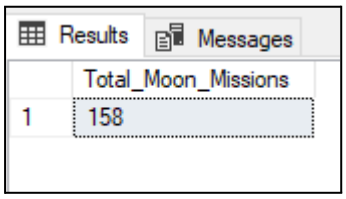
Objective:-

To perform data analysis on a dataset containing all the data about all the Lunar Missions carried out by different countries till Date and extract meaningful insights from it using SQL.

KPI's:-

1)Total Number Of Moon Missions

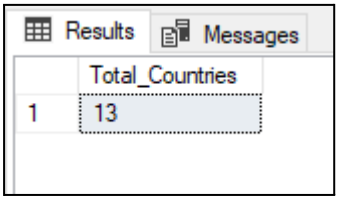
```
SELECT COUNT(Mission) AS Total_Moon_Missions FROM moon_missions ;
```



2) No of Countries Who Carried Out Moon Missions Till Date

-

```
SELECT COUNT(DISTINCT Country) AS Total_Countries FROM moon_missions ;
```



3) No of Moon Missions By Each Country During 1958-2023

```
SELECT COUNT(*) AS Mission_Count, Country
FROM moon_missions
GROUP BY Country
ORDER BY Mission_Count;
```

Results | Messages

	Mission_Count	Country
1	1	Israel
2	1	Italy
3	1	Japan United States
4	1	Luxembourg
5	1	Russia
6	1	South Korea
7	1	UAE
8	2	European Union
9	4	India
10	10	Japan
11	15	China
12	54	Soviet Union
13	66	United States

4) No of Moon Missions By Space Organisations During 1958-2023

```
SELECT COUNT(*) AS Mission_Count, Agency
FROM moon_missions
GROUP BY Agency
ORDER BY Mission_Count;
```

100 %

Results | Messages

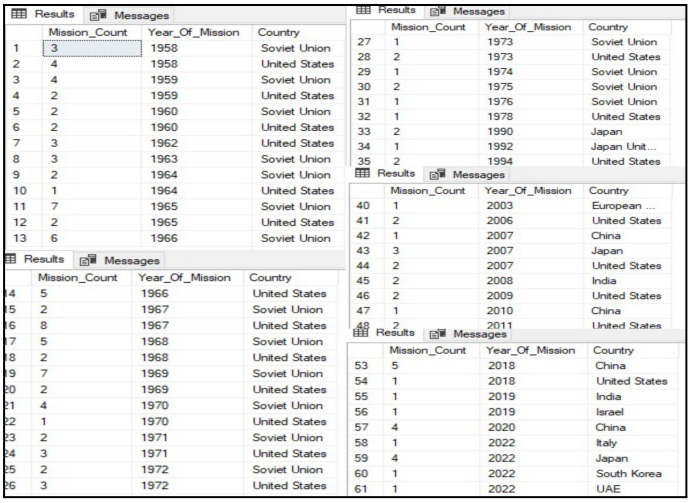
	Mission_Count	Agency
1	1	ASI
2	1	Fluid & Reason
3	1	Hughes
4	1	ISAS/NASA
5	1	ispace
6	1	KARI
7	1	Lockheed Martin
8	1	LuxSpace
9	1	Roscosmos
10	1	SpaceIL
11	1	Tomy/JAXA/Dodai
12	1	UAESA/MBRSC
13	1	USAF

Results | Messages

	Mission_Count	Agency
10	1	SpaceIL
11	1	Tomy/JAXA/Dodai
12	1	UAESA/MBRSC
13	1	USAF
14	1	USAF/NASA
15	2	ESA
16	3	ISAS
17	4	ISRO
18	5	JAXA
19	15	CNSA
20	15	OKB-1
21	39	Lavochkin
22	61	NASA

5) No of Moon Missions By Each Country In Each Year During 1958-2023

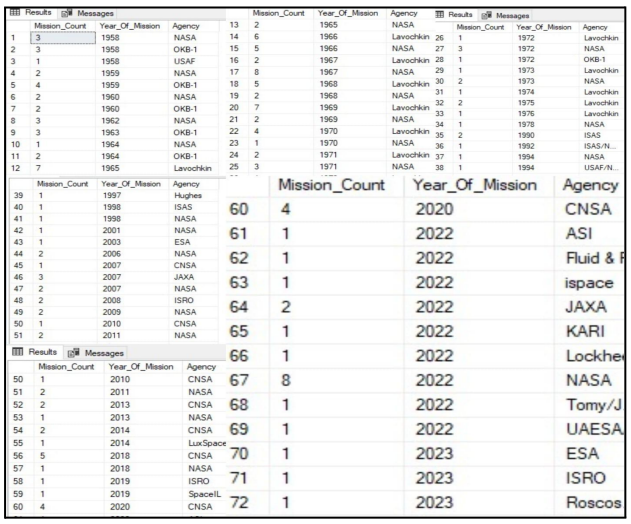
```
SELECT COUNT(*) AS Mission_Count, YEAR(Launch_Date) AS Year_Of_Mission, Country
FROM moon_missions
GROUP BY YEAR(Launch_Date), Country
ORDER BY Year_Of_Mission ASC, Country ASC;
```



	Mission_Count	Year_Of_Mission	Country
1	3	1958	Soviet Union
2	4	1958	United States
3	4	1959	Soviet Union
4	2	1959	United States
5	2	1960	Soviet Union
6	2	1960	United States
7	3	1962	United States
8	3	1963	Soviet Union
9	2	1964	Soviet Union
10	1	1964	United States
11	7	1965	Soviet Union
12	2	1965	United States
13	6	1966	Soviet Union
14	5	1966	United States
15	2	1967	Soviet Union
16	8	1967	United States
17	5	1968	Soviet Union
18	2	1968	United States
19	7	1969	Soviet Union
20	2	1969	United States
21	4	1970	Soviet Union
22	1	1970	United States
23	2	1971	Soviet Union
24	3	1971	United States
25	2	1972	Soviet Union
26	3	1972	United States
27	1	1973	Soviet Union
28	2	1973	United States
29	1	1974	Soviet Union
30	2	1975	Soviet Union
31	1	1976	Soviet Union
32	1	1978	United States
33	2	1990	Japan
34	1	1992	Japan Unit...
35	2	1994	United States
40	1	2003	European ...
41	2	2006	United States
42	1	2007	China
43	3	2007	Japan
44	2	2007	United States
45	2	2008	India
46	2	2009	United States
47	1	2010	China
48	2	2011	United States
53	5	2018	China
54	1	2018	United States
55	1	2019	India
56	1	2019	Israel
57	4	2020	China
58	1	2022	Italy
59	4	2022	Japan
60	1	2022	South Korea
61	1	2022	UAE

6) No of Moon Missions By Each Space Organisation In Each Year During 1958-2023

```
SELECT COUNT(*) AS Mission_Count, YEAR(Launch_Date) AS Year_Of_Mission, Agency
FROM moon_missions
GROUP BY YEAR(Launch_Date), Agency
ORDER BY Year_Of_Mission ASC, Agency ASC;
```



	Mission_Count	Year_Of_Mission	Agency
60	4	2020	CNSA
61	1	2022	ASI
62	1	2022	Fluid & F
63	1	2022	ispace
64	2	2022	JAXA
65	1	2022	KARI
66	1	2022	Lockhe
67	8	2022	NASA
68	1	2022	Tomy/J
69	1	2022	UAESA
70	1	2023	ESA
71	1	2023	ISRO
72	1	2023	Roscos

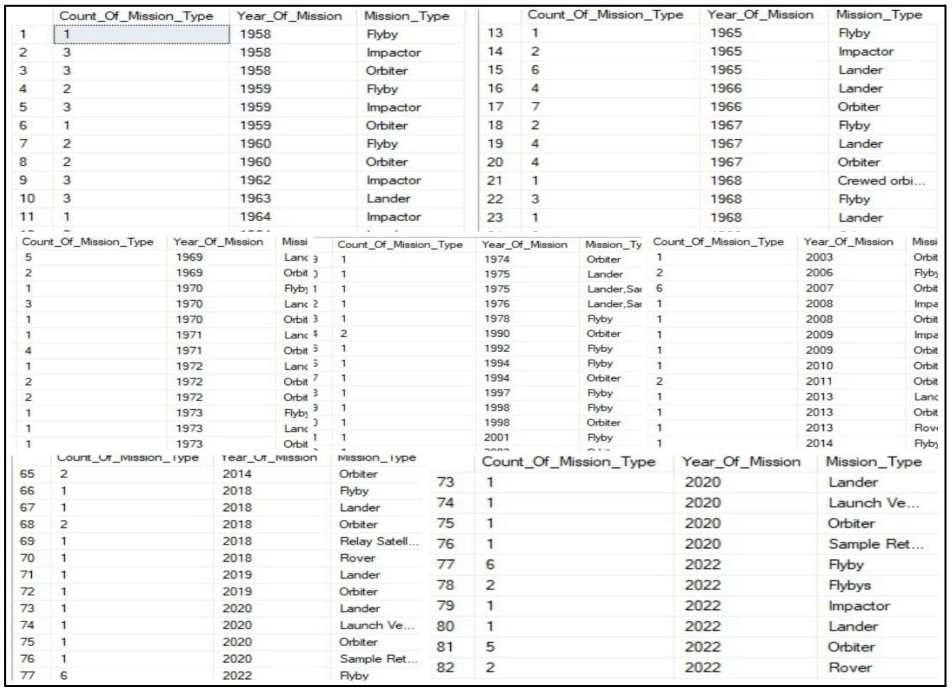
7) No of Moon Missions By Mission Type

```
SELECT COUNT(Mission_Type) AS Count_Of_Mission_Type, Mission_Type
FROM moon_missions
GROUP BY Mission_Type;
```

	Count_Of_Mission_Type	Mission_Type
1	1	Crewed orbiter
2	31	Flyby
3	1	Flyby / Impactor (post mission)
4	2	Flybys
5	15	Impactor
6	38	Lander
7	2	Lander,Sample Return
8	1	Launch Vehicle
9	59	Orbiter
10	2	Orbiter,Lander,Rover
11	1	Relay Satellite
12	4	Rover
13	1	Sample Return

8) No of Moon Missions By Mission Type In Each Year During 1958-2023

```
SELECT COUNT(Mission_Type) AS Count_Of_Mission_Type,YEAR(Launch_Date) AS
Year_Of_Mission, Mission_Type
FROM moon_missions
GROUP BY YEAR(Launch_Date), Mission_Type
ORDER BY  Year_Of_Mission ASC, Mission_Type ASC;
```



	Count_Of_Mission_Type	Year_Of_Mission	Mission_Type
1	1	1958	Flyby
2	3	1958	Impactor
3	3	1958	Orbiter
4	2	1959	Flyby
5	3	1959	Impactor
6	1	1959	Orbiter
7	2	1960	Flyby
8	2	1960	Orbiter
9	3	1962	Impactor
10	3	1963	Lander
11	1	1964	Impactor

	Count_Of_Mission_Type	Year_Of_Mission	Mission_Type
13	1	1965	Flyby
14	2	1965	Impactor
15	6	1965	Lander
16	4	1966	Lander
17	7	1966	Orbiter
18	2	1967	Flyby
19	4	1967	Lander
20	4	1967	Orbiter
21	1	1968	Crewed orbi...
22	3	1968	Flyby
23	1	1968	Lander

Count_Of_Mission_Type	Year_Of_Mission	Missi
5	1969	Lanc
2	1969	Orbit
1	1970	Flyb
3	1970	Lanc
1	1970	Orbit
1	1971	Lanc
4	1971	Orbit
1	1972	Lanc
2	1972	Orbit
2	1972	Orbit
1	1973	Flyb
1	1973	Lanc
1	1973	Orbit

	Count_Of_Mission_Type	Year_Of_Mission	Mission_Ty
3	1	1974	Orbiter
1	1	1975	Lander
1	1	1975	Lander,Sa
2	1	1976	Lander,Sa
3	1	1978	Flyby
4	2	1990	Orbiter
5	1	1992	Flyby
6	1	1994	Flyby
7	1	1994	Orbiter
8	1	1997	Flyby
9	1	1998	Flyby
10	1	1998	Orbiter
11	1	2001	Flyby

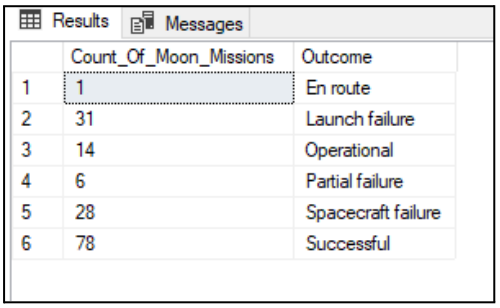
	Count_Of_Mission_Type	Year_Of_Mission	Missi
1	2003	Orbit	
2	2006	Flyby	
6	2007	Orbit	
1	2008	Impa	
1	2008	Orbit	
1	2009	Impa	
1	2009	Orbit	
1	2010	Orbit	
2	2011	Orbit	
1	2013	Lanc	
1	2013	Orbit	
1	2013	Rov	
1	2014	Flyby	

	Count_Of_Mission_Type	Year_Of_Mission	Mission_Type
65	2	2014	Orbiter
66	1	2018	Flyby
67	1	2018	Lander
68	2	2018	Orbiter
69	1	2018	Relay Satell...
70	1	2018	Rover
71	1	2019	Lander
72	1	2019	Orbiter
73	1	2020	Lander
74	1	2020	Launch Ve...
75	1	2020	Orbiter
76	1	2020	Sample Ret...
77	6	2022	Flyby

	Count_Of_Mission_Type	Year_Of_Mission	Mission_Type
73	1	2020	Lander
74	1	2020	Launch Ve...
75	1	2020	Orbiter
76	1	2020	Sample Ret...
77	6	2022	Flyby
78	2	2022	Flybys
79	1	2022	Impactor
80	1	2022	Lander
81	5	2022	Orbiter
82	2	2022	Rover

9) No Of Moon Missions By Outcomes

```
SELECT COUNT(*) AS Count_Of_Moon_Missions,Outcome
FROM moon_missions
Group By Outcome;
```

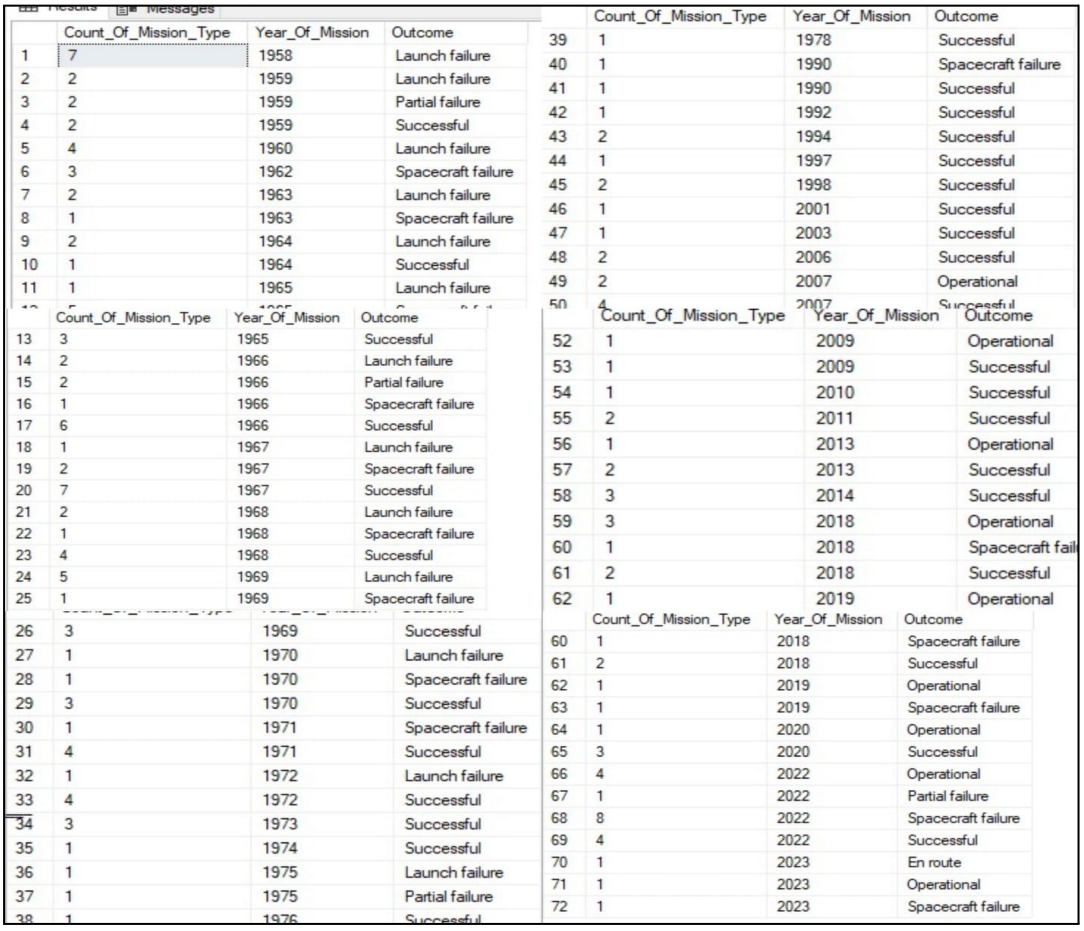


Results | Messages

	Count_Of_Moon_Missions	Outcome
1	1	En route
2	31	Launch failure
3	14	Operational
4	6	Partial failure
5	28	Spacecraft failure
6	78	Successful

10) No of Moon Missions By Outcomes In Each Year During 1958-2023

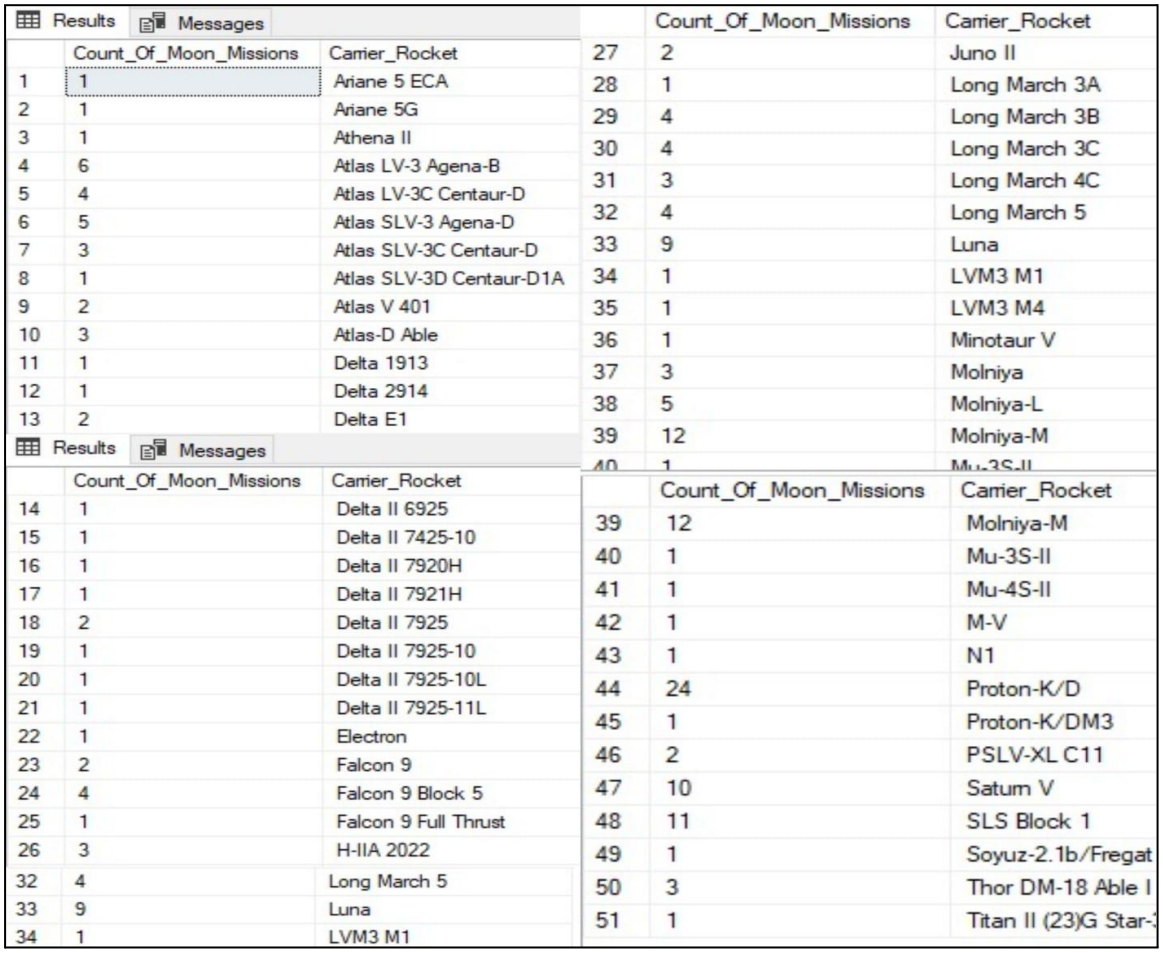
```
SELECT COUNT(Mission_Type) AS Count_Of_Mission_Type,YEAR(Launch_Date) AS
Year_Of_Mission, Outcome
FROM moon_missions
GROUP BY YEAR(Launch_Date), Outcome
ORDER BY  Year_Of_Mission ASC, Outcome ASC;
```



	Count_Of_Mission_Type	Year_Of_Mission	Outcome
1	7	1958	Launch failure
2	2	1959	Launch failure
3	2	1959	Partial failure
4	2	1959	Successful
5	4	1960	Launch failure
6	3	1962	Spacecraft failure
7	2	1963	Launch failure
8	1	1963	Spacecraft failure
9	2	1964	Launch failure
10	1	1964	Successful
11	1	1965	Launch failure
13	3	1965	Successful
14	2	1966	Launch failure
15	2	1966	Partial failure
16	1	1966	Spacecraft failure
17	6	1966	Successful
18	1	1967	Launch failure
19	2	1967	Spacecraft failure
20	7	1967	Successful
21	2	1968	Launch failure
22	1	1968	Spacecraft failure
23	4	1968	Successful
24	5	1969	Launch failure
25	1	1969	Spacecraft failure
26	3	1969	Successful
27	1	1970	Launch failure
28	1	1970	Spacecraft failure
29	3	1970	Successful
30	1	1971	Spacecraft failure
31	4	1971	Successful
32	1	1972	Launch failure
33	4	1972	Successful
34	3	1973	Successful
35	1	1974	Successful
36	1	1975	Launch failure
37	1	1975	Partial failure
38	1	1976	Successful
39	1	1978	Successful
40	1	1990	Spacecraft failure
41	1	1990	Successful
42	1	1992	Successful
43	2	1994	Successful
44	1	1997	Successful
45	2	1998	Successful
46	1	2001	Successful
47	1	2003	Successful
48	2	2006	Successful
49	2	2007	Operational
50	4	2007	Successful
52	1	2009	Operational
53	1	2009	Successful
54	1	2010	Successful
55	2	2011	Successful
56	1	2013	Operational
57	2	2013	Successful
58	3	2014	Successful
59	3	2018	Operational
60	1	2018	Spacecraft fail
61	2	2018	Successful
62	1	2019	Operational
60	1	2018	Spacecraft failure
61	2	2018	Successful
62	1	2019	Operational
63	1	2019	Spacecraft failure
64	1	2020	Operational
65	3	2020	Successful
66	4	2022	Operational
67	1	2022	Partial failure
68	8	2022	Spacecraft failure
69	4	2022	Successful
70	1	2023	En route
71	1	2023	Operational
72	1	2023	Spacecraft failure

11) Count Of Moon Missions By Carrier Type

```
SELECT COUNT(*) AS Count_Of_Moon_Missions, Carrier_Rocket
FROM moon_missions
Group By Carrier_Rocket;
```



Results | Messages

	Count_Of_Moon_Missions	Carrier_Rocket
1	1	Ariane 5 ECA
2	1	Ariane 5G
3	1	Athena II
4	6	Atlas LV-3 Agena-B
5	4	Atlas LV-3C Centaur-D
6	5	Atlas SLV-3 Agena-D
7	3	Atlas SLV-3C Centaur-D
8	1	Atlas SLV-3D Centaur-D1A
9	2	Atlas V 401
10	3	Atlas-D Able
11	1	Delta 1913
12	1	Delta 2914
13	2	Delta E1

Results | Messages

	Count_Of_Moon_Missions	Carrier_Rocket
14	1	Delta II 6925
15	1	Delta II 7425-10
16	1	Delta II 7920H
17	1	Delta II 7921H
18	2	Delta II 7925
19	1	Delta II 7925-10
20	1	Delta II 7925-10L
21	1	Delta II 7925-11L
22	1	Electron
23	2	Falcon 9
24	4	Falcon 9 Block 5
25	1	Falcon 9 Full Thrust
26	3	H-IIA 2022
32	4	Long March 5
33	9	Luna
34	1	LVM3 M1

	Count_Of_Moon_Missions	Carrier_Rocket
27	2	Juno II
28	1	Long March 3A
29	4	Long March 3B
30	4	Long March 3C
31	3	Long March 4C
32	4	Long March 5
33	9	Luna
34	1	LVM3 M1
35	1	LVM3 M4
36	1	Minotaur V
37	3	Molniya
38	5	Molniya-L
39	12	Molniya-M
40	1	Mu-3S-II

	Count_Of_Moon_Missions	Carrier_Rocket
39	12	Molniya-M
40	1	Mu-3S-II
41	1	Mu-4S-II
42	1	M-V
43	1	N1
44	24	Proton-K/D
45	1	Proton-K/DM3
46	2	PSLV-XL C11
47	10	Saturn V
48	11	SLS Block 1
49	1	Soyuz-2.1b/Fregat
50	3	Thor DM-18 Able I
51	1	Titan II (23)G Star-3

12) Count OF Moon Missions By Carrier Type In Each Year During 1958-2023

```
SELECT COUNT(Mission_Type) AS Count_Of_Mission_Type,YEAR(Launch_Date) AS
Year_Of_Mission, Carrier_Rocket
FROM moon_missions
GROUP BY YEAR(Launch_Date), Carrier_Rocket
ORDER BY  Year_Of_Mission ASC, Carrier_Rocket ASC;
```

	Count_Of_Mission_Type	Year_Of_Mission	Carrier_Rocket
1	1	1958	Juno II
2	3	1958	Luna
3	3	1958	Thor DM-18 Able I
4	1	1959	Atlas-D Able
5	1	1959	Juno II
6	4	1959	Luna
7	2	1960	Atlas-D Able
8	2	1960	Luna
9	3	1962	Atlas LV-3 Agena-B
10	3	1963	Molniya-L
12	2	1964	Molniya-M
13	2	1965	Atlas LV-3 Agena-B
14	3	1965	Molniya
15	2	1965	Molniya-L
16	2	1965	Molniya-M
17	2	1966	Atlas LV-3C Cent...
18	2	1966	Atlas SLV-3 Agen...
19	1	1966	Delta E1
23	2	1967	Atlas SLV-3C Cen...
24	1	1967	Delta E1
25	2	1967	Proton-K/D
26	1	1968	Atlas SLV-3C Cen...
27	2	1968	Molniya-M
28	3	1968	Proton-K/D
29	1	1968	Saturn V
30	7	1969	Proton-K/D
31	2	1969	Saturn V
34	2	1971	Proton-K/D
35	3	1971	Saturn V
36	1	1972	N1
37	1	1972	Proton-K/D
38	3	1972	Saturn V
39	1	1973	Atlas SLV-3D Ce...
40	1	1973	Delta 1913
41	1	1973	Proton-K/D
42	1	1974	Proton-K/D
44	1	1976	Proton-K/D
45	1	1978	Delta 2914
46	1	1990	Mu-3S-II
47	1	1990	Mu-4S-II
48	1	1992	Delta II 6925
49	1	1994	Delta II 7925-10
50	1	1994	Titan II (23)G Star...
51	1	1997	Proton-K/DM3
52	1	1998	Athena II
53	1	1998	M-V
54	1	2001	Delta II 7425-10
56	1	2006	Delta II 7925-10L
57	1	2006	Delta II 7925-11L
58	2	2007	Delta II 7925
59	3	2007	H-IIA 2022
60	1	2007	Long March 3A
61	2	2008	PSLV-XL C11
62	2	2009	Atlas V 401
63	1	2010	Long March 3C
64	1	2011	Delta II 7920H
67	1	2013	Minotaur V
68	3	2014	Long March 3C
69	1	2018	Falcon 9 Full Thrust
70	2	2018	Long March 3B
71	3	2018	Long March 4C
72	1	2019	Falcon 9
73	1	2019	LVM3 M1
74	4	2020	Long March 5
75	1	2022	Electron
76	1	2022	Falcon 9
77	4	2022	Falcon 9 Block 5
78	11	2022	SLS Block 1
79	1	2023	Ariane 5 ECA

13) No Of Successful Moon Missions By Countries

```
SELECT Country, COUNT(Outcome) AS No_Of_Successful_Missions
FROM moon_missions
WHERE Outcome = 'Successful'
GROUP BY Country
ORDER BY No_Of_Successful_Missions DESC;
```

Results | Messages

	Country	No_Of_Successful_Missions
1	United States	41
2	Soviet Union	18
3	China	9
4	Japan	5
5	India	2
6	Japan United States	1
7	Luxembourg	1
8	European Union	1

14) No Of Unsuccessful Moon Missions By Countries

```
SELECT Country, COUNT(Outcome) AS No_Of_Unsuccessful_Missions
FROM moon_missions
WHERE Outcome != 'Successful'
GROUP BY Country
ORDER BY No_Of_Unsuccessful_Missions DESC;
```

Results | Messages

	Country	No_Of_Unsuccessful_Missions
1	Soviet Union	36
2	United States	25
3	China	6
4	Japan	5
5	India	2
6	Israel	1
7	Italy	1
8	European Union	1
9	Russia	1
10	South Korea	1
11	UAE	1

15) No Of Successful Moon Missions By Space Organisations

```
SELECT Agency, COUNT(Outcome) AS No_Of_Successful_Missions
FROM moon_missions
WHERE Outcome = 'Successful'
GROUP BY Agency
ORDER BY No_Of_Successful_Missions DESC;
```

	Agency	No_Of_Successful_Missions
1	NASA	37
2	Lavochkin	16
3	CNSA	9
4	JAXA	3
5	ISRO	2
6	ISAS	2
7	OKB-1	2
8	USAF/NASA	1
9	Lockheed Martin	1
10	LuxSpace	1
11	ISAS/NASA	1
12	ESA	1
13	Fluid & Reason	1
14	Hughes	1

16) No Of Unsuccessful Moon Missions By Space Organisations

```
SELECT Agency, COUNT(Outcome) AS No_Of_Unsuccessful_Missions
FROM moon_missions
WHERE Outcome != 'Successful'
GROUP BY Agency
ORDER BY No_Of_Unsuccessful_Missions DESC;
```

Results Messages

	Agency	No_Of_Unsuccessful_Missions
1	NASA	24
2	Lavochkin	23
3	OKB-1	13
4	CNSA	6
5	ISRO	2
6	JAXA	2
7	KARI	1
8	ASI	1
9	ESA	1
10	ISAS	1
11	ispace	1
12	Roscosmos	1
13	SpaceIL	1
14	Tomy/JAXA/Dodai	1
15	UAESA/MBRSC	1
16	USAF	1

17) No Of Successful Moon Moon Missions By Mission Types

```
SELECT Mission_Type, COUNT(Outcome) AS No_Of_Successful_Missions
FROM moon_missions
WHERE Outcome = 'Successful'
GROUP BY Mission_Type
ORDER BY No_Of_Successful_Missions DESC;
```

	Mission_Type	No_Of_Successful_Missions
1	Orbiter	34
2	Flyby	18
3	Lander	12
4	Impactor	6
5	Orbiter,Lander,Rover	2
6	Rover	1
7	Sample Return	1
8	Crewed orbiter	1
9	Flyby / Impactor (post mission)	1
10	Lander,Sample Return	1
11	Launch Vehicle	1

18) No Of Unsuccessful Moon Missions By Mission Types

```
SELECT Mission_Type, COUNT(Outcome) AS No_Of_Unsuccessful_Missions
FROM moon_missions
WHERE Outcome != 'Successful'
GROUP BY Mission_Type
ORDER BY No_Of_Unsuccessful_Missions DESC;
```

	Mission_Type	No_Of_Unsuccessful_Missions
1	Lander	26
2	Orbiter	25
3	Flyby	13
4	Impactor	9
5	Rover	3
6	Flybys	2
7	Lander,Sample Return	1
8	Relay Satellite	1

19) No Of Successful Moon Missions By Carrier Rockets

```
SELECT Carrier_Rocket, COUNT(Outcome) AS No_Of_Successful_Missions
FROM moon_missions
WHERE Outcome = 'Successful'
GROUP BY Carrier_Rocket
ORDER BY No_Of_Successful_Missions DESC;
```

1	Proton-K/D	10
2	Saturn V	9
3	Molniya-M	5
4	SLS Block 1	4
5	Atlas SLV-3 Agena-D	4
6	Long March 3C	4
7	H-IIA 2022	3
8	Atlas LV-3 Agena-B	3
9	Atlas SLV-3C Centaur-D	3
10	Long March 5	3
11	Luna	2
12	PSLV-XL C11	2
13	Atlas LV-3C Centaur-D	2
14	Ariane 5G	1
15	Athena II	1
16	Long March 3A	1
17	Long March 3B	1
19	Atlas SLV-3D Centaur-D1A	1
20	Atlas V 401	1
21	Delta 1913	1
22	Delta 2914	1
23	Delta E1	1
24	Delta II 6925	1
25	Delta II 7425-10	1
26	Delta II 7920H	1
27	Delta II 7921H	1
28	Delta II 7925-10	1
29	Delta II 7925-10L	1
30	Delta II 7925-11L	1
31	Falcon 9 Full Thrust	1
32	Titan II (23)G Star-37FM	1
33	Minotaur V	1
34	Molniya	1
35	Mu-3S-II	1
36	M-V	1

20) No Of Unsuccessful Moon Missions By Carrier Rockets

```
SELECT Carrier_Rocket, COUNT(Outcome) AS No_Of_Unsuccessful_Missions
FROM moon_missions
WHERE Outcome != 'Successful'
GROUP BY Carrier_Rocket
ORDER BY No_Of_Unsuccessful_Missions DESC;
```

	Carrier_Rocket	No_Of_Unsuccessful_Missions
1	Proton-K/D	14
2	SLS Block 1	7
3	Molniya-M	7
4	Luna	7
5	Molniya-L	5
6	Falcon 9 Block 5	4
7	Long March 3B	3
8	Atlas LV-3 Agena-B	3
9	Atlas-D Able	3
10	Thor DM-18 Able I	3
11	Molniya	2
12	Delta II 7925	2
13	Atlas LV-3C Centaur-D	2
14	Long March 4C	2
11	Molniya	2
12	Delta II 7925	2
13	Atlas LV-3C Centaur-D	2
14	Long March 4C	2
15	Juno II	2
16	Falcon 9	2
17	Ariane 5 ECA	1
18	Long March 5	1
19	LVM3 M1	1
20	LVM3 M4	1
21	Atlas SLV-3 Agena-D	1
22	Atlas V 401	1
23	Electron	1
24	Delta E1	1
25	Mu-4S-II	1

21) Success Rate of Moon Missions By Each Country

```
SELECT Country,
(CAST(SUM(CASE WHEN Outcome = 'Successful' THEN 1 ELSE 0 END) AS float) /
COUNT(*)) * 100 AS SuccessRate
FROM moon_missions
GROUP BY Country
ORDER BY  SuccessRate DESC;
```

Results | Messages

	Country	SuccessRate
1	Japan United States	100
2	Luxembourg	100
3	United States	62.1212121212121
4	China	60
5	European Union	50
6	India	50
7	Japan	50
8	Soviet Union	33.3333333333333
9	UAE	0
10	Israel	0
11	Italy	0
12	Russia	0
13	South Korea	0

22) Failure Rate of Moon Missions By Each Country

```
SELECT Country,
(CAST(SUM(CASE WHEN Outcome != 'Successful' THEN 1 ELSE 0 END) AS float) /
COUNT(*)) * 100 AS FailureRate
FROM moon_missions
GROUP BY Country
ORDER BY  FailureRate DESC;
```

Results | Messages

	Country	FailureRate
1	Israel	100
2	Italy	100
3	Russia	100
4	South Korea	100
5	UAE	100
6	Soviet Union	66.6666666666667
7	European Union	50
8	India	50
9	Japan	50
10	China	40
11	United States	37.8787878787879
12	Japan United States	0
13	Luxembourg	0

23) Success Rate of Moon Missions By Space Organisations

```
SELECT Agency,
(CAST(SUM(CASE WHEN Outcome = 'Successful' THEN 1 ELSE 0 END) AS float) /
COUNT(*)) * 100 AS SuccessRate
FROM moon_missions
GROUP BY Agency
ORDER BY  SuccessRate DESC;
```

Results | Messages

	Agency	SuccessRate
1	Fluid & Reason	100
2	Hughes	100
3	ISAS/NASA	100
4	Lockheed Martin	100
5	LuxSpace	100
6	USAF/NASA	100
7	ISAS	66.6666666666667
8	NASA	60.655737704918
9	CNSA	60
10	JAXA	60
11	ESA	50
12	ISRO	50
13	Lavochkin	41.025641025641
14	OKB-1	13.3333333333333
15	Roscosmos	0
16	SpaceIL	0
17	Tomy/JAXA/Dodai	0
18	UAESA/MBRSC	0
19	USAF	0
20	ASI	0
21	ispace	0
22	KARI	0

24) Failure Rate of Moon Missions By Space Organisations

```
SELECT Agency,
(CAST(SUM(CASE WHEN Outcome != 'Successful' THEN 1 ELSE 0 END) AS float) /
COUNT(*)) * 100 AS FailureRate
FROM moon_missions
GROUP BY Agency
ORDER BY  FailureRate DESC;
```

	Agency	FailureRate
1	ASI	100
2	ispace	100
3	KARI	100
4	Roscosmos	100
5	SpaceIL	100
6	Tomy/JAXA/Dodai	100
7	UAESA/MBRSC	100
8	USAF	100
9	OKB-1	86.6666666666667
10	Lavochkin	58.974358974359
11	ISRO	50
12	ESA	50
13	CNSA	40
14	JAXA	40
15	NASA	39.344262295082
16	ISAS	33.3333333333333
17	ISAS/NASA	0
18	Fluid & Reason	0
19	Hughes	0
20	Lockheed Martin	0
21	LuxSpace	0
22	USAF/NASA	0

25) Success Rate of Moon Missions By Mission Types

```
SELECT Mission_Type,
(CAST(SUM(CASE WHEN Outcome = 'Successful' THEN 1 ELSE 0 END) AS float) /
COUNT(*)) * 100 AS SuccessRate
FROM moon_missions
GROUP BY Mission_Type
ORDER BY  SuccessRate DESC;
```

Results | Messages

	Mission_Type	SuccessRate
1	Crewed orbiter	100
2	Flyby / Impactor (post mission)	100
3	Launch Vehicle	100
4	Orbiter,Lander,Rover	100
5	Sample Return	100
6	Flyby	58.0645161290323
7	Orbiter	57.6271186440678
8	Lander,Sample Return	50
9	Impactor	40
10	Lander	31.5789473684211
11	Rover	25
12	Relay Satellite	0
13	Flybys	0

26) Failure Rate of Moon Missions By Mission Types

```
SELECT Mission_Type,
(CAST(SUM(CASE WHEN Outcome != 'Successful' THEN 1 ELSE 0 END) AS float) /
COUNT(*)) * 100 AS FailureRate
FROM moon_missions
GROUP BY Mission_Type
ORDER BY  FailureRate DESC;
```

Results | Messages

	Mission_Type	FailureRate
1	Flybys	100
2	Relay Satellite	100
3	Rover	75
4	Lander	68.4210526315789
5	Impactor	60
6	Lander,Sample Return	50
7	Orbiter	42.3728813559322
8	Flyby	41.9354838709677
9	Flyby / Impactor (post mission)	0
10	Orbiter,Lander,Rover	0
11	Launch Vehicle	0
12	Sample Return	0
13	Crewed orbiter	0

27) Success Rate of Moon Missions By Carrier Rockets

```
SELECT Carrier_Rocket,
(CAST(SUM(CASE WHEN Outcome = 'Successful' THEN 1 ELSE 0 END) AS float) /
COUNT(*)) * 100 AS SuccessRate
FROM moon_missions
GROUP BY Carrier_Rocket
ORDER BY  SuccessRate DESC;
```

Results | Messages

	Carrier_Rocket	SuccessRate
1	Ariane 5G	100
2	Athena II	100
3	Atlas SLV-3C Centaur-D	100
4	Atlas SLV-3D Centaur-D1A	100
5	Delta 1913	100
6	Delta 2914	100
7	Delta II 6925	100
8	Delta II 7425-10	100
9	Delta II 7920H	100
10	Delta II 7921H	100
11	Delta II 7925-10	100
12	Delta II 7925-10L	100
13	Delta II 7925-11L	100
14	Falcon 9 Full Thrust	100
15	H-IIA 2022	100
16	Long March 3A	100
17	Long March 3C	100
18	Minotaur V	100
19	Mu-3S-II	100
20	M-V	100
21	Proton-K/DM3	100
22	PSLV-XL C11	100
23	Titan II (23)G Star-37FM	100
24	Saturn V	90
25	Atlas SLV-3 Agena-D	80
25	Atlas SLV-3 Agena-D	80
26	Long March 5	75
27	Delta E1	50
28	Atlas V 401	50
29	Atlas LV-3 Agena-B	50
30	Atlas LV-3C Centaur-D	50
31	Molniya-M	41.666666...
32	Proton-K/D	41.666666...
33	SLS Block 1	36.363636...
34	Molniya	33.333333...
35	Long March 4C	33.333333...
36	Long March 3B	25
37	Luna	22.222222...
38	LVM3 M1	0
39	LVM3 M4	0
40	Molniya-L	0
41	Juno II	0
42	Electron	0
43	Falcon 9	0
44	Falcon 9 Block 5	0
45	Atlas-D Able	0
46	Ariane 5 ECA	0
47	Delta II 7925	0
48	Soyuz-2.1b/Fregat	0
49	Thor DM-18 Able I	0
50	N1	0
51	Mu-4S-II	0

28) Failure Rate of Moon Missions By Carrier Rockets

```
SELECT Carrier_Rocket,
(CAST(SUM(CASE WHEN Outcome != 'Successful' THEN 1 ELSE 0 END) AS float) /
COUNT(*)) * 100 AS FailureRate
FROM moon_missions
GROUP BY Carrier_Rocket
ORDER BY  FailureRate DESC;
```

	Carrier_Rocket	FailureRate
1	Ariane 5 ECA	100
2	Atlas-D Able	100
3	Delta II 7925	100
4	Electron	100
5	Falcon 9	100
6	Falcon 9 Block 5	100
7	Juno II	100
8	LVM3 M1	100
9	LVM3 M4	100
10	Molniya-L	100
11	N1	100
12	Mu-4S-II	100
13	Soyuz-2.1b/Fregat	100
14	Thor DM-18 Able I	100
15	Luna	77.7777777777778
16	Long March 3B	75
17	Long March 4C	66.6666666666667
18	Molniya	66.6666666666667
19	SLS Block 1	63.6363636363636
20	Proton-K/D	58.3333333333333
21	Molniya-M	58.3333333333333
22	Atlas V 401	50
23	Delta E1	50
24	Atlas LV-3 Agen...	50
25	Atlas LV-3C Cent...	50
26	Long March 5	25
27	Atlas SLV-3 Age...	20
28	Saturn V	10
29	M-V	0
30	Proton-K/DM3	0
32	Titan II (23)G Sta...	0
33	Atlas SLV-3C Ce...	0
34	Atlas SLV-3D Ce...	0
35	Delta 1913	0
36	Delta 2914	0
37	Ariane 5G	0
38	Athena II	0
39	Delta II 6925	0
40	Delta II 7425-10	0
41	Delta II 7920H	0
42	Delta II 7921H	0
43	Delta II 7925-10	0
44	Delta II 7925-10L	0
45	Delta II 7925-11L	0
46	Mu-3S-II	0
47	Minotaur V	0
48	Long March 3C	0
49	Long March 3A	0
50	Falcon 9 Full Thr...	0