

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 identity 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**}

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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**}

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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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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

- ☆ 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 | | | | Dept | |
|---------|-------|-----------|---------|-----------|-----------|
| S_ID | Name | Dept_Code | Credits | Dept_Code | Dept_Name |
| 101 | John | 101 | 12 | 101 | CSE |
| 102 | Robin | 102 | 14 | 102 | EEE |
| 103 | Alya | 103 | 20 | 103 | ECE |
| 104 | Yusuf | 104 | 10 | 104 | MECH |

Referential Integrity