

# Tables and Keys

# Student

<u>student id</u>	name	major
1	Jack	Biology
2	Kate	Sociology
3	Claire	English
4	Jack	Biology
5	Mike	Comp. Sci



# Student

## Column

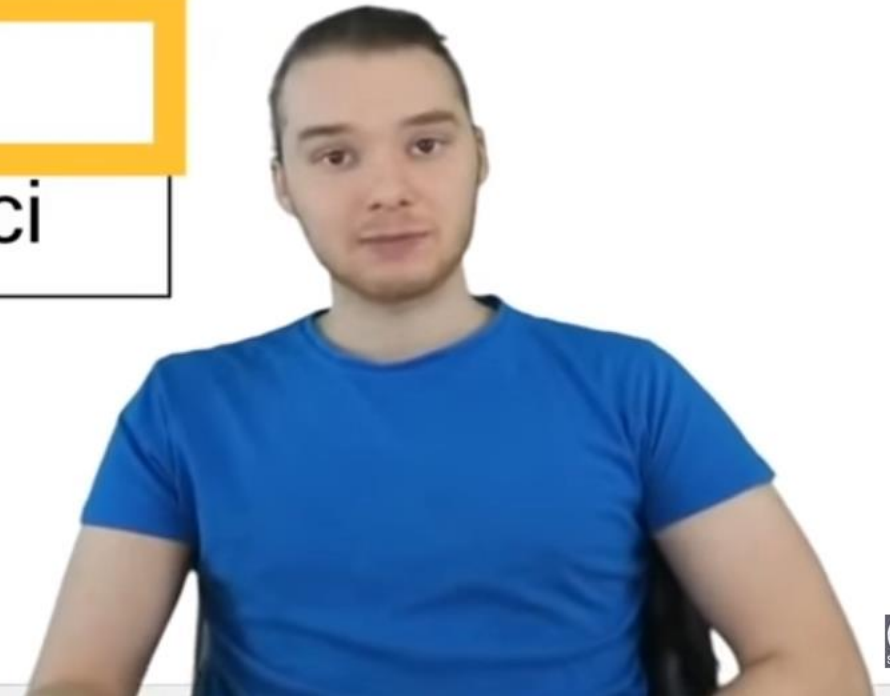
<u>student id</u>	name	major
1	Jack	Biology
2	Kate	Sociology
3	Claire	English
4	Jack	Biology
5	Mike	Comp. Sci

Row

# Student

<u>student id</u>	name	major
1	Kate	Sociology
2	Jack	Biology
3	Claire	English
4	Jack	Biology
5	Mike	Comp. Sci

Primary Key : 1. Uniquely identifies a row or entry  
2. Denoted by underlining  
3. Cannot be NULL, must have a value



# User

<u>email</u>	password	date_created	Type
fakemail@fake.co	shivers1	1999-05-11	Admin
fakemail112@fake.co	wordpass	2001-03-15	Free
rsmith@fake.co	redRoad23	2010-09-05	Free
jdoe@fake.co	passw0rd	2008-06-25	Premium
jhalpert@fake.co	557df32d	2003-07-22	Free

# Employee

<u>emp_id</u>	first_name	last_name	birth_date	sex	salary
100	Jan	Levinson	1961-05-11	F	110,000
101	Michael	Scott	1964-03-15	M	75,000
102	Josh	Porter	1969-09-05	M	78,000
103	Angela	Martin	1971-06-25	F	63,000
104	Andy	Bernard	1973-07-22	M	65,000

## Surrogate Primary Key:

Random number assigned  
as Primary Key.

A Primary Key which  
doesn't have mapping to  
the real world.





# Employee

<u>emp_ssn</u>	first_name	last_name	birth_date	sex	salary
123456789	Jan	Levinson	1961-05-11	F	110,000
555667777	Michael	Scott	1964-03-15	M	75,000
8886665555	Josh	Porter	1969-09-05	M	78,000
111332467	Angela	Martin	1971-06-25	F	63,000
99857463	Andy	Bernard	1973-07-22	M	65,000

## Natural Primary Key:

Use a value relevant in the real world.

A Primary Key which has mapping to the real world.



# Employee

<u>emp_id</u>	first_name	last_name	birth_date	sex	salary	branch_id
100	Jan	Levinson	1961-05-11	F	110,000	1
101	Michael	Scott	1964-03-15	M	75,000	2
102	Josh	Porter	1969-09-05	M	78,000	3
103	Angela	Martin	1971-06-25	F	63,000	2
104	Andy	Bernard	1973-07-22	M	65,000	3

Here emp\_id is a surrogate primary key.

**Foreign Key :** branch\_id

1. Foreign Key is the primary key of some other table.
2. Helps in defining relationship of entries in one table to other.





# Employee

<u>emp_id</u>	first_name	last_name	birth_date	sex	salary	branch_id
100	Jan	Levinson	1961-05-11	F	110,000	1
101	Michael	Scott	1964-03-15	M	75,000	2
102	Josh	Porter	1969-09-05	M	78,000	3
103	Angela	Martin	1971-06-25	F	63,000	2
104	Andy	Bernard	1973-07-22	M	65,000	3

# Branch

<u>branch_id</u>	branch_name	mgr_id
2	Scranton	101
3	Stamford	102
1	Corporate	108



# Employee

<u>emp_id</u>	first_name	last_name	birth_date	sex	salary	branch_id	super_id
100	Jan	Levinson	1961-05-11	F	110,000	1	NULL
101	Michael	Scott	1964-03-15	M	75,000	2	100
102	Josh	Porter	1969-09-05	M	78,000	3	100
103	Angela	Martin	1971-06-25	F	63,000	2	101
104	Andy	Bernard	1973-07-22	M	65,000	3	101

## Branch

<u>branch_id</u>	branch_name	mgr_id
2	Scranton	101
3	Stamford	102
1	Corporate	108

**Foreign Key :** super\_id

3. Used to define a relationship between entries of the same table.

Supervisor ID is the employee ID of some employee of same table.



# Employee

<u>emp_id</u>	first_name	last_name	birth_date	sex	salary	branch_id	super_id
100	Jan	Levinson	1961-05-11	F	110,000	1	NULL
101	Michael	Scott	1964-03-15	M	75,000	2	100
102	Josh	Porter	1969-09-05	M	78,000	3	100
103	Angela	Martin	1971-06-25	F	63,000	2	101
104	Andy	Bernard	1973-07-22	M	65,000	3	101

## Branch

<u>branch_id</u>	branch_name	mgr_id
2	Scranton	101
3	Stamford	102
1	Corporate	108

### Composite Primary Key :

Two or more columns together work as a primary key. i.e. uniquely identifies entries of the table

## Branch Supplier

<u>branch_id</u>	<u>supplier_name</u>	supply_type
2	Hammer Mill	Paper
2	Uni-ball	Writing Utensils
3	Patriot Paper	Paper
2	J.T. Forms & Labels	Custom Forms
3	Uni-ball	Writing Utensils
3	Hammer Mill	Paper
3	Stamford Lables	Custom F



# Employee

<u>emp_id</u>	first_name	last_name	birth_date	sex	salary	branch_id	super_id
100	Jan	Levinson	1961-05-11	F	110,000	1	NULL
101	Michael	Scott	1964-03-15	M	75,000	2	100
102	Josh	Porter	1969-09-05	M	78,000	3	100
103	Angela	Martin	1971-06-25	F	63,000	2	101
104	Andy	Bernard	1973-07-22	M	65,000	3	101

## Branch

<u>branch_id</u>	branch_name	mgr_id
2	Scranton	101
3	Stamford	102
1	Corporate	108

## Client

<u>client_id</u>	client_name	branch_id
400	Dunmore Highschool	2
401	Lackawana Country	2
402	FedEx	3
403	John Daly Law, LLC	3
404	Scranton Whitepages	2

## Works\_With

<u>emp_id</u>	<u>client_id</u>	total_sales
107	400	55,000
101	401	267,000
105	402	22,500
104	403	5,000
105	403	12,000
107	404	33,000

### Composite Primary Key :

Here both the columns of composite primary key are foreign keys.

