_dob

FROM

passenger

);

1. Aggregation with group-by (aggregated value for each group)

SELECT

ship\_code,

cabin\_class,

AVG(cabin\_capacity) AS avg\_capacity

FROM

cabin

GROUP BY

ship\_code,

cabin\_class

ORDER BY

ship\_code,

avg\_capacity DESC;

1. Delete operation with Cascade

DELETE

FROM

manifest

WHERE

manifest\_id = 1;

1. Update operation

UPDATE

passenger

SET

passenger\_contact = '0469987230'

WHERE

passenger\_id = 65;