

Transaction ID	Student ID	Name	Phone Number	Course ID
1001	<u>101</u>	Virat	<u>9087690871</u> ✓	<u>C123</u>
1002	<u>101</u>	Virat	<u>9087690871</u> ✓	C124
1003	102	Rahul	9678567854	<u>C123</u>
1004	103	Virat	<u>9234560987</u> ✓	C250
1005	102	Rahul	9678567854	C250

Table

→ storage  
→ Retrieval

KVP

lc, v map.get(k)  
name, "Virat"  
"Mohan"  
age → 19  
31

JAVA

↳ CollectionFrame

↳ Map → HashMap  
↳ (k, v)

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1004	103	Virat	9234560987	C250
1005	102	Rahul	9678567854	C250

SUPER KEY

SUPER SET

key → 1 column  
or  
multiple columns

- <Transaction ID, Student ID, Name, Phone Number, Course ID>
- <Transaction ID, Student ID, Phone Number, Course ID>
- <Transaction ID, Student ID, Name, Course ID>
- <Transaction ID, Student ID, Course ID>
- <Transaction ID, Name, Phone Number, Course ID>
- <Transaction ID, Phone Number, Course ID>
- <Transaction ID, Phone Number>
- <Transaction ID, Course ID>
- <Transaction ID, Student ID>
- <Transaction ID, Name>
- <Transaction ID, Student ID, Name>

- <Transaction ID, Name, Course ID>
- <Transaction ID, Name, Phone Number>
- <Transaction ID, Student ID, Phone Number>
- <Student, Course ID, Name, Phone Number>
- <Student ID, Course ID, Name>
- <Student ID, Course ID, Phone Number>
- <Phone Number, Course ID, Name>
- <Student ID, Course ID>
- <Phone Number, Course ID>
- <Transaction ID>

candidate keys

transaction id  
1001

2 keys

Rahul  
4

Student id - name

101 first

phone number

9087 690871



## Candidate Keys

Candidate keys are attributes or combinations of attributes that can uniquely identify each row of a table. Such a combination includes only useful attributes. It is a subset of super keys.

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1004	103	Virat	9234560987	C250
1005	102	Rahul	9678567854	C250

Transaction ID&gt;

Student ID, Course ID

Phone Number, Course ID>

My Mother  
Candida

CANDIDAT Key

② 7 Konstanten  
steril +  
1 km +

## Primary Keys

Primary keys are attributes or combinations of attributes that can uniquely identify each row of a table. Such a combination includes one of the candidate keys.

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1001	101	Virat	9087690871	C123
1002	101	Virat	9087690871	C124
1003	102	Rahul	9678567854	C123
1004	103	Virat	9234560987	C250
1005	102	Rahul	9678567854	C250

<Transaction ID>

Indexing

Handwritten notes illustrating the primary key concept:

- A circle is drawn around the first row of the table (Transaction ID 1001).
- Below the circle, the text "tran id" is written.
- Below "tran id", the text "stu -" is written.
- Below "stu -", the text "ph No" is written.
- Below "ph No", the text "C123" is written.
- Below "C123", the text "C124" is written.
- Below "C124", the text "C123" is written.
- Below "C123", the text "C250" is written.
- Below "C250", the text "C250" is written.

# Composite Keys

Composite keys are a combination of attributes that can uniquely identify each row of a table.

Transaction ID	Student ID	Name	Phone Number	Course ID
1001	101	Virat	9087690871	C123
1002	101	Virat	9087690871	C124
1003	102	Rahul	9678567854	C123
1004	103	Virat	9234560987	C250
1005	102	Rahul	9678567854	C250

<Student ID, Course ID>  
<Phone Number, Course ID>

PK

Transaction id

## Foreign Keys

Transaction ID	Student ID	Name	Phone Number	Course ID
1001	101	Virat	9087690871	C123
1002	101	Virat	9087690871	C124
1003	102	Rahul	9678567854	C123
1004	103	Virat	9234560987	C250
1005	102	Rahul	9678567854	C250

Course ID	Course Name
C123	Marketing
C124	Data Science
C250	Product management

Single class  
↓  
Single Responsibility

RDBMS

~~PK~~

What is the name of the course Virat is enrolled in?

DDBMS

FK