Hands On – MS SQL

-Sarthak Niranjan Kulkarni (Maverick)

- sarthakkul2311@gmail.com - (+91) 93256 02791

Day 2 – 5/11/2024 (Tuesday)

1. Storing data in table: -

→

```
insert into animals(id,name,breed,color,gender,status) values(501,'Bellyflop','Beagle','Brown','Male',0);
insert into animals(id,name,breed,color,gender,status) values(502,'Snowy','Husky','White','Female',0);
insert into animals(id,name,breed,color,gender,status) values(503,'Princes','Pomarnian','Black','Female',0);
insert into animals(id,name,breed,color,gender,status) values(504,'Cricket','Chihuahua','Brown','Female',0);
insert into animals(id,name,breed,color,gender,status) values(505,'Spot','Dalmation','Black and White','Male',0);

select * from animals;
```

100 %

Results | Messages

	id	name	breed	color	gender	status
1	501	Bellyflop	Beagle	Brown	Male	0
2	502	Snowy	Husky	White	Female	0
3	503	Princes	Pomarnian	Black	Female	0
4	504	Cricket	Chihuahua	Brown	Female	0
5	505	Spot	Dalmation	Black and White	Male	0

---

2. Updating data in table: -

→

```
update animals set color='Brown and red' where name='Spot';
update animals set color='Red' where id=501;
update animals set status=1 where gender='Female';
```

100 %

Results | Messages

	id	name	breed	color	gender	status
1	501	Bellyflop	Beagle	Red	Male	0
2	502	Snowy	Husky	White	Female	1
3	503	Princes	Pomarnian	Black	Female	1
4	504	Cricket	Chihuahua	Brown	Female	1
5	505	Spot	Dalmation	Brown and red	Male	0

---

3. Deleting data from table: -

→

```
delete animals where id=501;
```

100 %

Results | Messages

	id	name	breed	color	gender	status
1	502	Snowy	Husky	White	Female	1
2	503	Princes	Pomarnian	Black	Female	1
3	504	Cricket	Chihuahua	Brown	Female	1
4	505	Spot	Dalmation	Brown and red	Male	0

---

4. Retrieving specific attributes: -

→

```
select id,name from animals where status=1;
```

100 %

Results | Messages

	id	name
1	502	Snowy
2	503	Princes
3	504	Cricket

---

5. Retrieving Selected Rows: -

→

```
SELECT TOP 2 * FROM animals;
```

100 %

Results | Messages

	id	name	breed	color	gender	status
1	502	Snowy	Husky	White	Female	1
2	503	Princes	Pomarnian	Black	Female	1

---

6. **Filtering Data: Where Clause**

→

```
---- Filtering Data: Where clause
select name,breed from animals where gender='Female';
```

100 %

Results | Messages

	name	breed
1	Snowy	Husky
2	Princes	Pomarnian
3	Cricket	Chihuahua

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7. **Filtering Data: IN, DISTINCT, AND, OR, IN, BETWEEN, LIKE, Column & table aliases**

→

```
---- Filtering Data:IN,DISTINCT,AND,OR,IN
SELECT * FROM animals WHERE id IN (501, 502, 503);
SELECT DISTINCT color FROM animals;
SELECT * FROM animals WHERE gender = 'Female' AND breed = 'Husky';
SELECT * FROM animals WHERE breed = 'Husky' OR breed = 'Chihuahua';
```

100 %

Results | Messages

	id	name	breed	color	gender	status
1	502	Snowy	Husky	White	Female	1
2	503	Princes	Pomarnian	Black	Female	1

	color
1	Black
2	Brown
3	Brown and red
4	White

	id	name	breed	color	gender	status
1	502	Snowy	Husky	White	Female	1

	id	name	breed	color	gender	status
1	502	Snowy	Husky	White	Female	1
2	504	Cricket	Chihuahua	Brown	Female	1

```sql
---- Filtering Data: BETWEEN,LIKE,Column & table aliases
SELECT * FROM animals WHERE id BETWEEN 502 AND 504;
SELECT * FROM animals WHERE color LIKE '%Brown%';
SELECT name AS AnimalName, breed AS BreedType, color AS FurColor FROM animals;
SELECT a.id, a.name, a.breed FROM animals AS a WHERE a.gender = 'Male';
```

100 %

Results Messages

	id	name	breed	color	gender	status
1	502	Snowy	Husky	White	Female	1
2	503	Princes	Pomarnian	Black	Female	1
3	504	Cricket	Chihuahua	Brown	Female	1

	id	name	breed	color	gender	status
1	504	Cricket	Chihuahua	Brown	Female	1
2	505	Spot	Dalmation	Brown and red	Male	0

	AnimalName	BreedType	FurColor
1	Snowy	Husky	White
2	Princes	Pomarnian	Black
3	Cricket	Chihuahua	Brown
4	Spot	Dalmation	Brown and red

	id	name	breed
1	505	Spot	Dalmation

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8. Implementing Data Integrity:-

→

```sql
---- Implementing Data Integrity
ALTER TABLE animals
ADD CONSTRAINT PK_Animals PRIMARY KEY (id);

ALTER TABLE animals
ADD CONSTRAINT CHK_Animal_Gender CHECK (gender IN ('Male', 'Female'));

ALTER TABLE animals
ADD CONSTRAINT CHK_Animal_Status CHECK (status IN (0, 1));
```

100 %

Messages

```
Commands completed successfully.

Completion time: 2024-11-05T12:31:01.2875217+05:30
```

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9. Using Functions to Customize the Result Set: -

→

```
---- Using Functions to Customize the Result Set
SELECT name, LEN(name) AS NameLength FROM animals;
```

100 %

Results | Messages

	name	NameLength
1	Snowy	5
2	Princes	7
3	Cricket	7
4	Spot	4

---

10. Using String Functions: -

→

```
---- Using String Functions
SELECT CONCAT(name, ' is a ', breed) AS AnimalDescription FROM animals;
```

100 %

Results | Messages

	AnimalDescription
1	Snowy is a Husky
2	Princes is a Pomarnian
3	Cricket is a Chihuahua
4	Spot is a Dalmation

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11. Using Date Functions: -

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```
---- Using Date Functions
ALTER TABLE animals
ADD date_of_birth DATE;

UPDATE animals SET date_of_birth = '2020-06-25' WHERE id = 502;
UPDATE animals SET date_of_birth = '2019-11-11' WHERE id = 503;
UPDATE animals SET date_of_birth = '2017-01-03' WHERE id = 504;
UPDATE animals SET date_of_birth = '2021-02-10' WHERE id = 505;

SELECT name,
       YEAR(date_of_birth) AS BirthYear,
       MONTH(date_of_birth) AS BirthMonth,
       DAY(date_of_birth) AS BirthDay
FROM animals;
```

100 %

Results | Messages

	name	BirthYear	BirthMonth	BirthDay
1	Snowy	2020	6	25
2	Princes	2019	11	11
3	Cricket	2017	1	3
4	Spot	2021	2	10

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12. Using Mathematical Functions: -

```
---- Using Mathematical Functions
ALTER TABLE animals ADD weight DECIMAL(5, 2);

UPDATE animals SET weight = CASE id
    WHEN 502 THEN 45.5
    WHEN 503 THEN 10.2
    WHEN 504 THEN 8.0
    WHEN 505 THEN 50.0
END;

SELECT name, ABS(weight) AS AbsoluteWeight FROM animals
```

100 %

Results | Messages

	name	AbsoluteWeight
1	Snowy	45.50
2	Princes	10.20
3	Cricket	8.00
4	Spot	50.00

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13. Using System Functions: -

→

```
---- Using System Functions
SELECT @@VERSION AS SqlServerVersion;

SELECT DB_NAME() AS CurrentDatabase;

SELECT GETDATE() AS CurrentDateTime;
```

100 %

Results | Messages

	SqlServerVersion
1	Microsoft SQL Server 2022 (RTM) - 16.0.1000.6 (X...

	CurrentDatabase
1	pet_adoption

	CurrentDateTime
1	2024-11-05 12:59:24.060

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14. Summarizing and Grouping Data: -

→

```
---- Summarizing and Grouping Data
SELECT gender, SUM(weight) AS TotalWeight
FROM animals
GROUP BY gender;
```

100 %

Results | Messages

	gender	TotalWeight
1	Female	63.70
2	Male	50.00

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15. Summarizing Data by Using Aggregate Functions: -

→

```
---- Summarizing Data by Using Aggregate Functions
SELECT SUM(weight) AS TotalWeight
FROM animals;
```

100 %

Results | Messages

	TotalWeight
1	113.70

---

16. Grouping Data: -

→

```
---- Grouping Data
SELECT gender, COUNT(*) AS TotalCount
FROM animals
GROUP BY gender;
```

100 %

Results | Messages

	gender	TotalCount
1	Female	3
2	Male	1
