

div(), **floordiv()**, **mod()**, and **pow()** for addition, subtraction, multiplication, integer division, numeric division, remainder division, and exponentiation. Let's see examples.

```
df_A.add(df_B, fill_value=10)
```

'Output':

	<i>First</i>	<i>Second</i>	<i>Third</i>
0	5.0	9.0	12.0
1	10.0	9.0	8.0
2	17.0	9.0	12.0
3	12.0	19.0	12.0

Combining Datasets

We may need to combine two or more datasets together; Pandas provides methods for such operations. We would consider the simple case of combining data frames with shared column names using the **concat** method.

```
# combine two dataframes column-wise
```

```
pd.concat([df_A, df_B])
```

'Output':

	<i>First</i>	<i>Second</i>	<i>Third</i>
0	2	3	9
1	8	7	7
2	8	6	4
0	3	6	3
1	2	2	1
2	9	3	8
3	2	9	2

Observe that the **concat** method preserves indices by default. We can also concatenate or combine two dataframes by rows (or horizontally). This is done by setting the **axis** parameter to 1.

```
# combine two dataframes horizontally
```

```
pd.concat([df_A, df_B], axis=1)
```

'Output':

Out[246]:

	First	Second	Third	First	Second	Third
0	2.0	3.0	9.0	3	6	3
1	8.0	7.0	7.0	2	2	1
2	8.0	6.0	4.0	9	3	8
3	NaN	NaN	NaN	2	9	2

Handling Missing Data

Dealing with missing data is an integral part of the data cleaning/data analysis process. Moreover, some machine learning algorithms will not work in the presence of missing data. Let's see some simple Pandas methods for identifying and removing missing data, as well as imputing values into missing data.

Identifying Missing Data

In this section, we'll use the **isnull()** method to check if missing cells exist in a DataFrame.

```
# let's create a data frame with missing data
my_DF = pd.DataFrame({'age': [15,17,np.nan,29,25], \
                        'state_of_origin':['Lagos', 'Cross River', 'Kano', \
                        'Abia', np.nan]})
```

my_DF

'Output':

	age	state_of_origin
0	15.0	Lagos
1	17.0	Cross River
2	NaN	Kano
3	29.0	Abia
4	25.0	NaN

Let's check for missing data in this data frame. The **isnull()** method will return **True** where there is a missing data, whereas the **notnull()** function returns **False**.