2) what are the operations you can done with DDL sofar?

↳ DDL plays with the structure of the table

↳ for eg :- ⊙ adding (or) removing columns from a table

⊙ Renaming table (or) columns in the table

⊙ modifying data types of columns

⊙ Adding (or) removing constraints like

↳ foreign key ↳ primary key

↳ unique ↳ Default ↳ Not Null ↳ Null

⊙ Removing table (or) Database from the server

3) What are DML ?

DML - (Data manipulation language)

manipulation - கையாளுதல்

↳ with (DDL) you can play with Structure of table

↳ whereas with (DML) you can play with actual Data inside the table

4) What are DML Commands in SQL?

↳ INSERT (used to insert data into the table)

↳ UPDATE (used to update the existing data inside the table)

↳ DELETE (used to Delete the existing data inside the table)

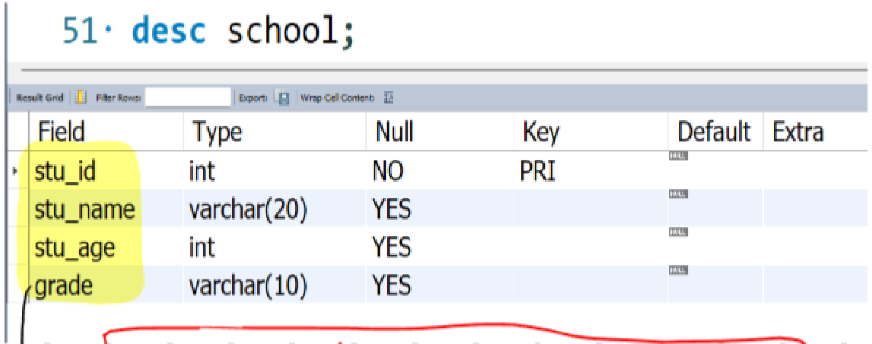
5) what are the ways you can insert data into table?

(i) you can insert single row

(ii) you can insert multiple rows at a time

(iii) you can insert Data from another table into New table, But Note → the columns inside the newly created table should similar to the table your taking Data, Also the (column count) should also wont To Be same in both tables

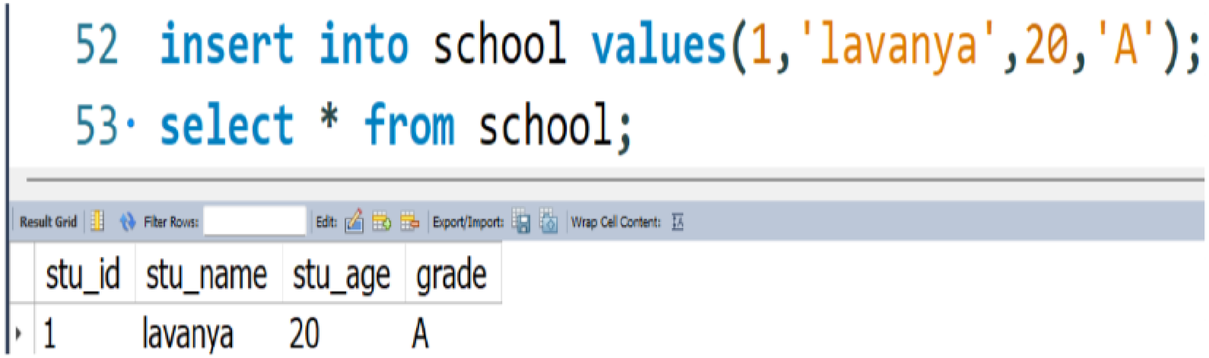
(i) how to insert single row with values for All columns?



```
desc school;
```

Field	Type	Null	Key	Default	Extra
stu_id	int	NO	PRI	NULL	
stu_name	varchar(20)	YES		NULL	
stu_age	int	YES		NULL	
grade	varchar(10)	YES		NULL	

youre going to insert values for these columns.



```
insert into school values(1,'lavanya',20,'A');
select * from school;
```

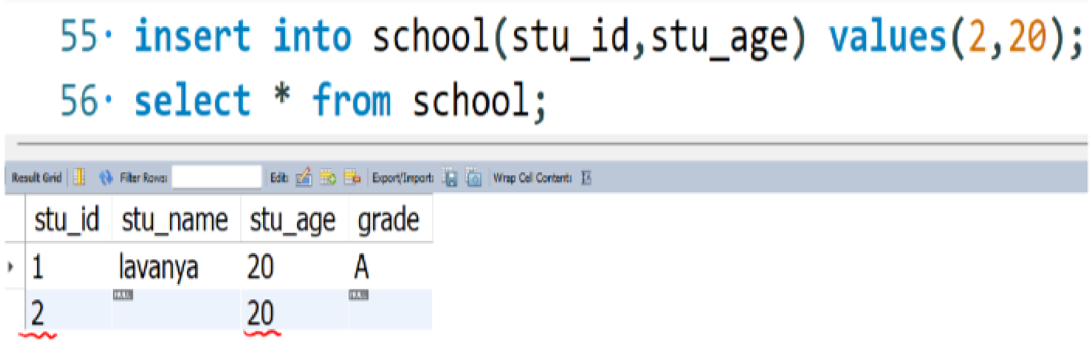
stu_id	stu_name	stu_age	grade
1	lavanya	20	A

The SQL command `INSERT INTO school VALUES (1, 'lavanya', 20, 'A');` adds a new record row to the `school` table. The values inserted are:

- `1` for the student ID
- `'lavanya'` for the student name
- `20` for the age
- `'A'` for the grade

This command assumes the `school` table has columns in this exact order.

→ how to insert single row with only values for specific columns?



```
insert into school(stu_id,stu_age) values(2,20);
select * from school;
```

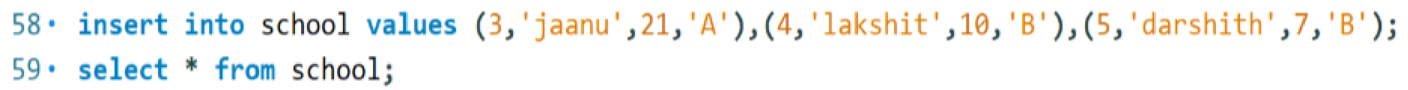
stu_id	stu_name	stu_age	grade
1	lavanya	20	A
2	NULL	20	NULL

The SQL command `INSERT INTO school(stu_id, stu_age) VALUES (2, 20);` adds a new record to the `school` table with:

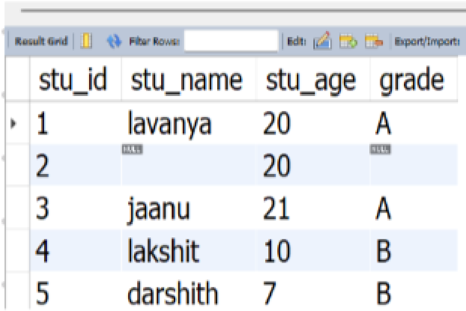
- `2` for the `stu_id` (student ID)
- `20` for the `stu_age` (student age)

This command only specifies values for the `stu_id` and `stu_age` columns, leaving other columns in the `school` table (like student name or grade) to be filled with their default values or to be `NULL` if no default is provided.

(11) how to insert multiple rows with values for All columns At a time?



```sql
insert into school values (3,'jaanu',21,'A'),(4,'lakshit',10,'B'),(5,'darshith',7,'B');
select * from school;
```



stu_id	stu_name	stu_age	grade
1	lavanya	20	A
2	NULL	20	NULL
3	jaanu	21	A
4	lakshit	10	B
5	darshith	7	B

The SQL command `INSERT INTO school VALUES (3, 'jaanu', 21, 'A'), (4, 'lakshit', 10, 'B'), (5, 'darshith', 7, 'B');` adds multiple records to the `school` table in a single operation.

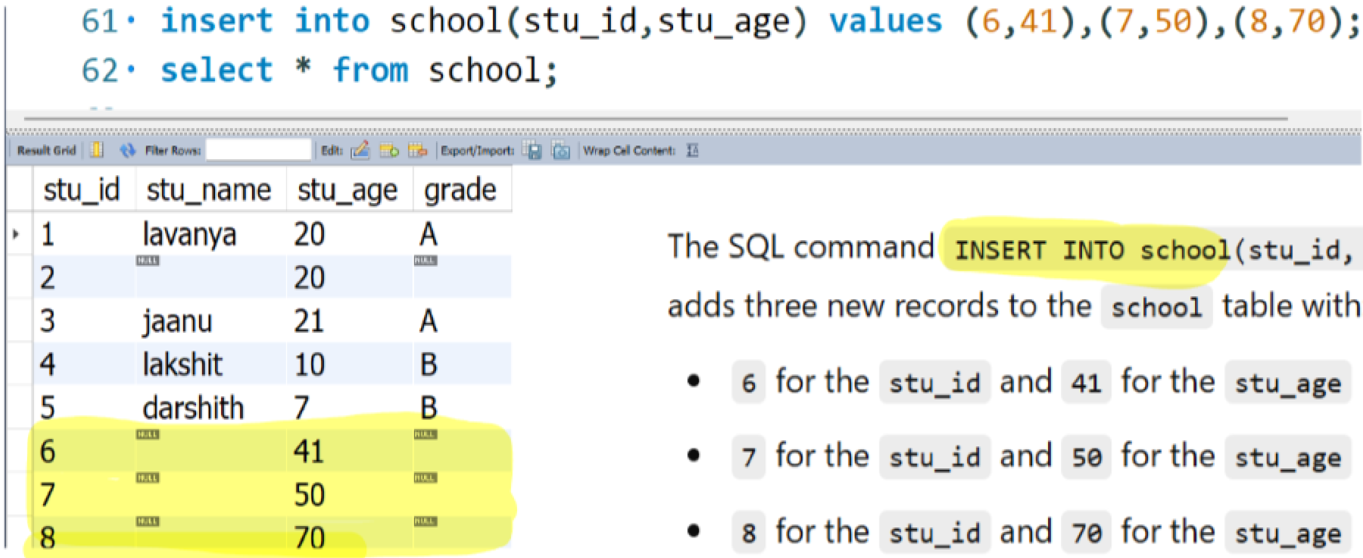
The records being added are:

1. `(3, 'jaanu', 21, 'A')` — where `3` is the student ID, `'jaanu'` is the name, `21` is the age, and `'A'` is the grade.
2. `(4, 'lakshit', 10, 'B')` — where `4` is the student ID, `'lakshit'` is the name, `10` is the age, and `'B'` is the grade.
3. `(5, 'darshith', 7, 'B')` — where `5` is the student ID, `'darshith'` is the name, `7` is the age, and `'B'` is the grade.

Note →

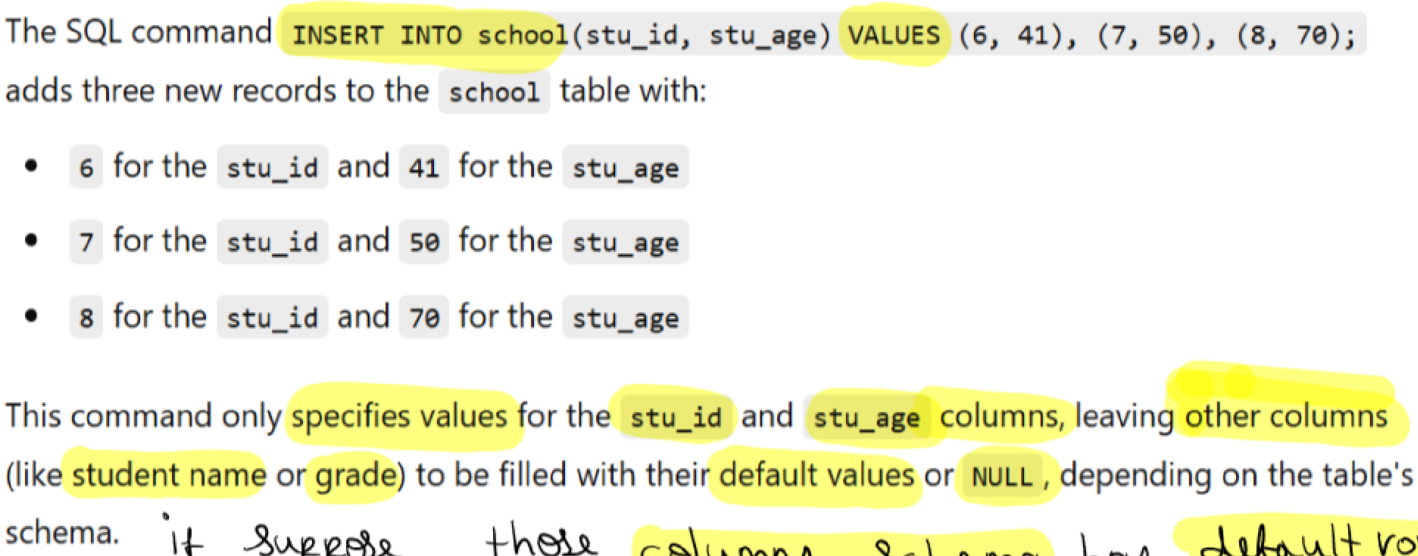
Each tuple corresponds to a new row in the `school` table. ●

→ how to insert multiple rows values for specific columns ?



```
insert into school(stu_id,stu_age) values (6,41),(7,50),(8,70);
select * from school;
```

stu_id	stu_name	stu_age	grade
1	lavanya	20	A
2	NULL	20	NULL
3	jaanu	21	A
4	lakshit	10	B
5	darshith	7	B
6	NULL	41	NULL
7	NULL	50	NULL
8	NULL	70	NULL



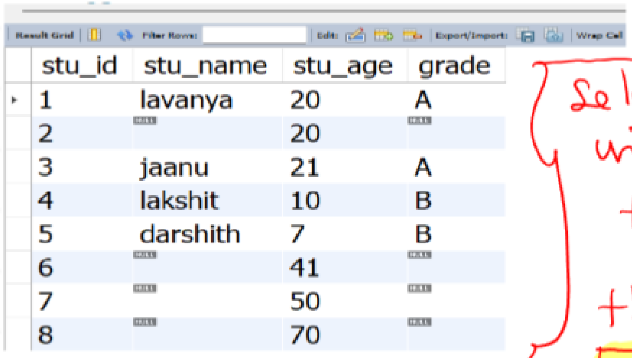
The SQL command `INSERT INTO school(stu_id, stu_age) VALUES (6, 41), (7, 50), (8, 70);` adds three new records to the `school` table with:

- `6` for the `stu_id` and `41` for the `stu_age`
- `7` for the `stu_id` and `50` for the `stu_age`
- `8` for the `stu_id` and `70` for the `stu_age`

This command only specifies values for the `stu_id` and `stu_age` columns, leaving other columns (like student name or grade) to be filled with their default values or `NULL`, depending on the table's schema. if suppose those columns schema has default values it is filled with default values.

(III) how to insert values from another table into newly created table?

```
select * from school;
```



stu_id	stu_name	stu_age	grade
1	lavanya	20	A
2	NULL	20	NULL
3	jaanu	21	A
4	lakshit	10	B
5	darshith	7	B
6	NULL	41	NULL
7	NULL	50	NULL
8	NULL	70	NULL

Select only rows with 'A' grade from school table and insert those rows inside the a-grade table

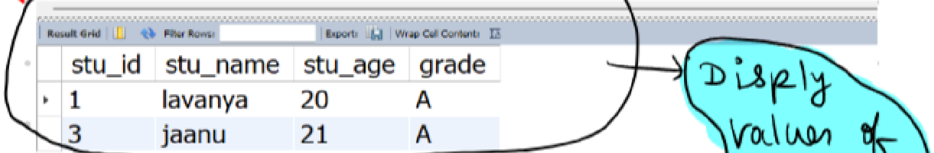
create table

```
CREATE TABLE a_grade (
    stu_id INT,     stu_name VARCHAR(20),
    stu_age INT,    grade VARCHAR(10)
);
```

insert values

```
insert into a_grade
select * from school where grade='A';

select * from a_grade;
```



stu_id	stu_name	stu_age	grade
1	lavanya	20	A
3	jaanu	21	A

Disply values of new table

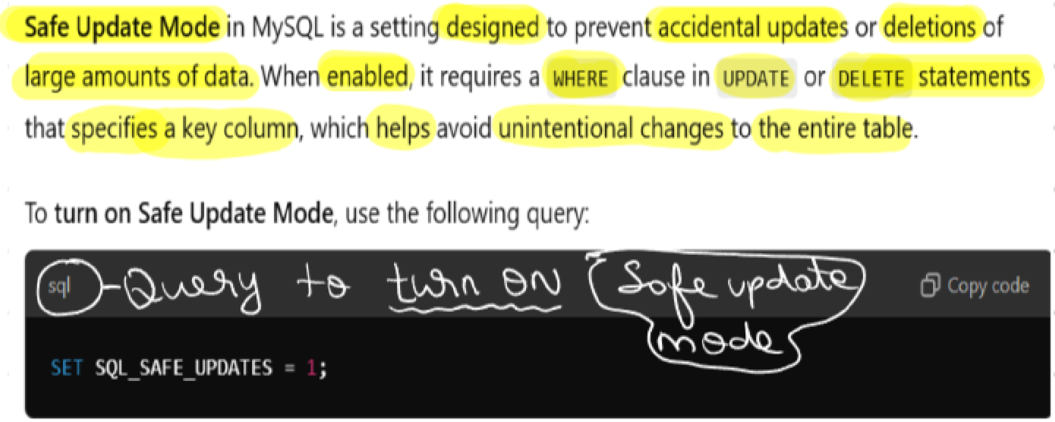
The provided SQL commands first create a new table named `a_grade` with columns for student ID, name, age, and grade. Then, it populates this table by copying records from the existing `school` table where the grade is 'A'. Finally, it retrieves and displays all records from the `a_grade` table to show the students who have grade 'A'.

6) what are the operations performed with delete ?

- ↳ we can Delete single row in a table.
- ↳ we can Delete multiple rows in a table.

Note :- if you performe delete operation without where condition means your entire rows will be Deleted.

7) what is (Safe update) mode in mySQL?

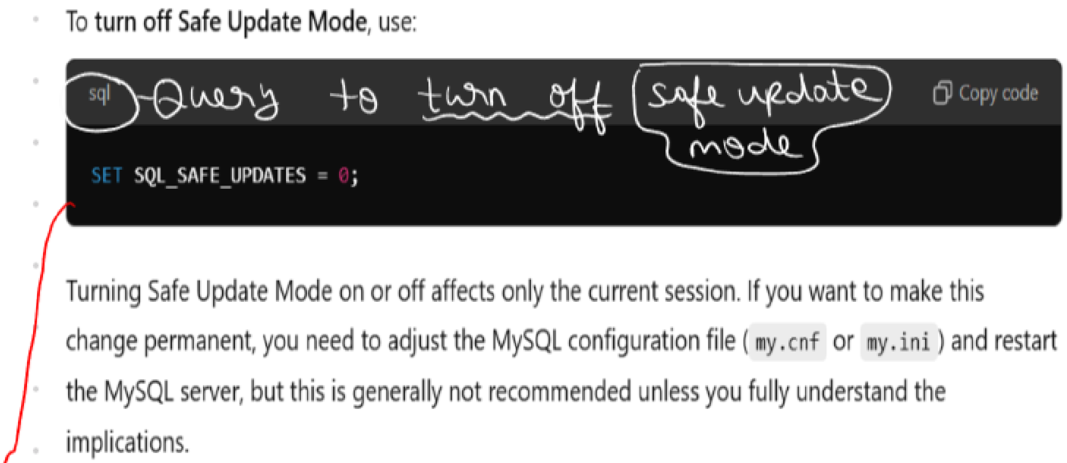


Safe Update Mode in MySQL is a setting designed to prevent accidental updates or deletions of large amounts of data. When enabled, it requires a `WHERE` clause in `UPDATE` or `DELETE` statements that specifies a key column, which helps avoid unintentional changes to the entire table.

To **turn on Safe Update Mode**, use the following query:

sql - Query to turn ON (Safe update mode)

```sql
SET SQL_SAFE_UPDATES = 1;
```



To **turn off Safe Update Mode**, use:

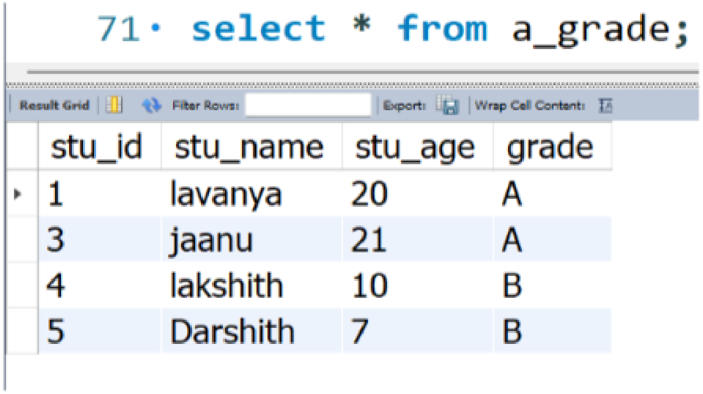
sql - Query to turn off (safe update mode)

```sql
SET SQL_SAFE_UPDATES = 0;
```

Turning Safe Update Mode on or off affects only the current session. If you want to make this change permanent, you need to adjust the MySQL configuration file (`my.cnf` or `my.ini`) and restart the MySQL server, but this is generally not recommended unless you fully understand the implications.

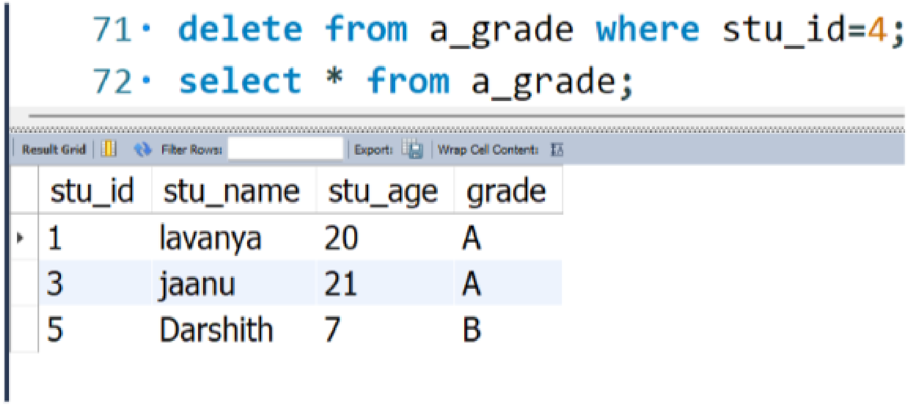
Note: when Safe (update mode) is turn off only you can performe (Delete (or) update) operation without (where condition).

8) lets see how to Delete single row from a table?



```sql
select * from a_grade;
```

stu_id	stu_name	stu_age	grade
1	lavanya	20	A
3	jaanu	21	A
4	lakshith	10	B
5	Darshith	7	B



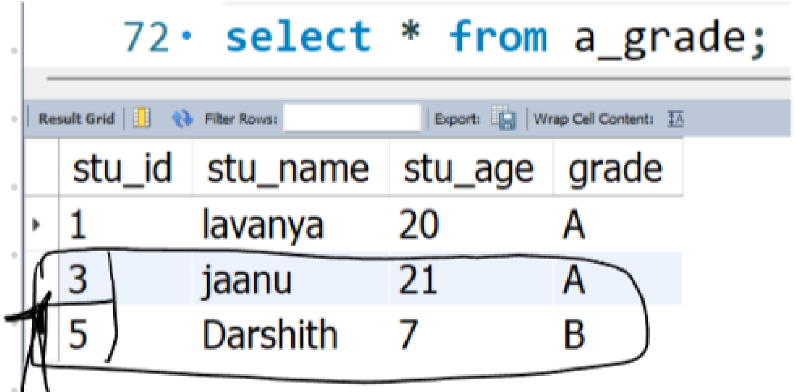
```sql
delete from a_grade where stu_id=4;
select * from a_grade;
```

stu_id	stu_name	stu_age	grade
1	lavanya	20	A
3	jaanu	21	A
5	Darshith	7	B

row

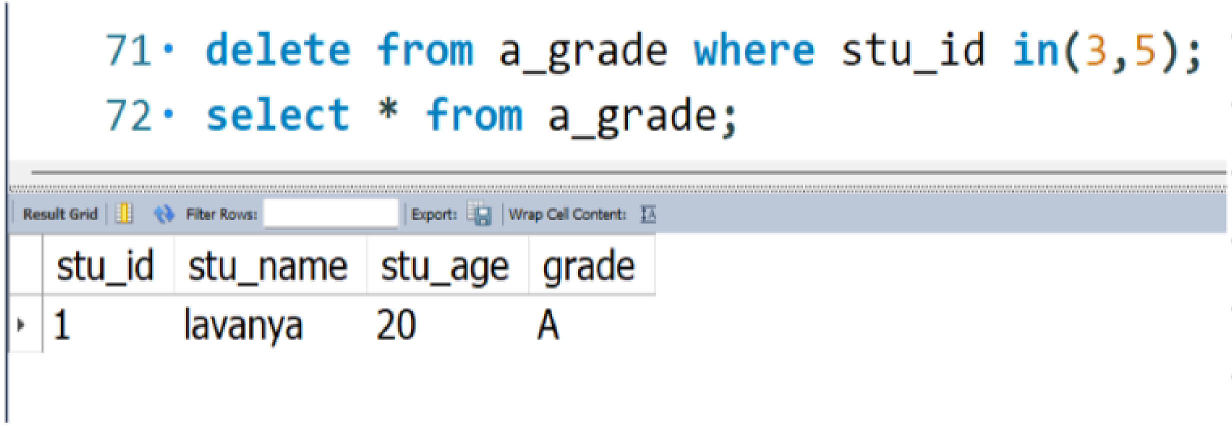
The SQL command `DELETE FROM a_grade WHERE stu_id = 4;` removes the record from the `a_grade` table where the `stu_id` is `4`. This command will delete only the row with `stu_id` equal to `4` if it exists in the table. If no such row exists, the command will have no effect.

9) how to Delete multiple rows from a table?



```sql
select * from a_grade;
```

stu_id	stu_name	stu_age	grade
1	lavanya	20	A
3	jaanu	21	A
5	Darshith	7	B



```sql
delete from a_grade where stu_id in(3,5);
select * from a_grade;
```

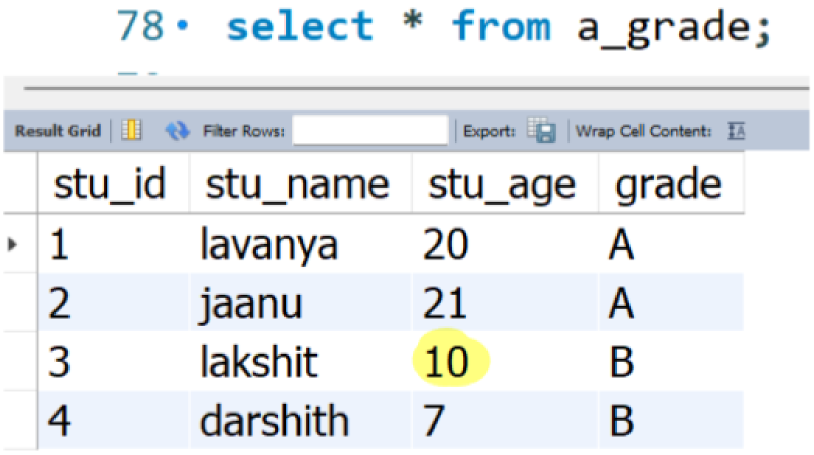
stu_id	stu_name	stu_age	grade
1	lavanya	20	A

The SQL command `DELETE FROM a_grade WHERE stu_id IN (3, 5);` removes records from the `a_grade` table where the `stu_id` is either `3` or `5`. This command will delete all rows that match these `stu_id` values. If no rows with these IDs exist, the command will have no effect.

10) update in mySQL?

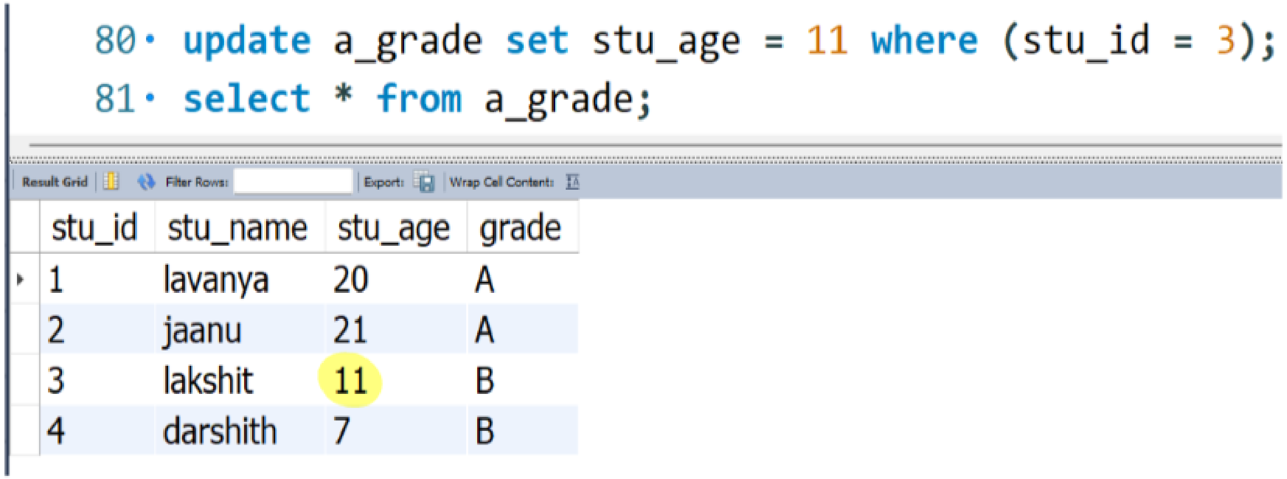
- ↳ we can update single value in a row
- ↳ we can update multiple values in a row
- ↳ we can update diffrent values for different rows using Switch case → Along with update
- ↳ we can create a temperory column using update → Along with → switch case

11) how to update single value in a row ?



```sql
select * from a_grade;
```

stu_id	stu_name	stu_age	grade
1	lavanya	20	A
2	jaanu	21	A
3	lakshit	10	B
4	darshith	7	B

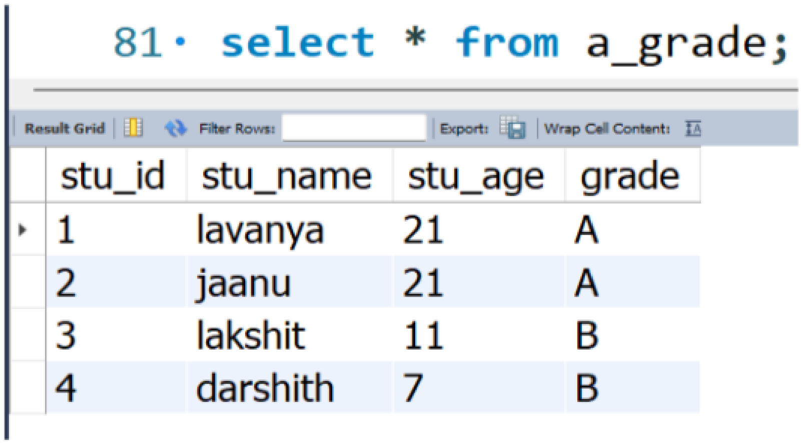


```sql
update a_grade set stu_age = 11 where (stu_id = 3);
select * from a_grade;
```

stu_id	stu_name	stu_age	grade
1	lavanya	20	A
2	jaanu	21	A
3	lakshit	11	B
4	darshith	7	B

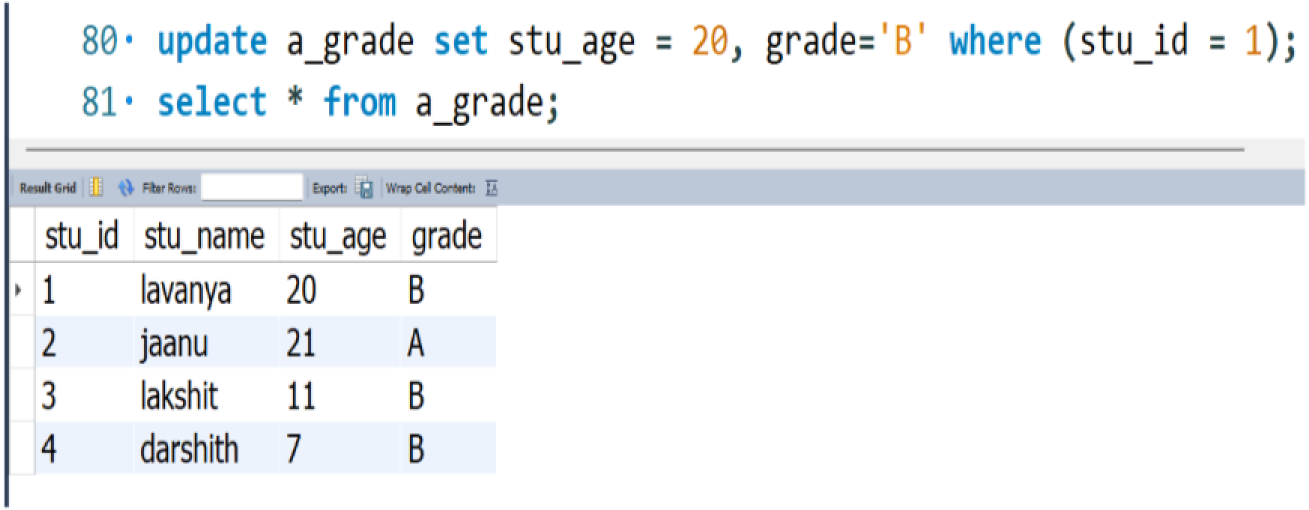
The SQL command `UPDATE a_grade SET stu_age = 11 WHERE stu_id = 3 AND stu_age = 10;` updates the `stu_age` to `11` in the `a_grade` table only for the row where `stu_id` is `3` and the current `stu_age` is `10`. This ensures that the update only occurs if the age was previously `10`, thereby preventing unintended changes if the `stu_age` has already been modified.

12) How to update multiple values in a table?



```
select * from a_grade;
```

stu_id	stu_name	stu_age	grade
1	lavanya	21	A
2	jaanu	21	A
3	lakshit	11	B
4	darshith	7	B

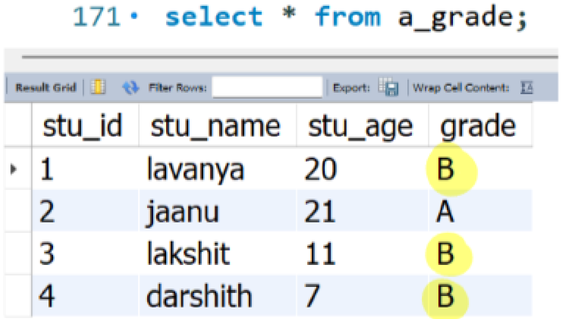


```
update a_grade set stu_age = 20, grade='B' where (stu_id = 1);
select * from a_grade;
```

stu_id	stu_name	stu_age	grade
1	lavanya	20	B
2	jaanu	21	A
3	lakshit	11	B
4	darshith	7	B

The SQL command `UPDATE a_grade SET stu_age = 20, grade = 'B' WHERE stu_id = 1;` updates the `stu_age` to `20` and the `grade` to `'B'` for the record in the `a_grade` table where `stu_id` is `1`. This command will modify both the age and grade for the student with ID `1`. If no such record exists, the command will have no effect.

13) how to update Different rows with different values for single column?



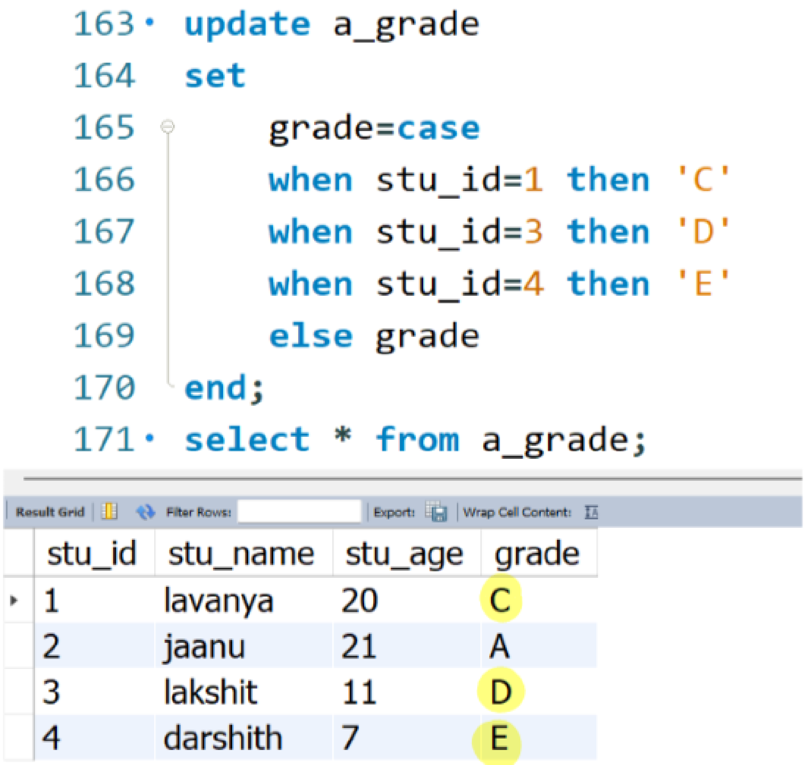
```sql
select * from a_grade;
```

stu_id	stu_name	stu_age	grade
1	lavanya	20	B
2	jaanu	21	A
3	lakshit	11	B
4	darshith	7	B

This command updates the `grade` column in the `a_grade` table based on the `stu_id`:

- If `stu_id` is `1`, the `grade` is set to `'C'`.
- If `stu_id` is `3`, the `grade` is set to `'D'`.
- If `stu_id` is `4`, the `grade` is set to `'E'`.
- For all other `stu_id` values, the `grade` remains unchanged (`ELSE grade`).

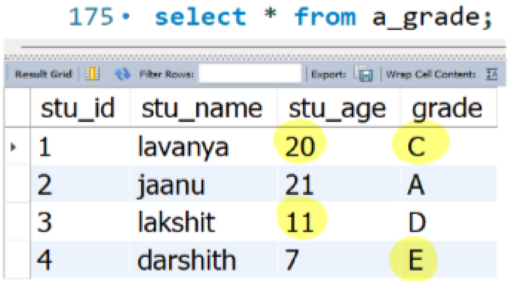
In essence, this command conditionally updates the `grade` for specific student IDs while leaving grades for other students as they are.



```sql
update a_grade
set
      grade=case
      when stu_id=1 then 'C'
      when stu_id=3 then 'D'
      when stu_id=4 then 'E'
      else grade
end;
select * from a_grade;
```

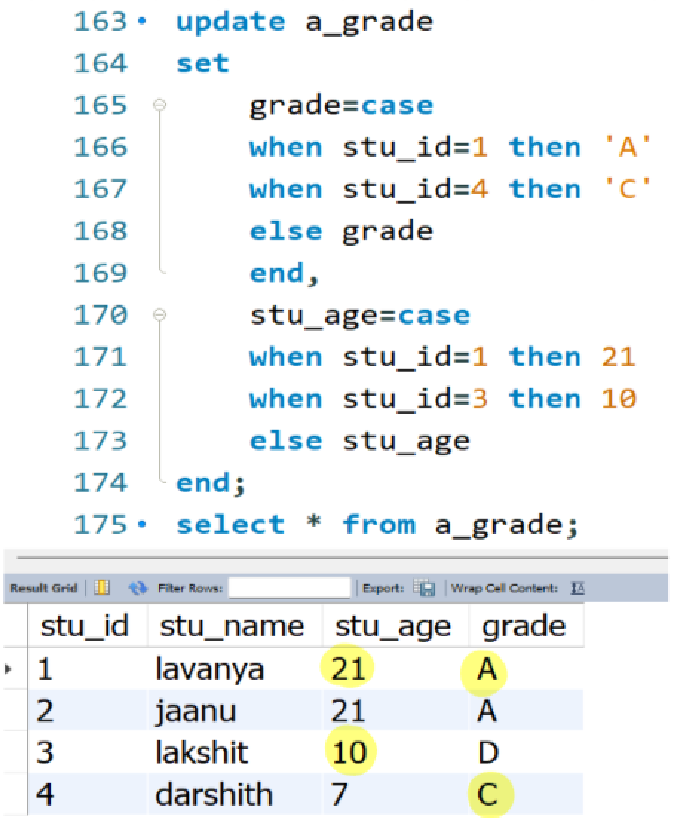
stu_id	stu_name	stu_age	grade
1	lavanya	20	C
2	jaanu	21	A
3	lakshit	11	D
4	darshith	7	E

(4) How to update different rows with different values for multiple columns ?



```
select * from a_grade;
```

stu_id	stu_name	stu_age	grade
1	lavanya	20	C
2	jaanu	21	A
3	lakshit	11	D
4	darshith	7	E



```
update a_grade
set
    grade=case
    when stu_id=1 then 'A'
    when stu_id=4 then 'C'
    else grade
    end,
    stu_age=case
    when stu_id=1 then 21
    when stu_id=3 then 10
    else stu_age
end;
select * from a_grade;
```

stu_id	stu_name	stu_age	grade
1	lavanya	21	A
2	jaanu	21	A
3	lakshit	10	D
4	darshith	7	C

- For grade column :
  - If stu_id is 1, the grade is set to 'A'.
  - If stu_id is 4, the grade is set to 'C'.
  - For all other stu_id values, the grade remains unchanged.
- For stu_age column :
  - If stu_id is 1, the stu_age is set to 21.
  - If stu_id is 3, the stu_age is set to 10.
  - For all other stu_id values, the stu_age remains unchanged.