

KEYS



KEYS

- ✓ Used to establish and identify relation between tables
- ✓ Each record with in a table can be uniquely identified bye combination of one more fields in a table
- ✓ Help to enforce integrity and identify relationship

Different types of keys

1. Super Key
2. Candidate Key
3. Primary Key
4. Foreign Key
5. Secondary / Alternate key
6. Simple Key
7. Compound Key
8. Composite Key



Super Key

- ❑ A Super key is any combination of fields within a table that uniquely identifies each record within that table.
- ❑ Superset of candidate key



Candidate Key



- ❑ A subset of a super key.
- ❑ A candidate key is a single field or the least combination of fields that uniquely identifies each record in the table.
- ❑ The least combination of fields distinguishes a candidate key from a super key. (ie.Minimal Set of Super Key)
- ❑ Every table must have at least one candidate key but at the same time can have several.

Candidate Keys



StudentId	firstName	lastName	courseId
L0002345	Jim	Murray	C002
L0001254	Simon	Harradine	A004
L0002349	Amanda	Holland	C002
L0001198	Simon	McCloud	S042
L0023487	Peter	Murray	P301
L0018453	Anne	Norris	S042

In order to be eligible for a candidate key it must pass certain criteria

- I. It must contain unique values
- II. Must not contain null values
- III. Contain minimum number of fields to ensure uniqueness
- IV. Must uniquely identify each record in a table

Note: Once your candidate keys have been identified you can now select one to be your primary key

Primary Key



- ❑ A primary key is a candidate key that is most appropriate to be the main reference key for the table.
- ❑ It is the primary key of reference for the table
- ❑ It is used throughout the database to help establish relationships with other tables.

Primary Keys



<u>StudentId</u>	firstName	lastName	courseId
L0002345	Jim	Black	C002
L0001254	James	McCloud	A004
L0002349	Jim	Holland	C002
L0001198	Simon	McCloud	S042
L0023487	Peter	Murray	P301
L0018453	Anne	Norris	S042

❑ Primary key must contain

- Unique values
- Must never be null
- Uniquely identify each record in the table.



- **Note :** Primary keys are mandatory for every table each record must have a value for its primary key.
- **Note:** When choosing a primary key from the pool of candidate keys always choose a single simple key over a composite key.

Foreign Key



- ❑ Foreign key is a column(s) that references a column(s) of a table and it can be same table also
- ❑ A foreign key is generally a Unique key from one table that appears as a field in another where the first table has a relationship to the second.
- ❑ In other words, if we had a table A with a Unique key X that linked to a table B where X was a field in B, then X would be a foreign key in B.

This relationship ensures

- Records cannot be inserted into a detail table if corresponding record in the master table do not exist.
- Record of a master table cannot be deleted if corresponding records in the detail table actually exist

<u>studentId</u>	firstName	lastName	courseId
L0002345	Jim	Black	C002
L0001254	James	Harradine	A004
L0002349	Amanda	Holland	C002
L0001198	Simon	McCloud	S042

Child
(or) Detail
table

Foreign Keys

Relationship

Primary Keys

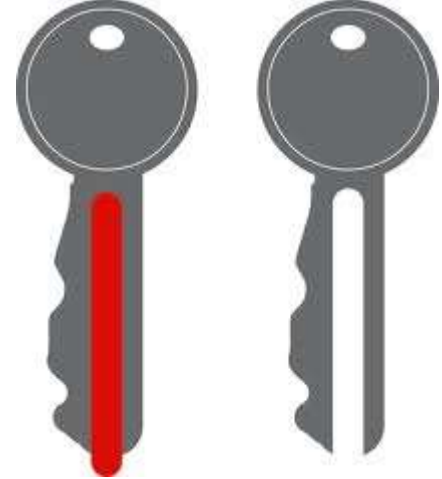
<u>courseId</u>	courseName
A004	Accounts
C002	Computing
P301	History
S042	Short Course

Parent
(or)
Master Table



- ✓ Parent must be UNIQUE OR PRIMARY KEY
- ✓ Child may have DUPLICATE/NULL unless it is specified
- ✓ Constraint specified on child not on parent
- ✓ Parent record can delete only if no child record exist
- ✓ Parent cannot modify if child record exist

Secondary / Alternate Key



- ❑ A table may have one or more choices for the primary key. Collectively these are known as candidate keys.
- ❑ One is selected as the primary key. Those not selected are known as secondary keys or alternative keys.

Simple Key



- ❑ A simple key consists of a single field to uniquely identify a record.
- ❑ In addition the field in itself cannot be broken down into other fields

Compound Key

- ❑ A compound key consists of more than one field to uniquely identify a record.
- ❑ Each attribute that makes up the **compound key** is a simple **key** in its own right.



Composite Key

- ❑ A composite key consists of more than one field to uniquely identify a record.
- ❑ This differs from a compound key in that one or more of the attributes, which make up the key, are not simple keys in their own right

