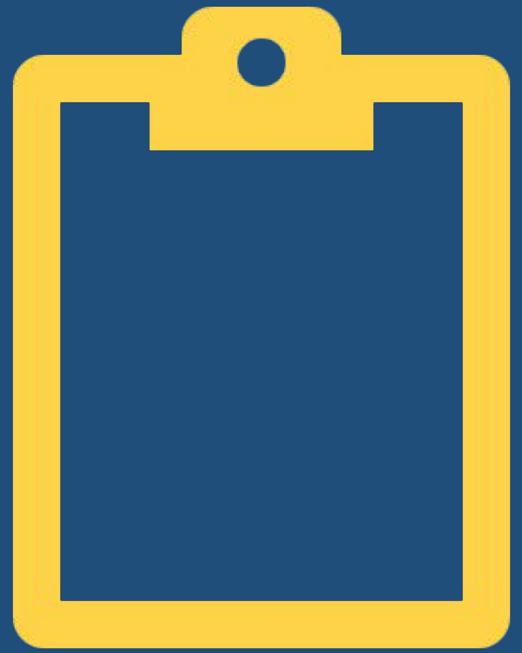
DBMS

Lab-3

Things we will complete today

- Quick recap of previous class
- Insert new data into table
- Update existing data
- Remove data from table
- Query on single relation
- Query on multiple relation



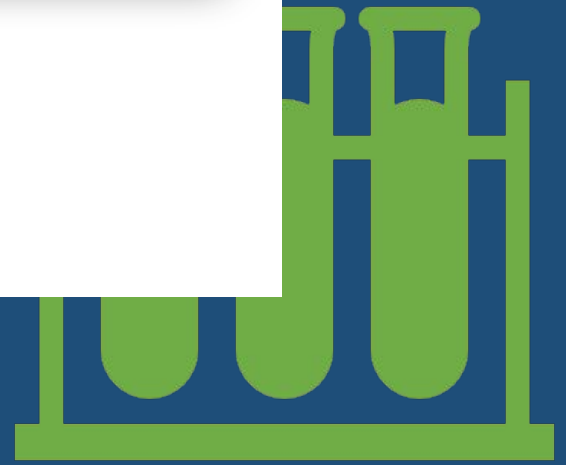
Insert new data into table

Insert new data into table

It is possible to write the INSERT INTO statement in two ways.

The first way specifies both the column names and the values to be inserted:

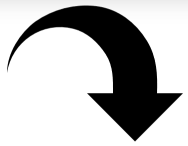
```
INSERT INTO table_name (column1, column2, column3, ...)
VALUES (value1, value2, value3, ...);
```



Insert new data into table

Example:

```
insert into course (course_id, title, dept_name, credits)
        values ('CS-437', 'Database Systems', 'Comp. Sci.', 4);
```



```
insert into course (title, course_id, credits, dept_name)
        values ('Database Systems', 'CS-437', 4, 'Comp. Sci.');
```

university_db.course: 13 rows total

course_id	title	dept_name	credits
BIO-101	Intro. to Biology	Biology	4
BIO-301	Genetics	Biology	4
BIO-399	Computational Biology	Biology	3
CS-101	Intro. to Computer Science	Comp. Sci.	4
CS-190	Game Design	Comp. Sci.	4
CS-315	Robotics	Comp. Sci.	3
CS-319	Image Processing	Comp. Sci.	3
CS-347	Database System Concepts	Comp. Sci.	3
EE-181	Intro. to Digital Systems	Elec. Eng.	3
FIN-201	Investment Banking	Finance	3
HIS-351	World History	History	3
MU-199	Music Video Production	Music	3
PHY-101	Physical Principles	Physics	4

Insert new data into table

If you are adding values for all the columns of the table, you do not need to specify the column names in the SQL query. However, make sure the order of the values is in the same order as the columns in the table.

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

university_db.course: 13 rows total

course_id	title	dept_name	credits
BIO-101	Intro. to Biology	Biology	4
BIO-301	Genetics	Biology	4
BIO-399	Computational Biology	Biology	3
CS-101	Intro. to Computer Science	Comp. Sci.	4
CS-190	Game Design	Comp. Sci.	4
CS-315	Robotics	Comp. Sci.	3
CS-319	Image Processing	Comp. Sci.	3
CS-347	Database System Concepts	Comp. Sci.	3
EE-181	Intro. to Digital Systems	Elec. Eng.	3
FIN-201	Investment Banking	Finance	3
HIS-351	World History	History	3
MU-199	Music Video Production	Music	3
PHY-101	Physical Principles	Physics	4

```
insert into course
        values ('CS-437', 'Database Systems', 'Comp. Sci.', 4);
```

Insert new data from another table

Table1

Id	FirstName
101	Adam
102	Johm

Table2

EmployeeId	EmpName

```
INSERT INTO Table2(EmployeeId,EmployeeName)
SELECT Id,FirstName from Table1;
```

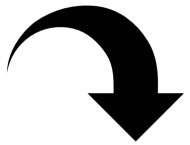


Table2

EmployeeId	EmpName
101	Adam
102	Johm

```
INSERT INTO table_name(column_list)
SELECT
    select_list
FROM
    another_table
WHERE
    condition;
```

Update existing data






Update Syntax

```
UPDATE table
SET column1 = expression-1,
      column2 = expression-2,
   ...
[WHERE conditions];
```

Expression can be a value (eg: 10 , 'John') or a Arithmatic/logical/ string operation resulting in a value (eg: salary*1.15)

```
update instructor
set salary= salary * 1.05;
```

```
update instructor
set salary = salary * 1.05
where salary < 70000;
```

university_db.instructor: 12 rows total

ID	name	dept_name	salary
10101	Srinivasan	Comp. Sci.	65,000.00
12121	Wu	Finance	90,000.00
15151	Mozart	Music	40,000.00
22222	Einstein	Physics	95,000.00
32343	El Said	History	60,000.00
33456	Gold	Physics	87,000.00
45565	Katz	Comp. Sci.	75,000.00
58583	Califieri	History	62,000.00
76543	Singh	Finance	80,000.00
76766	Crick	Biology	72,000.00
83821	Brandt	Comp. Sci.	92,000.00
98345	Kim	Elec. Eng.	80,000.00

Give a 5 percent salary raise to instructors whose salary is less than average

```
update instructor
set salary = salary * 1.05
where salary < (select avg (salary)
                from instructor);
```

university_db.instructor: 12 rows total

ID	name	dept_name	salary
10101	Srinivasan	Comp. Sci.	65,000.00
12121	Wu	Finance	90,000.00
15151	Mozart	Music	40,000.00
22222	Einstein	Physics	95,000.00
32343	El Said	History	60,000.00
33456	Gold	Physics	87,000.00
45565	Katz	Comp. Sci.	75,000.00
58583	Califieri	History	62,000.00
76543	Singh	Finance	80,000.00
76766	Crick	Biology	72,000.00
83821	Brandt	Comp. Sci.	92,000.00
98345	Kim	Elec. Eng.	80,000.00

All instructors with salary over $100,000 receive a 3 percent raise, whereas all others receive a 5 percent raise.

```
update instructor
set salary = salary * 1.03
where salary > 100000;
```

```
update instructor
set salary = salary * 1.05
where salary <= 100000;
```

```
update instructor
set salary = case
                when salary <= 100000 then salary * 1.05
```

```
case
    when pred_1 then result_1
    when pred_2 then result_2
    ...
    when pred_n then result_n
    else result_0
end
```

Delete data from table






SQL delete statement

We can delete only whole tuples; we cannot delete values on only particular attributes

```
DELETE from table_name [ WHERE condition ];
```

delete from *instructor;*

delete from *instructor*
where *dept_name*= 'Finance';

university_db.instructor: 12 rows total

ID	name	dept_name	salary
10101	Srinivasan	Comp. Sci.	65,000.00
12121	Wu	Finance	90,000.00
15151	Mozart	Music	40,000.00
22222	Einstein	Physics	95,000.00
32343	El Said	History	60,000.00
33456	Gold	Physics	87,000.00
45565	Katz	Comp. Sci.	75,000.00
58583	Califieri	History	62,000.00
76543	Singh	Finance	80,000.00
76766	Crick	Biology	72,000.00
83821	Brandt	Comp. Sci.	92,000.00
98345	Kim	Elec. Eng.	80,000.00

Queries on a Single Relation

Basic structure of SELECT

```
SELECT
    column1, column2, columnN
FROM
    table_name
[WHERE condition];
```

```
SELECT *
FROM table_name
[WHERE condition];
```

```
SELECT ID, `name`, dept_name
FROM instructor
```

instructor (3×12)

ID	name	dept_name
10101	Srinivasan	Comp. Sci.
12121	Wu	Finance
15151	Mozart	Music
22222	Einstein	Physics
32343	El Said	History
33456	Gold	Physics
45565	Katz	Comp. Sci.
58583	Califieri	History
76543	Singh	Finance
76766	Crick	Biology
83821	Brandt	Comp. Sci.
98345	Kim	Elec. Eng.

Basic structure of SELECT

```
1 SELECT *
2 FROM instructor
3 WHERE dept_name='Comp. Sci.'
4
```

instructor (4×3)

ID	name	dept_name	salary
10101	Srinivasan	Comp. Sci.	65,000.00
45565	Katz	Comp. Sci.	75,000.00
83821	Brandt	Comp. Sci.	92,000.00

Ordering Result

```
SELECT *
FROM table_name
[WHERE condition];
[ORDER BY
    column1 [ASC|DESC],
    column2 [ASC|DESC],
    ... ]
```

```
1 SELECT *
2 FROM instructor
3 ORDER BY salary DESC
```

instructor (4×12)

ID	name	dept_name	salary
22222	Einstein	Physics	95,000.00
83821	Brandt	Comp. Sci.	92,000.00
12121	Wu	Finance	90,000.00
33456	Gold	Physics	87,000.00
76543	Singh	Finance	80,000.00
98345	Kim	Elec. Eng.	80,000.00
45565	Katz	Comp. Sci.	75,000.00
76766	Crick	Biology	72,000.00
10101	Srinivasan	Comp. Sci.	65,000.00
58583	Califieri	History	62,000.00
32343	El Said	History	60,000.00
15151	Mozart	Music	40,000.00

```
1 SELECT *
2 FROM instructor
3 ORDER BY dept_name, salary DESC
```

instructor (4×12)

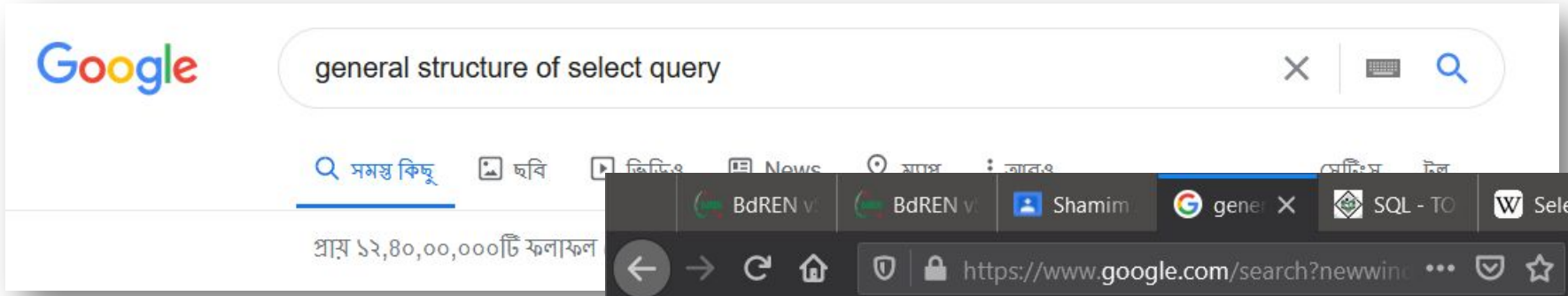
ID	name	dept_name	salary
76766	Crick	Biology	72,000.00
83821	Brandt	Comp. Sci.	92,000.00
45565	Katz	Comp. Sci.	75,000.00
10101	Srinivasan	Comp. Sci.	65,000.00
98345	Kim	Elec. Eng.	80,000.00
12121	Wu	Finance	90,000.00
76543	Singh	Finance	80,000.00
58583	Califieri	History	62,000.00
32343	El Said	History	60,000.00
15151	Mozart	Music	40,000.00
22222	Einstein	Physics	95,000.00
33456	Gold	Physics	87,000.00

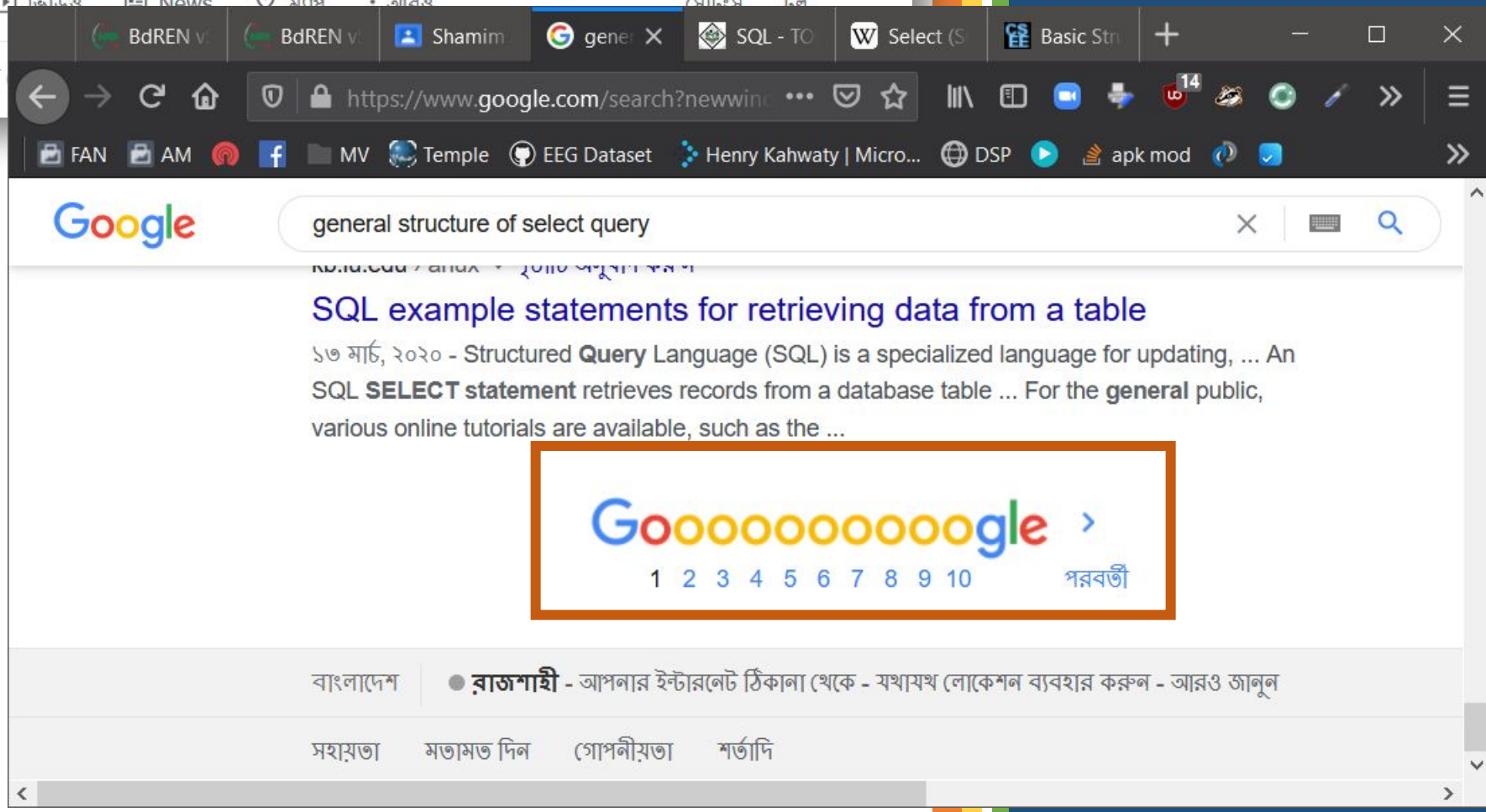
```
1 SELECT * FROM instructor
2 ORDER BY dept_name desc, salary asc
3
```

instructor (4×12)

ID	name	dept_name	salary
33456	Gold	Physics	87,000.00
22222	Einstein	Physics	95,000.00
15151	Mozart	Music	40,000.00
32343	El Said	History	60,000.00
58583	Califieri	History	62,000.00
76543	Singh	Finance	80,000.00
12121	Wu	Finance	90,000.00
98345	Kim	Elec. Eng.	80,000.00
10101	Srinivasan	Comp. Sci.	65,000.00
45565	Katz	Comp. Sci.	75,000.00
83821	Brandt	Comp. Sci.	92,000.00
76766	Crick	Biology	72,000.00

Limiting number or row in output





Limiting number or row in output

```
SELECT *
FROM table_name
[LIMIT n]
```

```
1 SELECT * FROM instructor LIMIT 3
2
3
```

instructor (4×3)

ID	name	dept_name	salary
10101	Srinivasan	Comp. Sci.	65,000.00
12121	Wu	Finance	90,000.00
15151	Mozart	Music	40,000.00

instructor (4×12)

ID	name	dept_name	salary
10101	Srinivasan	Comp. Sci.	65,000.00
12121	Wu	Finance	90,000.00
15151	Mozart	Music	40,000.00
22222	Einstein	Physics	95,000.00
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58583	Califieri	History	62,000.00
76543	Singh	Finance	80,000.00
76766	Crick	Biology	72,000.00
83821	Brandt	Comp. Sci.	92,000.00
98345	Kim	Elec. Eng.	80,000.00

```
SELECT *
FROM table_name
[LIMIT m,n]
```

```
1 SELECT * FROM instructor
2 LIMIT 3,4
3
```

instructor (4×4)

ID	name	dept_name	salary
22222	Einstein	Physics	95,000.00
32343	El Said	History	60,000.00
33456	Gold	Physics	87,000.00
45565	Katz	Comp. Sci.	75,000.00

Demo.

End.