

## Keys in RDBMS:

### Need for keys in RDBMS

Employee	ID	Name	SSN	Salary	Phone	Email
	101	John	AA	50000	12	j@sw
	102	Robin	BB	60000	13	r@yh
	103	Alya	CC	35000	14	a@hm
	104	Yusuf	DD	68000	15	y@ch
	105	John	EE	62000	89	j@in
	106	Raj	FF	45000	87	r@au
	107	Jayant	GG	25000	45	j@us
	108	John	HH	35000	15	j@de
	109	Neil	II	25000	12	n@uk



What happened if we increase the salary of john by 10%

**Keys uniquely identify the tuples:**

Super key(All possible keys that can form from a relation)

- 1. Candidate key**
- 2. Primary key**
- 3. Alternate key**
- 4. Unique key**
- 5. Composite key**
- 6. Foreign key**
- 7. Super key:**

## Super key

- ☆ Like superset.
- ☆ Uniquely identify the tuple.
- ☆ NULL values.
- ☆ {**Name**} is not a super key.
- ☆ May contain extraneous attributes.
- ☆ Superkeys:
  - {ID}, {SSN}, {ID, Name},
  - {ID, SSN}, {ID, Phone},
  - {Name, Phone}, {ID, Email},
  - {Name, SSN, Phone},
  - {Name, Email},
  - {ID, SSN, Phone} .....

Employee						
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Candidate key: (Minimal Super key is called the candidate key)

## Candidate key

- ☆ Superkeys:
  - {ID}, {SSN}, {ID, Name},
  - {ID, SSN}, {ID, Phone},
  - {Name, Phone}, {ID, Email},
  - {Name, SSN, Phone},
  - {Name, Email},
  - {ID, SSN, Phone} .....
- ☆ Minimal super keys are called candidate keys.
- ☆ Candidate Keys:
  - {ID}, {SSN}, {Name, Phone},
  - {Email}

Employee						
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## Primary key:

Should be unique and not contain null values

### Primary key

- ☆ To denote a candidate key.
- ☆ Candidate Keys:  
    {ID}, {SSN}, {Name, Phone},  
    {Email}
- ☆ Primary Key: {ID}
- ☆ Chosen with care by DBA.
- ☆ Never or very rarely changed.
- ☆ Candidate key with NULL value is NOT the primary key.
- ☆ Primary key = UNIQUE + NOT NULL.

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101	John	AA	50000	12	j@sw
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## Alternate keys:

In the set of candidate key other than primary key are called Alternate keys:

### Alternate key

- ☆ The candidate key other than the primary key.
- ☆ All the keys which are not primary keys.
- ☆ Candidate Keys:  
    {ID}, {SSN}, {Name, Phone},  
    {Email}
- ☆ Primary Key: {ID}
- ☆ Alternate Keys:  
    {SSN}, {Name, Phone}, {Email}

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## Unique Key:

Unique key can be NULL but not duplicate

### Unique key

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- ☆ Candidate Keys:  
    {ID}, {SSN}, {Name, Phone},  
    {Email}
- ☆ Primary Key: {ID}
- ☆ Alternate Keys:  
    {SSN}, {Name, Phone}, {Email} ...
- ☆ Unique Key: {Name, Phone} ...

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Composite key: Key that is formed from the two keys is called composite key

## Foreign key:

Foreign key works with the two tables:

### Foreign key

Student			
S_ID	Name	Dept_Code	Credits
101	John	101	12
102	Robin	102	14
103	Alya	103	20
104	Yusuf	104	10

Dept	
Dept_Code	Dept_Name
101	CSE
102	EEE
103	ECE
104	MECH

Referential Integrity

