

SpaceX Database Management System

Logical Database Design

6th, Dec 2020;

Batch No - 09

Logical Database Design

Logical database design is the process of transforming (or mapping) a conceptual schema of the application domain into a schema for the data model underlying a particular DBMS, such as the relational or object-oriented data model.

Tables

1. Rockets
2. Payloads
3. Launchpads
4. Drone Ships
5. Missions
6. Administrators
7. First Stage Recovery
8. Launches
9. Assigned
10. Updates Data
11. Delivers

- **MYSQL**, is the Domain Specific Language used to Create and Establish Relational Databases to manage the data for this Application;

[Link](#) for all the MYSQL scripts which are used to create and populate the tables.

Syntax:

```
CREATE TABLE <table_name> (
    <attribute1>  <type1>(size1) <constraint1>,
    <attribute2>  <type2>(size2) <constraint2>,
    ...
);
```

```
INSERT INTO <table_name>
VALUES (value1, value2, value3 ...);
```

Creating and Populating Tables

- Rockets

```
USE `SpaceX-DB`;

CREATE TABLE Rockets (rocket_id VARCHAR(24) NOT NULL PRIMARY KEY, name VARCHAR(20),
type VARCHAR(10), active VARCHAR(10), country VARCHAR(40),
company VARCHAR(20), cost_per_launch INTEGER);

INSERT INTO Rockets VALUES ('5e9d0d95eda69955f709d1eb', 'Falcon 1', 'rocket', 'False', 'Republic of the Marshall Islands', 'SpaceX', 6700000);
INSERT INTO Rockets VALUES ('5e9d0d95eda69973a809d1ec', 'Falcon 9', 'rocket', 'True', 'United States', 'SpaceX', 50000000);
INSERT INTO Rockets VALUES ('5e9d0d95eda69974db09d1ed', 'Falcon Heavy', 'rocket', 'True', 'United States', 'SpaceX', 90000000);
INSERT INTO Rockets VALUES ('5e9dd96eda699382d09d1ee', 'Starship', 'rocket', 'False', 'United States', 'SpaceX', 7000000);

SELECT * FROM Rockets
```

	rocket_id	name	type	active	country	company	cost_per_launch
0	5e9d0d95eda69955f709d1eb	Falcon 1	rocket	False	Republic of the Marshall Islands	SpaceX	6700000
1	5e9d0d95eda69973a809d1ec	Falcon 9	rocket	True	United States	SpaceX	50000000
2	5e9d0d95eda69974db09d1ed	Falcon Heavy	rocket	True	United States	SpaceX	90000000
3	5e9dd96eda699382d09d1ee	Starship	rocket	False	United States	SpaceX	7000000

• Payloads

```

1 USE `SpaceX-DB`;
2
3
4 CREATE TABLE Payloads(payload_id VARCHAR(24) NOT NULL PRIMARY KEY, name VARCHAR(35), type VARCHAR(20), reuse VARCHAR(10), manufacture VARCHAR(40),
5 mass_kg FLOAT, mass_lb FLOAT, orbit VARCHAR(10), reference_system VARCHAR(30), regime VARCHAR(30));
6
7 -- drop table Payloads;
8
9
10
11 INSERT INTO payloads VALUES('5eb0e4b5b6c3bb0006eeble1','FalconSAT-2','Satellite','False','SSTL',20.0,43.0,'LEO','geocentric','low-earth');
12 INSERT INTO payloads VALUES('5eb0e4b7b6c3bb0006eeble5','RatSat','Satellite','False','SpaceX',165.0,363.0,'LEO','geocentric','low-earth');
13 INSERT INTO payloads VALUES('5eb0e4b7b6c3bb0006eeble6','RazakSAT','Satellite','False','Satrec',200.0,440.0,'LEO','geocentric','low-earth');
14 INSERT INTO payloads VALUES('5eb0e4bab6c3bb0006eeble8','CRS-1','Dragon 1.0','False','SpaceX',400.0,881.0,'ISS','geocentric','low-earth');
15 INSERT INTO payloads VALUES('5eb0e4bab6c3bb0006eeble9','Orbcomm-OG2','Dragon 1.0','False','Not Disclosed',400.0,881.0,'LEO','geocentric','low-earth');
16 INSERT INTO payloads VALUES('5eb0e4bbb6c3bb0006eebleb','CRS-2','Dragon 1.0','False','SpaceX',677.0,1492.0,'ISS','geocentric','low-earth');
17 INSERT INTO payloads VALUES('5eb0e4bbb6c3bb0006eeblef','SES-8','Satellite','False','Orbital ATK',3170.0,6990.0,'GTO','geocentric','geostationary');
18 INSERT INTO payloads VALUES('5eb0e4bbb6c3bb0006eeble1','CRS-3','Dragon 1.1','False','SpaceX',2296.0,5062.0,'ISS','geocentric','low-earth');
19 INSERT INTO payloads VALUES('5eb0e4bc6c3bb0006eeble2','Orbcomm-OG2-M1','Satellite','False','Boeing',1316.0,2901.0,'LEO','geocentric','low-earth');
20 INSERT INTO payloads VALUES('5eb0e4bc6c3bb0006eeble3','AsiaSat 8','Satellite','False','SSL',4535.0,9998.0,'GTO','geocentric','geostationary');
21 INSERT INTO payloads VALUES('5eb0e4bc6c3bb0006eeble4','AsiaSat 6','Satellite','False','SSL',4428.0,9762.0,'GTO','geocentric','geostationary');
22 INSERT INTO payloads VALUES('5eb0e4bc6c3bb0006eeble5','CRS-4','Dragon 1.1','False','SpaceX',2216.0,4885.0,'ISS','geocentric','low-earth');
23 INSERT INTO payloads VALUES('5eb0e4bb6c3bb0006eeblee','CASSIOPE','Satellite','False','MDA',500.0,1100.0,'PO','geocentric','low-earth');
24
25 SELECT * FROM Payloads;

```

	payload_id	name	type	reuse	manufacture	mass_kg	mass_lb	orbit	reference_system
0	5eb0e4b5b6c3bb0006eeble1	FalconSAT-2	Satellite	False	SSTL	20.0	43.00	LEO	geocentric
1	5eb0e4b7b6c3bb0006eeble5	RatSat	Satellite	False	SpaceX	165.0	363.00	LEO	geocentric
2	5eb0e4b7b6c3bb0006eeble6	RazakSAT	Satellite	False	Satrec	200.0	440.00	LEO	geocentric
3	5eb0e4bab6c3bb0006eeblea	COTS Demo Flight 2	Dragon 1.0	False	SpaceX	525.0	1157.00	LEO	geocentric
4	5eb0e4bab6c3bb0006eebleb	CRS-1	Dragon 1.0	False	SpaceX	400.0	881.00	ISS	geocentric
...
76	5eb0e4ccb6c3bb0006eeb237	CRS-17	Dragon 1.1	True	SpaceX	2482.0	5472.00	ISS	geocentric
77	5eb0e4ccb6c3bb0006eeb238	Starlink v0.9	Satellite	False	SpaceX	13620.0	30027.00	VLEO	geocentric
78	5eb0e4ccb6c3bb0006eeb239	RADARSAT Constellation	Satellite	False	Maxar Technologies	1425.0	3141.59	SSO	geocentric
79	5eb0e4ccb6c3bb0006eeb23b	COSMIC-2	Satellite	False	National Space Organization	1668.0	3677.30	LEO	geocentric
80	5eb0e4ccb6c3bb0006eeb23c	GPIM	Satellite	False	Ball Aerospace & Technologies Corp	180.0	396.00	LEO	geocentric

81 rows × 10 columns

• Drone Ships

```

1 USE `SpaceX-DB`;
2
3 CREATE TABLE DroneShip(ship_id VARCHAR(24) NOT NULL PRIMARY KEY,home_port VARCHAR(30),name VARCHAR(35),type VARCHAR(20),roles VARCHAR(45),
4 activity VARCHAR(10),mass_kg FLOAT, mass_lb FLOAT);
5
6 INSERT INTO DroneShip VALUES ('5ea6ed2d080df4000697c901','Port of Los Angeles','American Champion','Tug','Support Ship','False',266712.0,588000.0);
7 INSERT INTO DroneShip VALUES ('5ea6ed2e080df4000697c905','Port of Los Angeles','Betty R Gambarella','Tug','ASDS Tug','False',202302.0,446000.0);
8 INSERT INTO DroneShip VALUES ('5ea6ed2e080df4000697c906','Port Canaveral','Elisbeth III','Tug','ASDS Tug','False',273063.0,602000.0);
9 INSERT INTO DroneShip VALUES ('5ea6ed2d080df4000697c907','Port Canaveral','GO Ms Chief','High Speed Craft','Fairing Recovery','True',449964.0,992000.0);
10 INSERT INTO DroneShip VALUES ('5ea6ed2e080df4000697c908','Port Canaveral','GO Ms Tree','High Speed Craft','Fairing Recovery','True',449964.0,992000.0);
11 INSERT INTO DroneShip VALUES ('5ea6ed2d080df4000697c909','Port Canaveral','GO Navigator','Cargo','Support Ship','True', 451778.0,996000.0);
12 INSERT INTO DroneShip VALUES ('5ea6ed2e080df4000697c90a','Port Canaveral','GO Pursuit','Cargo','Support Ship','False',502999.0,1108925.0);
13 INSERT INTO DroneShip VALUES ('5ea6ed2f080df4000697c90c','Port Canaveral','GO Searcher','Cargo','Support Ship','True',450870.0,994000.0);
14 INSERT INTO DroneShip VALUES ('5ea6ed2f080df4000697c90d','Port Canaveral','HAWK','Tug','ASDS Tug','False',508023.0,1120000.0);
15 INSERT INTO DroneShip VALUES ('5ea6ed2f080df4000697c90e','Fort Lauderdale','Hollywood','Tug','ASDS Tug','True',320236.0,706000.0);
16 INSERT INTO DroneShip VALUES ('5ea6ed30080df4000697c912','Port of Los Angeles','NRC Quest','Cargo','Support Ship','True',440892.0,972000.0);
17 INSERT INTO DroneShip VALUES ('5ea6ed30080df4000697c914','Port of Los Angeles','Pacific Freedom','Tug','ASDS Tug','True',89811.0,198000.0);
18 INSERT INTO DroneShip VALUES ('5ea6ed30080df4000697c915','Port of Los Angeles','Pacific Warrior','Tug','ASDS Tug','False',351080.0,774000.0);
19 INSERT INTO DroneShip VALUES ('5ea6ed30080df4000697c916','Port Canaveral','RACHEL','Tug','ASDS Tug','False',312072.0,688000.0);
20 INSERT INTO DroneShip VALUES ('5ee68c683c228f36bd5809b5','Port Canaveral','Finn Falgout','Tug','Support Ship','True',843682.0,1860000.0);
21
22
23 SELECT * FROM DroneShip

```

	ship_id	home_port	name	type	roles	activity	mass_kg	mass_lb
0	5ea6ed2d080df4000697c901	Port of Los Angeles	American Champion	Tug	Support Ship	False	266712	588000
1	5ea6ed2d080df4000697c907	Port Canaveral	GO Ms Chief	High Speed Craft	Fairing Recovery	True	449964	992000
2	5ea6ed2d080df4000697c909	Port Canaveral	GO Navigator	Cargo	Support Ship	True	451778	996000
3	5ea6ed2e080df4000697c905	Port of Los Angeles	Betty R Gambarella	Tug	ASDS Tug	False	202302	446000
4	5ea6ed2e080df4000697c906	Port Canaveral	Elisbeth III	Tug	ASDS Tug	False	273063	602000
5	5ea6ed2e080df4000697c908	Port Canaveral	GO Ms Tree	High Speed Craft	Fairing Recovery	True	449964	992000
6	5ea6ed2e080df4000697c90a	Port Canaveral	GO Pursuit	Cargo	Support Ship	False	502999	1108920
7	5ea6ed2f080df4000697c90c	Port Canaveral	GO Searcher	Cargo	Support Ship	True	450870	994000
8	5ea6ed2f080df4000697c90d	Port Canaveral	HAWK	Tug	ASDS Tug	False	508023	1120000
9	5ea6ed2f080df4000697c90e	Fort Lauderdale	Hollywood	Tug	ASDS Tug	True	320236	706000
10	5ea6ed30080df4000697c912	Port of Los Angeles	NRC Quest	Cargo	Support Ship	True	440892	972000
11	5ea6ed30080df4000697c914	Port of Los Angeles	Pacific Freedom	Tug	ASDS Tug	True	89811	198000
12	5ea6ed30080df4000697c915	Port of Los Angeles	Pacific Warrior	Tug	ASDS Tug	False	351080	774000
13	5ea6ed30080df4000697c916	Port Canaveral	RACHEL	Tug	ASDS Tug	False	312072	688000
14	5ee68c683c228f36bd5809b5	Port Canaveral	Finn Falgout	Tug	Support Ship	True	843682	1860000

- Launch Pads

```

1 USE `SpaceX-DB`;
2
3 CREATE TABLE LaunchPads [launchpad_id VARCHAR(24) NOT NULL PRIMARY KEY, name VARCHAR(50), full_name VARCHAR(80), status VARCHAR(30),
4 locality VARCHAR(50), region VARCHAR(30), TimeZone VARCHAR(40), Latitude FLOAT, Longitude FLOAT];
5
6 INSERT INTO LaunchPads VALUES('5e9e4501f5090910d4566f83','VAFB SLC 3W','Vandenberg Air Force Base Space Launch Complex 3W','retired','Vandenberg Air Force Base','California',
7
8 INSERT INTO LaunchPads VALUES('5e9e4501f509094ba4566f84','CCAFS SLC 40','Cape Canaveral Air Force Station Space Launch Complex 40','active','Cape Canaveral','Florida','America/New_York',
9
10 INSERT INTO LaunchPads VALUES('5e9e4502f5090927f8566f85','STLS','SpaceX South Texas Launch Site','under construction','Boca Chica Village','Texas','America/Chicago',25.99730,-97.1561),
11
12 INSERT INTO LaunchPads VALUES('5e9e4502f5090995de566f86','Kwajalein Atoll','Kwajalein Atoll Omelek Island','retired','Omelek Island','Marshall Islands','Pacific/Kwajalein',9.04772,167.7430),
13
14 INSERT INTO LaunchPads VALUES('5e9e4502f509092b78566f87','VAFB SLC 4E','Vandenberg Air Force Base Space Launch Complex 4E','active','Vandenberg Air Force Base','California',
15
16 INSERT INTO LaunchPads VALUES('5e9e4502f509094188566f88','KSC LC 39A','Kennedy Space Center Historic Launch Complex 39A','active','Cape Canaveral','Florida','America/New_York'),
17
18 select * from LaunchPads;

```

	launchpad_id	name	full_name	status	locality	region	TimeZone	Latitude	Longitude
0	5e9e4501f5090910d4566f83	VAFB SLC 3W	Vandenberg Air Force Base Space Launch Complex 3W	retired	Vandenberg Air Force Base	California	America/Los_Angeles	34.64410	-120.5930
1	5e9e4501f509094ba4566f84	CCAFS SLC 40	Cape Canaveral Air Force Station Space Launch ...	active	Cape Canaveral	Florida	America/New_York	28.56190	-80.5774
2	5e9e4502f5090927f8566f85	STLS	SpaceX South Texas Launch Site	under construction	Boca Chica Village	Texas	America/Chicago	25.99730	-97.1561
3	5e9e4502f509092b78566f87	VAFB SLC 4E	Vandenberg Air Force Base Space Launch Complex 4E	active	Vandenberg Air Force Base	California	America/Los_Angeles	34.63210	-120.6110
4	5e9e4502f509094188566f88	KSC LC 39A	Kennedy Space Center Historic Launch Complex 39A	active	Cape Canaveral	Florida	America/New_York	28.60810	-80.6040
5	5e9e4502f5090995de566f86	Kwajalein Atoll	Kwajalein Atoll Omelek Island	retired	Omelek Island	Marshall Islands	Pacific/Kwajalein	9.04772	167.7430

• Missions

```

1 USE `SpaceX-DB`;
2
3
4
5 CREATE TABLE Missions (date DATETIME, name VARCHAR(50), rocket_id VARCHAR(24), launchpad_id VARCHAR(24), launch_id VARCHAR(24) NOT NULL PRIMARY KEY,
6 payload_id VARCHAR(24) ,FOREIGN KEY (rocket_id) REFERENCES Rockets(rocket_id), FOREIGN KEY (launchpad_id) REFERENCES LaunchPads(launchpad_id),
7 FOREIGN KEY (payload_id) REFERENCES Payloads(payload_id), launch_status VARCHAR(10));
8
9
10 INSERT INTO Missions VALUES ('2006-03-24T22:30:00.000', 'FalconSat', '5e9d0d95eda69955f709d1eb', '5e9e4502f5090995de566f86', '5eb87cd9ffd86e000604b32a', '5eb0e4b5b6c3bb0006eeb1e1',
11 INSERT INTO Missions VALUES ('2007-03-21T01:10:00.000', 'DemoSat', '5e9d0d95eda69955f709d1eb', '5e9e4502f5090995de566f86', '5eb87cdaffd86e000604b32b', '5eb0e4b7b6c3bb0006eeb1e5',
12 INSERT INTO Missions VALUES ('2008-08-03T03:34:00.000', 'Traillblazer', '5e9d0d95eda69955f709d1eb', '5e9e4502f5090995de566f86', '5eb87cdaffd86e000604b32c', '5eb0e4b7b6c3bb0006eeb1e6',
13 INSERT INTO Missions VALUES ('2008-09-28T23:15:00.000', 'RatSat', '5e9d0d95eda69955f709d1eb', '5e9e4502f5090995de566f86', '5eb87cdaffd86e000604b32d', '5eb0e4bab6c3bb0006eeb1e8',
14 INSERT INTO Missions VALUES ('2009-07-13T03:35:00.000', 'RazakSat', '5e9d0d95eda69955f709d1eb', '5e9e4502f5090995de566f86', '5eb87cdcffd86e000604b32e', '5eb0e4bab6c3bb0006eeb1e9',
15 INSERT INTO Missions VALUES ('2010-06-04T18:45:00.000', 'Falcon 9 Test Flight', '5e9d0d95eda69973a809d1ec', '5e9e4501f509094ba4566f84', '5eb87cdcffd86e000604b32f', '5eb0e4bab6c3bb0006eeb1e0',
16 INSERT INTO Missions VALUES ('2010-12-08T15:43:00.000', 'COTS 1', '5e9d0d95eda69973a809d1ec', '5e9e4501f509094ba4566f84', '5eb87cdfffd86e000604b330', '5eb0e4bab6c3bb0006eeb1e1',
17 INSERT INTO Missions VALUES ('2012-05-22T07:44:00.000', 'COTS 2', '5e9d0d95eda69973a809d1ec', '5e9e4501f509094ba4566f84', '5eb87cdfffd86e000604b331', '5eb0e4bbb6c3bb0006eeb1e2',
18 INSERT INTO Missions VALUES ('2012-10-08T00:35:00.000', 'CRS-1', '5e9d0d95eda69973a809d1ec', '5e9e4501f509094ba4566f84', '5eb87ce0fffd86e000604b332', '5eb0e4bbb6c3bb0006eeb1e3',
19 INSERT INTO Missions VALUES ('2013-03-01T19:10:00.000', 'CRS-2', '5e9d0d95eda69973a809d1ec', '5e9e4501f509094ba4566f84', '5eb87ce1fffd86e000604b333', '5eb0e4bbb6c3bb0006eeb1f0',
20 INSERT INTO Missions VALUES ('2013-09-29T16:00:00.000', 'CASSIOPE', '5e9d0d95eda69973a809d1ec', '5e9e4502f509092b78566f87', '5eb87ce1fffd86e000604b334', '5eb0e4bbb6c3bb0006eeb1f1',
21 INSERT INTO Missions VALUES ('2013-12-03T22:41:00.000', 'SES-8', '5e9d0d95eda69973a809d1ec', '5e9e4501f509094ba4566f84', '5eb87ce2fffd86e000604b335', '5eb0e4bc6c3bb0006eeb1f2',
22 INSERT INTO Missions VALUES ('2014-01-06T18:06:00.000', 'Thaicom 6', '5e9d0d95eda69973a809d1ec', '5e9e4501f509094ba4566f84', '5eb87ce3fffd86e000604b336', '5eb0e4bc6c3bb0006eeb1f3',
23 INSERT INTO Missions VALUES ('2014-04-18T19:25:00.000', 'CRS-3', '5e9d0d95eda69973a809d1ec', '5e9e4501f509094ba4566f84', '5eb87ce4fffd86e000604b337', '5eb0e4bc6c3bb0006eeb1f4',
24 INSERT INTO Missions VALUES ('2014-07-14T15:15:00.000', 'OG-2 Mission 1', '5e9d0d95eda69973a809d1ec', '5e9e4501f509094ba4566f84', '5eb87ce4fffd86e000604b338', '5eb0e4bc6c3bb0006eeb1f5',
25
26 SELECT * FROM Missions;

```

	date	name	rocket_id	launchpad_id	launch_id	payload_id	launch_status
0	2006-03-24 22:30:00	FalconSat	5e9d0d95eda69955f709d1eb	5e9e4502f5090995de566f86	5eb87cd9ffd86e000604b32a	5eb0e4b5b6c3bb0006eeb1e1	False
1	2007-03-21 01:10:00	DemoSat	5e9d0d95eda69955f709d1eb	5e9e4502f5090995de566f86	5eb87cdaffd86e000604b32b	5eb0e4b7b6c3bb0006eeb1e5	False
2	2008-08-03 03:34:00	Traillblazer	5e9d0d95eda69955f709d1eb	5e9e4502f5090995de566f86	5eb87cdaffd86e000604b32c	5eb0e4b7b6c3bb0006eeb1e6	False
3	2008-09-28 23:15:00	RatSat	5e9d0d95eda69955f709d1eb	5e9e4502f5090995de566f86	5eb87cdaffd86e000604b32d	5eb0e4bab6c3bb0006eeb1ea	True
4	2009-07-13 03:35:00	RazakSat	5e9d0d95eda69955f709d1eb	5e9e4502f5090995de566f86	5eb87cdcffd86e000604b32e	5eb0e4bab6c3bb0006eeb1eb	True

- Administrators

```
1 USE `SpaceX-DB`;
2
3
4 CREATE TABLE Administrators (admin_id VARCHAR(12) NOT NULL PRIMARY KEY,
5 name VARCHAR(25),password VARCHAR(20) CHECK ( LENGTH(password) > 8 ), access_level VARCHAR(10));
6
7 INSERT INTO Administrators VALUES ( '121810303009' , 'Rohan', '121810303009', 'root' );
8 INSERT INTO Administrators VALUES ( '121810303033' , 'Hari Priya', '121810303033', 'standard' );
9 INSERT INTO Administrators VALUES ( '121810303023' , 'Dheeraj', '121810303023', 'standard' );
10 INSERT INTO Administrators VALUES ( '121810303032' , 'Nikhil', '121810303032', 'standard' );
11 INSERT INTO Administrators VALUES ( '121810303062' , 'Kamala Sree', '121810303062', 'standard' );
12 INSERT INTO Administrators VALUES ( '121810303046' , 'Sri Charan', '121810303033', 'standard' );
13
14 SELECT * FROM Administrators;
15
16
17
```

	admin_id	name	password	access_level
0	121810303009	Rohan	121810303009	root
1	121810303023	Dheeraj	121810303023	standard
2	121810303032	Nikhil	121810303032	standard
3	121810303033	Hari Priya	121810303033	standard
4	121810303046	Sri Charan	121810303033	standard
5	121810303062	Kamala Sree	121810303062	standard

- First Stage Recovery

```

1 USE `SpaceX-DB`;
2
3
4 CREATE TABLE First_stage_Recovery ([ship_id VARCHAR(24), rocket_id VARCHAR(24),role VARCHAR(50),
5 FOREIGN KEY (ship_id) REFERENCES DroneShip(ship_id), FOREIGN KEY (rocket_id) REFERENCES Rockets(rocket_id)]);
6
7
8 INSERT INTO First_stage_Recovery VALUES ('5ea6ed2d080df4000697c901','5e9d0d95eda69955f709d1eb','Fairing Recovery');
9 INSERT INTO First_stage_Recovery VALUES ('5ea6ed2e080df4000697c908','5e9d0d95eda69973a809d1ec','ASDS Tug');
10 INSERT INTO First_stage_Recovery VALUES ('5ea6ed2e080df4000697c90a','5e9d0d95eda69955f709d1eb','Fairing Recovery');
11 INSERT INTO First_stage_Recovery VALUES ('5ea6ed2f080df4000697c90d','5e9d0d95eda69973a809d1ec','Support Ship');
12 INSERT INTO First_stage_Recovery VALUES ('5ea6ed2d080df4000697c907','5e9d0d95eda69974db09d1ed','Support Ship');
13 INSERT INTO First_stage_Recovery VALUES ('5ea6ed2d080df4000697c907','5e9d0d95eda69955f709d1eb','ASDS Tug');
14 INSERT INTO First_stage_Recovery VALUES ('5ea6ed30080df4000697c916','5e9d0d95eda69973a809d1ec','ASDS Tug');
15 INSERT INTO First_stage_Recovery VALUES ('5ea6ed2e080df4000697c908','5e9d0d95eda69973a809d1ec','Fairing Recovery');
16 INSERT INTO First_stage_Recovery VALUES ('5ea6ed2e080df4000697c90a','5e9d0d95eda69973a809d1ec','ASDS Tug');
17 INSERT INTO First_stage_Recovery VALUES ('5ea6ed2f080df4000697c90d','5e9d0d95eda69955f709d1eb','Fairing Recovery');
18
19 SELECT * FROM First_stage_Recovery
20
21

```

	ship_id	rocket_id	role
0	5ea6ed2d080df4000697c901	5e9d0d95eda69955f709d1eb	Fairing Recovery
1	5ea6ed2e080df4000697c908	5e9d0d95eda69973a809d1ec	ASDS Tug
2	5ea6ed2e080df4000697c90a	5e9d0d95eda69955f709d1eb	Fairing Recovery
3	5ea6ed2f080df4000697c90d	5e9d0d95eda69973a809d1ec	Support Ship
4	5ea6ed2d080df4000697c907	5e9d0d95eda69974db09d1ed	Support Ship
5	5ea6ed2d080df4000697c907	5e9d0d95eda69955f709d1eb	ASDS Tug
6	5ea6ed30080df4000697c916	5e9d0d95eda69973a809d1ec	ASDS Tug
7	5ea6ed2e080df4000697c908	5e9d0d95eda69973a809d1ec	Fairing Recovery
8	5ea6ed2e080df4000697c90a	5e9d0d95eda69973a809d1ec	ASDS Tug
9	5ea6ed2f080df4000697c90d	5e9d0d95eda69955f709d1eb	Fairing Recovery

- Delivers

```

1 USE `SpaceX-DB`;
2
3 CREATE TABLE Delivers (payload_id VARCHAR(24), rocket_id VARCHAR(24), name VARCHAR(50), FOREIGN KEY (payload_id) REFERENCES Payloads(payload_id),
4 FOREIGN KEY (rocket_id) REFERENCES Rockets(rocket_id));
5
6
7 INSERT INTO Delivers VALUES ('5eb0e4b5b6c3bb0006eeb1e1', '5e9d0d95eda69955f709d1eb', 'FalconSat');
8 INSERT INTO Delivers VALUES ('5eb0e4b7b6c3bb0006eeb1e5', '5e9d0d95eda69955f709d1eb', 'DemoSat');
9 INSERT INTO Delivers VALUES ('5eb0e4b7b6c3bb0006eeb1e6', '5e9d0d95eda69955f709d1eb', 'Trailblazer');
10 INSERT INTO Delivers VALUES ('5eb0e4bab6c3bb0006eeb1ea', '5e9d0d95eda69955f709d1eb', 'RatSat');
11 INSERT INTO Delivers VALUES ('5eb0e4bab6c3bb0006eeb1eb', '5e9d0d95eda69955f709d1eb', 'RazakSat');
12 INSERT INTO Delivers VALUES ('5eb0e4bab6c3bb0006eeb1ec', '5e9d0d95eda69973a809d1ec', 'Falcon 9 Test Flight');
13 INSERT INTO Delivers VALUES ('5eb0e4bbb6c3bb0006eeb1ed', '5e9d0d95eda69973a809d1ec', 'COTS 1');
14 INSERT INTO Delivers VALUES ('5eb0e4bbb6c3bb0006eeb1ee', '5e9d0d95eda69973a809d1ec', 'COTS 2');
15 INSERT INTO Delivers VALUES ('5eb0e4bbb6c3bb0006eeb1ef', '5e9d0d95eda69973a809d1ec', 'CRS-1');
16 INSERT INTO Delivers VALUES ('5eb0e4bbb6c3bb0006eeb1f0', '5e9d0d95eda69973a809d1ec', 'CRS-2');
17 INSERT INTO Delivers VALUES ('5eb0e4bbb6c3bb0006eeb1f1', '5e9d0d95eda69973a809d1ec', 'CASSIOPE');
18 INSERT INTO Delivers VALUES ('5eb0e4bc6c3bb0006eeb1f2', '5e9d0d95eda69973a809d1ec', 'SES-8');
19 INSERT INTO Delivers VALUES ('5eb0e4bc6c3bb0006eeb1f3', '5e9d0d95eda69973a809d1ec', 'Thaicom 6');
20 INSERT INTO Delivers VALUES ('5eb0e4bc6c3bb0006eeb1f4', '5e9d0d95eda69973a809d1ec', 'CRS-3');
21 INSERT INTO Delivers VALUES ('5eb0e4bc6c3bb0006eeb1f5', '5e9d0d95eda69973a809d1ec', 'OG-2 Mission 1');
22 INSERT INTO Delivers VALUES ('5eb0e4bd6c3bb0006eeb1f6', '5e9d0d95eda69973a809d1ec', 'AsiaSat 8');
23 INSERT INTO Delivers VALUES ('5eb0e4bd6c3bb0006eeb1f7', '5e9d0d95eda69973a809d1ec', 'AsiaSat 6');
24
25 SELECT * FROM Delivers;
26

```

	payload_id	rocket_id	name
0	5eb0e4b5b6c3bb0006eeb1e1	5e9d0d95eda69955f709d1eb	FalconSat
1	5eb0e4b7b6c3bb0006eeb1e5	5e9d0d95eda69955f709d1eb	DemoSat
2	5eb0e4b7b6c3bb0006eeb1e6	5e9d0d95eda69955f709d1eb	Trailblazer
3	5eb0e4bab6c3bb0006eeb1ea	5e9d0d95eda69955f709d1eb	RatSat
4	5eb0e4bab6c3bb0006eeb1eb	5e9d0d95eda69955f709d1eb	RazakSat
...
66	5eb0e4c9b6c3bb0006eeb22d	5e9d0d95eda69973a809d1ec	Telstar 18V
67	5eb0e4c9b6c3bb0006eeb22e	5e9d0d95eda69973a809d1ec	SAOCOM 1A
68	5eb0e4cab6c3bb0006eeb22f	5e9d0d95eda69973a809d1ec	Es'hail 2
69	5eb0e4cab6c3bb0006eeb230	5e9d0d95eda69973a809d1ec	SSO-A
70	5eb0e4cab6c3bb0006eeb231	5e9d0d95eda69973a809d1ec	CRS-16

71 rows × 3 columns

- Assigns

```

1 USE `SpaceX-DB`;
2
3
4 CREATE TABLE Assigns ([date DATETIME, name VARCHAR(50) , rocket_id VARCHAR(24), launch_id VARCHAR(24),
5 FOREIGN KEY (launch_id) REFERENCES Missions(launch_id), FOREIGN KEY (rocket_id) REFERENCES Rockets(rocket_id)]);
6
7
8 INSERT INTO Assigns VALUES ('2006-03-24T22:30:00.000' , 'FalconSat' , '5e9d0d95eda69955f709d1eb' , '5eb87cd9ffd86e000604b32a');
9 INSERT INTO Assigns VALUES ('2007-03-21T01:10:00.000' , 'DemoSat' , '5e9d0d95eda69955f709d1eb' , '5eb87cdaffd86e000604b32b');
10 INSERT INTO Assigns VALUES ('2008-08-03T03:34:00.000' , 'Trailblazer' , '5e9d0d95eda69955f709d1eb' , '5eb87cdbffd86e000604b32c');
11 INSERT INTO Assigns VALUES ('2008-09-28T23:15:00.000' , 'RatSat' , '5e9d0d95eda69955f709d1eb' , '5eb87cdbffd86e000604b32d');
12 INSERT INTO Assigns VALUES ('2009-07-13T03:35:00.000' , 'RazakSat' , '5e9d0d95eda69955f709d1eb' , '5eb87cdcffd86e000604b32e');
13 INSERT INTO Assigns VALUES ('2010-06-04T18:45:00.000' , 'Falcon 9 Test Flight' , '5e9d0d95eda69973a809d1ec' , '5eb87cddf86e000604b32f');
14 INSERT INTO Assigns VALUES ('2010-12-08T15:43:00.000' , 'COTS 1' , '5e9d0d95eda69973a809d1ec' , '5eb87cdeffd86e000604b330');
15 INSERT INTO Assigns VALUES ('2012-05-22T07:44:00.000' , 'COTS 2' , '5e9d0d95eda69973a809d1ec' , '5eb87cdfff86e000604b331');
16 INSERT INTO Assigns VALUES ('2012-10-08T00:35:00.000' , 'CRS-1' , '5e9d0d95eda69973a809d1ec' , '5eb87ce0ffd86e000604b332');
17 INSERT INTO Assigns VALUES ('2013-03-01T19:10:00.000' , 'CRS-2' , '5e9d0d95eda69973a809d1ec' , '5eb87ce1ffd86e000604b333');
18 INSERT INTO Assigns VALUES ('2013-09-29T16:00:00.000' , 'CASSIOPE' , '5e9d0d95eda69973a809d1ec' , '5eb87ce1ffd86e000604b334');
19 INSERT INTO Assigns VALUES ('2013-12-03T22:41:00.000' , 'SES-8' , '5e9d0d95eda69973a809d1ec' , '5eb87ce2ffd86e000604b335');
20 INSERT INTO Assigns VALUES ('2014-01-06T18:06:00.000' , 'Thaicom 6' , '5e9d0d95eda69973a809d1ec' , '5eb87ce3ffd86e000604b336');
21
22
23 SELECT * FROM Assigns;

```

	date	name	rocket_id	launch_id
0	2006-03-24 22:30:00	FalconSat	5e9d0d95eda69955f709d1eb	5eb87cd9ffd86e000604b32a
1	2007-03-21 01:10:00	DemoSat	5e9d0d95eda69955f709d1eb	5eb87cdaffd86e000604b32b
2	2008-08-03 03:34:00	Trailblazer	5e9d0d95eda69955f709d1eb	5eb87cdbffd86e000604b32c
3	2008-09-28 23:15:00	RatSat	5e9d0d95eda69955f709d1eb	5eb87cdbffd86e000604b32d
4	2009-07-13 03:35:00	RazakSat	5e9d0d95eda69955f709d1eb	5eb87cdcffd86e000604b32e
5	2010-06-04 18:45:00	Falcon 9 Test Flight	5e9d0d95eda69973a809d1ec	5eb87cddf86e000604b32f
6	2010-12-08 15:43:00	COTS 1	5e9d0d95eda69973a809d1ec	5eb87cdeffd86e000604b330
7	2012-05-22 07:44:00	COTS 2	5e9d0d95eda69973a809d1ec	5eb87cdfff86e000604b331
8	2012-10-08 00:35:00	CRS-1	5e9d0d95eda69973a809d1ec	5eb87ce0ffd86e000604b332
9	2013-03-01 19:10:00	CRS-2	5e9d0d95eda69973a809d1ec	5eb87ce1ffd86e000604b333
10	2013-09-29 16:00:00	CASSIOPE	5e9d0d95eda69973a809d1ec	5eb87ce1ffd86e000604b334
11	2013-12-03 22:41:00	SES-8	5e9d0d95eda69973a809d1ec	5eb87ce2ffd86e000604b335
12	2014-01-06 18:06:00	Thaicom 6	5e9d0d95eda69973a809d1ec	5eb87ce3ffd86e000604b336
13	2014-04-18 19:25:00	CRS-3	5e9d0d95eda69973a809d1ec	5eb87ce4ffd86e000604b337
14	2014-07-14 15:15:00	OG-2 Mission 1	5e9d0d95eda69973a809d1ec	5eb87ce4ffd86e000604b338
15	2014-08-05 08:00:00	AsiaSat 8	5e9d0d95eda69973a809d1ec	5eb87ce5ffd86e000604b339
16	2014-09-07 05:00:00	AsiaSat 6	5e9d0d95eda69973a809d1ec	5eb87ce6ffd86e000604b33a

- Launches

```

1 USE `SpaceX-DB`;
2
3 CREATE TABLE Launches (launchpad_id VARCHAR(24),rocket_id VARCHAR(24), name VARCHAR(50), status VARCHAR(30),
4 FOREIGN KEY (launchpad_id) REFERENCES LaunchPads(launchpad_id), FOREIGN KEY (rocket_id) REFERENCES Rockets(rocket_id));
5
6
7 INSERT INTO Launches VALUES ('5e9e4501f509094ba4566f84' , '5e9d0d95eda69973a809d1ec' , 'CCAFS SLC 40','active');
8 INSERT INTO Launches VALUES ('5e9e4502f5090995de566f86' , '5e9d0d95eda69955f709d1eb' , 'Kwajalein Atoll','retired');
9 INSERT INTO Launches VALUES ('5e9e4502f5090927f8566f85' , '5e9d0d95eda69973a809d1ec' , 'STLS','under construction');
10 INSERT INTO Launches VALUES ('5e9e4502f509092b78566f87' , '5e9d0d95eda69973a809d1ec' , 'VAFB SLC 4E','active');
11 INSERT INTO Launches VALUES ('5e9e4502f509092b78566f87' , '5e9d0d95eda69973a809d1ec' , 'VAFB SLC 4E','active');
12 INSERT INTO Launches VALUES ('5e9e4502f5090927f8566f85' , '5e9d0d95eda69973a809d1ec' , 'STLS','under construction');
13 INSERT INTO Launches VALUES ('5e9e4501f509094ba4566f84' , '5e9d0d95eda69973a809d1ec' , 'CCAFS SLC 40','active');
14 INSERT INTO Launches VALUES ('5e9e4501f509094ba4566f84' , '5e9d0d95eda69973a809d1ec' , 'CCAFS SLC 40','active');
15 INSERT INTO Launches VALUES ('5e9e4501f509094ba4566f84' , '5e9d0d95eda69973a809d1ec' , 'CCAFS SLC 40','active');
16 INSERT INTO Launches VALUES ('5e9e4502f5090995de566f86' , '5e9d0d95eda69973a809d1ec' , 'Kwajalein Atoll','retired');
17 INSERT INTO Launches VALUES ('5e9e4502f5090995de566f86' , '5e9d0d95eda69973a809d1ec' , 'Kwajalein Atoll','retired');
18 INSERT INTO Launches VALUES ('5e9e4502f509094188566f88' , '5e9d0d95eda69973a809d1ec' , 'KSC LC 39A','active');
19 INSERT INTO Launches VALUES ('5e9e4502f5090995de566f86' , '5e9d0d95eda69973a809d1ec' , 'Kwajalein Atoll','retired');
20
21 SELECT * FROM Launches;

```

	launchpad_id	rocket_id	name	status
0	5e9e4501f509094ba4566f84	5e9d0d95eda69973a809d1ec	CCAFS SLC 40	active
1	5e9e4502f5090995de566f86	5e9d0d95eda69955f709d1eb	Kwajalein Atoll	retired
2	5e9e4502f5090927f8566f85	5e9d0d95eda69973a809d1ec	STLS	under construction
3	5e9e4502f509092b78566f87	5e9d0d95eda69973a809d1ec	VAFB SLC 4E	active
4	5e9e4502f509092b78566f87	5e9d0d95eda69973a809d1ec	VAFB SLC 4E	active
5	5e9e4502f5090927f8566f85	5e9d0d95eda69973a809d1ec	STLS	under construction
6	5e9e4501f509094ba4566f84	5e9d0d95eda69973a809d1ec	CCAFS SLC 40	active
7	5e9e4501f509094ba4566f84	5e9d0d95eda69973a809d1ec	CCAFS SLC 40	active
8	5e9e4501f509094ba4566f84	5e9d0d95eda69973a809d1ec	CCAFS SLC 40	active
9	5e9e4502f5090995de566f86	5e9d0d95eda69973a809d1ec	Kwajalein Atoll	retired
10	5e9e4502f5090995de566f86	5e9d0d95eda69973a809d1ec	Kwajalein Atoll	retired
11	5e9e4502f509094188566f88	5e9d0d95eda69973a809d1ec	KSC LC 39A	active
12	5e9e4502f5090995de566f86	5e9d0d95eda69973a809d1ec	Kwajalein Atoll	retired
13	5e9e4502f509094188566f88	5e9d0d95eda69974db09d1ed	KSC LC 39A	active
14	5e9e4502f5090995de566f86	5e9d0d95eda69973a809d1ec	Kwajalein Atoll	retired
15	5e9e4502f509094188566f88	5e9d0d95eda69973a809d1ec	KSC LC 39A	active
16	5e9e4502f5090927f8566f85	5e9d0d95eda69973a809d1ec	STLS	under construction

- Updates Data

```

1 USE `SpaceX-DB`;
2
3 CREATE TABLE Updates_data (admin_id VARCHAR(12), launch_id VARCHAR(24), name VARCHAR(50), launch_status VARCHAR(10),
4 FOREIGN KEY (admin_id) REFERENCES Administrators(admin_id), FOREIGN KEY (launch_id) REFERENCES Missions(launch_id));
5
6
7 INSERT INTO Updates_data VALUES ('121810303009' , '5eb87cd9ffd86e000604b32a', 'FalconSat', 'False');
8 INSERT INTO Updates_data VALUES ('121810303009' , '5eb87cdaffd86e000604b32b', 'DemoSat', 'False');
9 INSERT INTO Updates_data VALUES ('121810303023' , '5eb87cdbffd86e000604b32c', 'Trailblazer', 'False');
10 INSERT INTO Updates_data VALUES ('121810303032' , '5eb87cdbffd86e000604b32d', 'RatSat', 'True');
11 INSERT INTO Updates_data VALUES ('121810303033' , '5eb87cdcffd86e000604b32e', 'RazakSat', 'True');
12 INSERT INTO Updates_data VALUES ('121810303033' , '5eb87cddffd86e000604b32f', 'Falcon 9 Test Flight', 'True');
13 INSERT INTO Updates_data VALUES ('121810303062' , '5eb87cdeffd86e000604b330', 'COTS 1', 'True');
14 INSERT INTO Updates_data VALUES ('121810303046' , '5eb87cdffffd86e000604b331', 'COTS 2', 'True');
15 INSERT INTO Updates_data VALUES ('121810303046' , '5eb87ce0ffd86e000604b332', 'CRS-1', 'True');
16 INSERT INTO Updates_data VALUES ('121810303009' , '5eb87ce1ffd86e000604b333', 'CRS-2', 'True');
17 INSERT INTO Updates_data VALUES ('121810303046' , '5eb87ce1ffd86e000604b334', 'CASSIOPE', 'True');
18 INSERT INTO Updates_data VALUES ('121810303032' , '5eb87ce2ffd86e000604b335', 'SES-8', 'True');
19 INSERT INTO Updates_data VALUES ('121810303046' , '5eb87ce3ffd86e000604b336', 'Thaicom 6', 'True');
20 INSERT INTO Updates_data VALUES ('121810303009' , '5eb87ce4ffd86e000604b337', 'CRS-3', 'True');
21 INSERT INTO Updates_data VALUES ('121810303009' , '5eb87ce4ffd86e000604b338', 'OG-2 Mission 1', 'True');
22
23 SELECT * FROM Updates_data;
24

```

	admin_id	launch_id	name	launch_status
0	121810303009	5eb87cd9ffd86e000604b32a	FalconSat	False
1	121810303009	5eb87cdaffd86e000604b32b	DemoSat	False
2	121810303023	5eb87cdbffd86e000604b32c	Trailblazer	False
3	121810303032	5eb87cdbffd86e000604b32d	RatSat	True
4	121810303033	5eb87cdcffd86e000604b32e	RazakSat	True
...
66	121810303033	5eb87d22ffd86e000604b36d	Telstar 18V	True
67	121810303009	5eb87d23ffd86e000604b36e	SAOCOM 1A	True
68	121810303023	5eb87d24ffd86e000604b36f	Es'hail 2	True
69	121810303046	5eb87d25ffd86e000604b370	SSO-A	True
70	121810303009	5eb87d26ffd86e000604b371	CRS-16	True

71 rows × 4 columns

