

Suppose we have a data of students which contains features like:

- Roll number
- Name
- Grade
- Marks
- City

	roll_no	name	grade	marks	city
0	102	Aravind	В	15	Gurugram
1	101	Rahul	В	15	Delhi
2	104	Prateek	Α	20	Delhi
3	103	Piyuesh	С	4	Gurugram
4	105	Kartik	Α	22	Hyderabad



We have another data with city and state mapping.

	city	state
0	Gurugram	Haryana
1	Delhi	Delhi
2	Hyderabad	Telangana



Now, we want to add another column state in the first dataframe using city state mapping.

city	marks	grade	name	roll_no	
Gurugram	15	В	Aravind	102	0
Delhi	15	В	Rahul	101	1
Delhi	20	Α	Prateek	104	2
Gurugram	4	С	Piyuesh	103	3
Hyderabad	22	Α	Kartik	105	4







state	city			city	marks	grade	name	roll_no	
Haryana	Gurugram			Gurugram	15	В	Aravind	102	0
Delh	Delhi	,		Delhi	15	В	Rahul	101	1
Telangana	Hyderabad	/		Delhi	20	Α	Prateek	104	2
		/		Gurugram	4	С	Piyuesh	103	3
•		-	7	Hyderabad	22	Α	Kartik	105	4

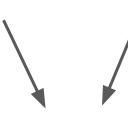


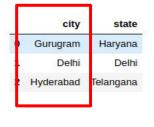
stat	city			city	marks	grade	name	roll_no	
Haryan	Gurugram	·-	,	Gurugram	15	В	Aravind	102	0
Del	. Delhi	,		Delhi	15	В	Rahul	101	1
Telangan	2 Hyderabad	/		Delhi	20	Α	Prateek	104	2
3		/		Gurugram	4	С	Piyuesh	103	3
		<b>*</b>	7	Hyderabad	22	Α	Kartik	105	4

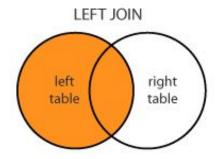
	roll_no	name	grade	marks	city	state
0	102	Aravind	В	15	Gurugram	Haryana
1	101	Rahul	В	15	Delhi	Delhi
2	104	Prateek	Α	20	Delhi	Delhi
3	103	Piyuesh	С	4	Gurugram	Haryana
4	105	Kartik	Α	22	Hyderabad	Telangana



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0	102	Aravind	В	15	Gurugram	Haryana
1	101	Rahul	В	15	Delhi	Delhi
2	104	Prateek	Α	20	Delhi	Delhi
3	103	Piyuesh	С	4	Gurugram	Haryana
4	105	Kartik	Α	22	Hyderabad	Telangana





Now, we have another dataframe that contains roll\_no of some students.

	roll_no
0	102
1	103

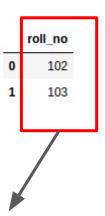


	roll_no	name	grade	marks	city
0	102	Aravind	В	15	Gurugram
1	101	Rahul	В	15	Delhi
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3	103	Piyuesh	C	4	Gurugram
4	105	Kartik	Α	22	Hyderabad

	roll_no
0	102
1	103



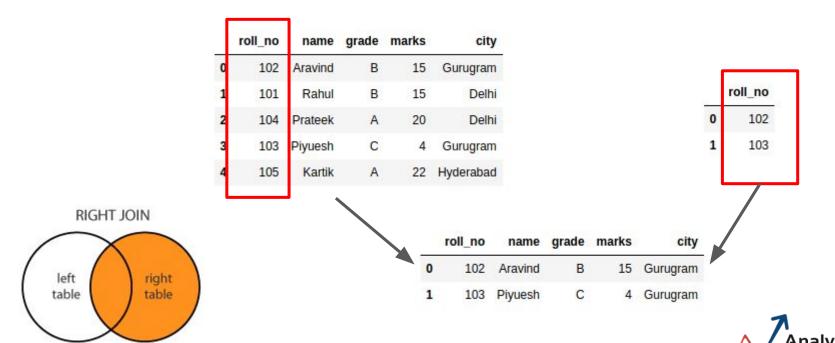
city	marks	grade	name	roll_no	ı
Gurugram	15	В	Aravind	102	0
Delhi	15	В	Rahul	101	1
Delhi	20	Α	Prateek	104	2
Gurugram	4	С	Piyuesh	103	3
Hyderabad	22	Α	Kartik	105	4





104 Prateek A 20 Delhi 0 102   103 Piyuesh C 4 Gurugram 1 103   105 Kartik A 22 Hyderabad		roll_no	name	grade	marks	city	/					
104 Prateek A 20 Delhi	,	102	Aravind	В	15	Gurugram	1				1	
1 103 Piyuesh C 4 Gurugram 1 103 Kartik A 22 Hyderabad	1	101	Rahul	В	15	Delh	i					roll_no
4 105 Kartik A 22 Hyderabad	2	104	Prateek	Α	20	Delh	i				0	102
	3	103	Piyuesh	С	4	Gurugram	1				1	103
	4	105	Kartik	Α	22	Hyderabad	i					
	L		,			roll_no				city		
					0	102	Aravind	В	15	Gurugram		
0 102 Aravind B 15 Gurugram					1	103	Piyuesh	C	4	Gurugram		





Now, students participated in a placement drive and some of the students got placed and the details are given in the dataframe.

	roll_no	company	package (lpa)
0	102	ABC	8.0
1	105	XYZ	14.5
2	101	ABC	11.0



Now, we want to combine the students data and student selection data. We can do this by using outer/full join.

	roll_no	name	grade	marks	city
0	102	Aravind	В	15	Gurugram
1	101	Rahul	В	15	Delhi
2	104	Prateek	Α	20	Delhi
3	103	Piyuesh	С	4	Gurugram
4	105	Kartik	Α	22	Hyderabad

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Delhi	20	Α	Prateek	104	2
Gurugram	4	С	Piyuesh	103	3
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Delhi	15	В	Rahul	101	1
Delhi	20	Α	Prateek	104	2
Gurugram	4	C	Piyuesh	103	3
Hyderabad	22	Α	Kartik	105	4

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0	102	ABC	8.0
1	105	XYZ	14.5
2	101	ABC	11.0

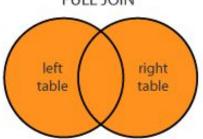
	roll_no	name	grade	marks	city	company	package (lpa)
0	102	Aravind	В	15	Gurugram	ABC	8.0
1	101	Rahul	В	15	Delhi	ABC	11.0
2	104	Prateek	Α	20	Delhi	NaN	NaN
3	103	Piyuesh	С	4	Gurugram	NaN	NaN
4	105	Kartik	Α	22	Hyderabad	XYZ	14.5

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0	102	Aravind	В	15	Gurugram
1	101	Rahul	В	15	Delhi
2	104	Prateek	Α	20	Delhi
3	103	Piyuesh	С	4	Gurugram
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	roll_no	company	package (lpa)
0	102	ABC	8.0
1	105	XYZ	14.5
2	101	ABC	11.0





	roll_no	name	grade	marks	city	company	package (Ipa)
0	102	Aravind	В	15	Gurugram	ABC	8.0
1	101	Rahul	В	15	Delhi	ABC	11.0
2	104	Prateek	Α	20	Delhi	NaN	NaN
3	103	Piyuesh	С	4	Gurugram	NaN	NaN
4	105	Kartik	Α	22	Hyderabad	XYZ	14.5

Now, consider it was a pool placement drive and students from multiple colleges participated.

The college `"ZU UNIVERSITY"` got the list of students selected for the job. You need to find out the details of the students who got selected from the college `"ZU

	college	roll_no	name	grade	marks	city
0	ZU UNIVERSITY	102	Aravind	В	15	Gurugram
1	ZU UNIVERSITY	101	Rahul	В	15	Delhi
2	ZU UNIVERSITY	104	Prateek	Α	20	Delhi
3	ZU UNIVERSITY	103	Piyuesh	C	4	Gurugram
4	ZU UNIVERSITY	105	Kartik	Α	22	Hyderabad

	college	name	company	package (lpa)
0	ZU UNIVERSITY	Aravind	ABC	8.0
1	ZU UNIVERSITY	Rahul	XYZ	14.5
2	AB UNIVERSITY	Rahul	ABC	11.0
3	ZU UNIVERSITY	Prateek	AEP	6.0
4	AB UNIVERSITY	Harsh	ABC	6.0



Now, we have 2 columns common, **college** and **name** in both the dataframes. So, here we will use the inner join.

city	marks	grade	name	roll_no	college	
Gurugram	15	В	Aravind	102	ZU UNIVERSITY	0
Delhi	15	В	Rahul	101	ZU UNIVERSITY	1
Delhi	20	Α	Prateek	104	ZU UNIVERSITY	2
Gurugram	4	С	Piyuesh	103	ZU UNIVERSITY	3
Hyderabad	22	Α	Kartik	105	ZU UNIVERSITY	4
Hyderabad	22	A	Kartik	105	RSITY	ZU UNIVER

college	name	ompany	package (lpa)
ZU UNIVERSITY	Aravind	ABC	8.0
ZU UNIVERSITY	Rahul	XYZ	14.5
AB UNIVERSITY	Rahul	ABC	11.0
ZU UNIVERSITY	Prateek	AEP	6.0
AB UNIVERSITY	Harsh	ABC	6.0



Now, we have 2 columns common, **college** and **name** in both the dataframes. So, here we will use the inner join.

city	marks	grade	name	roll_no	college	
Gurugram	15	В	Aravind	102	ZU UNIVERSITY	0
Delhi	15	В	Rahul	101	ZU UNIVERSITY	1
Delhi	20	Α	Prateek	104	ZU UNIVERSITY	2
Gurugram	4	С	Piyuesh	103	ZU UNIVERSITY	3
Hyderabad	22	Α	Kartik	105	ZU UNIVERSITY	4

name <mark>c</mark> ompany	ege name	college	
avind ABC	SITY Aravind	ZU UNIVERSITY	0
Rahul XYZ	SITY Rahul	ZU UNIVERSITY	1
Rahul ABC	SITY Rahul	AB UNIVERSITY	2
ateek AEP	SITY Prateek	ZU UNIVERSITY	3
larsh ABC	Harsh	AB UNIVERSITY	4

	college	roll_no	name	grade	marks	city	company	package (lpa)
0	ZU UNIVERSITY	102	Aravind	В	15	Gurugram	ABC	8.0
1	ZU UNIVERSITY	101	Rahul	В	15	Delhi	XYZ	14.5
2	ZU UNIVERSITY	104	Prateek	Α	20	Delhi	AEP	6.0



Now, we have 2 columns common, **college** and **name** in both the dataframes. So, here we will use the inner join.

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Gurugram	15	В	Aravind	102	ZU UNIVERSITY	0
Delhi	15	В	Rahul	101	ZU UNIVERSITY	1
Delhi	20	Α	Prateek	104	ZU UNIVERSITY	2
Gurugram	4	С	Piyuesh	103	ZU UNIVERSITY	3
Hyderabad	22	Α	Kartik	105	ZU UNIVERSITY	4

colleg	e name	ompany	package (lpa)
ZU UNIVERSIT	Aravino	I ABC	8.0
ZU UNIVERSIT	/ Rahu	I XYZ	14.5
AB UNIVERSIT	/ Rahu	I ABC	11.0
ZU UNIVERSIT	/ Prateek	AEP	6.0
AB UNIVERSIT	/ Harsh	ABC	6.0

**INNER JOIN** 

right

table

left

table

	college	roll_no	name	grade	marks	city	company	package (lpa)
0	ZU UNIVERSITY	102	Aravind	В	15	Gurugram	ABC	8.0
1	ZU UNIVERSITY	101	Rahul	В	15	Delhi	XYZ	14.5
2	ZU UNIVERSITY	104	Prateek	Α	20	Delhi	AEP	6.0