GraphLab Create™ Translator

The GraphLab Create API is easy to learn and use. See how to convert code syntax from products you already know to GraphLab Create.

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Constructing data objects

TASK	GRAPHLAB CREATE (VER. 1.0)	PANDAS (VER. 0.15.0)
Construct a one-dimensional vector	sa = gl.SArray([1, 2, 3, 4])	s = pd.Series([1, 2, 3, 4])
Construct a vector with missing values	sa = gl.SArray([1, 3, 5, None, 6])	s = pd.Series([1, 3, 5, np.nan, 6])
Construct a two-dimensional table of data	sf = gl.SFrame({'type': ['cat', 'fossa'], 'height': [15., 23.5]})	df = pd.DataFrame({'type': ['cat', 'fossa'], 'height': [15., 23.5]})
Construct an empty graph	sg = gl.SGraph()	
Convert an SFrame to a DataFrame	df = sf.to_dataframe()	
Convert a DataFrame to an SFrame	sf = gl.SFrame(df)	
Assign index name		df.index.name = 'foo' df.index.name

TASK	GRAPHLAB CREATE (VER. 1.0)	PANDAS (VER. 0.15.0)

Rename column name(part of column)
 	
Rename of index value
		`df.rename(columns={'aa': 'a', 'bb': 'b'}, inplace=True)`
		
		`df1.rename(index={1: 'a'})`

Accessing data in a table

TASK	GRAPHLAB CREATE (VER. 1.0)	PANDAS (VER. 0.15.0)
Retrieve a single column from a table	sf['A']	df['A']
Retrieve multiple columns from a table	sf[['A', 'C']]	df[['A', 'C']]
Retrieve a single row from a table	sf[3]	df.iloc[3]

Retrieve multiple rows from a table
 	
Retrieve(slice) multiple row , column
 	
Retrieve(slice) multiple row with all column
	sf[3:7]	df[3:7]
		`df.loc[['one','two','three', 'four'],['Fresh', 'Milk', 'Frozen','Detergents']]`
		
		`df1.loc[['a', 'b', 'd'], :]`

Retrieve the value from a single cell of a table	sf['A'][3] sf[3]['A'] ?	df.at[3, 'A'] df[['A']][3] ?
Retrieve a subset of a table along both axes (elements num are different)	sf[3:7][['A', 'C']] :3,4,5,6(4ele) **sf[['A','C']][3:7]**	df.loc[3:6, ['A', 'C']] : 3,4,5,6(4 ele) **df[['A','C']][3:7] :3,4,5,6(4 ele)** df[['A','C'][3:7]] :3,4,5,6(4 ele)

TASK	GRAPHLAB CREATE (VER. 1.0)	PANDAS (VER. 0.15.0)
Retrieve rows of a table by filtering a column	sf.filter_by(['b', 'd', 'f'], 'type')	df[df['type'].isin(['b', 'd', 'f'])]
Retrieve table rows using a boolean flag	sf[sf['A'] > 0.5]	df[df.A > 0.5] df[df['A'] >0.5]
Set the value of a single table entry		df.at[3, 'A'] = -1

Vector arithmetic

TASK	GRAPHLAB CREATE (VER. 1.0)	PANDAS (VER. 0.15.0)
Add two vectors	sf['A'] + sf['B']	df['A'] + df['B']
Subtract two vectors	sf['A'] - sf['B']	df['A'] - df['B']
Multiply two vectors, element-wise	sf['A'] * sf['B']	df['A'] * df['B']
Divide two vectors, element-wise	sf['A'] / sf['B']	df['A'] / df['B']
Raise a vector to a power, element-wise	sf['A'].apply(lambda x: x**2)	df['A']**2
Test equality of vector elements	sf['C'] == sf['D']	df['C'] == df['D']
Test inequality of vector elements	sf['C'] <= sf['D'] sf['C'] >= sf['D']	df['C'] <= df['D'] df['C'] >= df['D']

Saving and loading data tables

TASK	GRAPHLAB CREATE (VER. 1.0)	PANDAS (VER. 0.15.0)
Read a binary data file	sf = gl.load_sframe("my_sframe")	df = pd.read_pickle("my_dataframe")

TASK	GRAPHLAB CREATE (VER. 1.0)	PANDAS (VER. 0.15.0)
Read data from a text file	sf = gl.SFrame.read_csv('my_sframe.csv')	df = pd.read_csv('my_dataframe.csv')
Save a data table as a text file	sf.save('my_sframe', format='csv')	df.to_csv('my_dataframe.csv', index=False)
Save a data table in binary format	sf.save('my_sframe')	df.to_pickle('my_dataframe')

Data table operations

TASK	GRAPHLAB CREATE (VER. 1.0)	PANDAS (VER. 0.15.0)
Get the first rows of a table	sf.head(5)	df.head(5)
Get the last rows of a table	sf.tail(5)	df.tail(5)
Print a data table in the console	sf.print_rows(30)	pd.set_option('display.max_rows', 30) df
Retrieve column names	sf.column_names()	df.columns df.keys()
Retrieve column types	sf.column_types()	df.dtypes
Retrieve the row index of a table	sf = sf.add_row_number() sf['id']	df.index

TASK	GRAPHLAB CREATE (VER. 1.0)	PANDAS (VER. 0.15.0)
Add a column to a data table	sf['new'] = range(sf.num_rows())	df['new'] = range(len(df))
| Remove a row from a data table | | ```python
data = {'name': ['Jason', 'Molly',
'Tina', 'Jake', 'Amy'],
'year': [2012, 2012, 2013, 2014,2014],
'reports': [4, 24, 31, 2, 3]}
df = pd.DataFrame(data, index = [
'Cochice', 'Pima', 'Santa Cruz',
'Maricopa', 'Yuma'])
1)df.drop(['Cochice', 'Pima'])
```<br><br>**2) df = df[df.name != 'Tina']** : Drop<br><br>a row if it contains a certain value ( "Tina") |
| Remove a column from a data table | sf.remove_column('new') | df = df.drop('new', axis=1)<br>```python
df.drop(df.columns[[1, 69]], axis=1, inplace=True)
#drop column 1,69
```<br><br>```python
del df['column_name']
``` |
| Concatenate columns of two tables | sf2 = sf[['A', 'B']]
sf2.add_columns(sf[['C']]) | blocks = [df[['A', 'B']], df[['C']]]
df2 = pd.concat(blocks, axis=1) |
| | | **Rename Column Names**<br><br>```python
df.columns = ['Leader', 'Time', 'Score']
df.rename(columns={'Leader': 'Commander'},
 inplace=True)
``` |
| Join two tables on common columns | sf.join(sf2) | pd.merge(df, df2) |
| Concatenate rows of two tables | sf.append(sf2) | df.append(df2) |

TASK	GRAPHLAB CREATE (VER. 1.0)	PANDAS (VER. 0.15.0)
Combine multiple columns into a single array or dictionary column	sf.pack_columns(['A', 'B', 'C'], dtype=dict)	
Unpack a single array or dictionary column to multiple columns	sf.unpack('value_dict')	
Stack entries in an array or dictionary column as rows	sf.stack('value_dict', new_column_name=['type', 'value'])	
Stack multiple columns as rows	sf.pack_columns(['A', 'B', 'C'], dtype=dict, new_column_name='value_dict').stack('value_dict')	df.stack()
Flatten rows into columns	sf.unstack(['type', 'value'], new_column_name='value_dict').unpack('value_dict')	df.unstack()

Manipulating data in a table

TASK	GRAPHLAB CREATE (VER. 1.0)	PANDAS (VER. 0.15.0)
Apply a lambda function to a vector	sf['A'].apply(lambda x: x**2)	df['A'].apply(lambda x: x**2)
Apply a lambda function over table rows	sf.apply(lambda x: x['A'] + x['B'])	df.apply(lambda x: x['A'] + x['B'], axis=1) multi columns calculation !! df['new_col']= df.apply(lambda x: x['A'] + x['B'], axis=1)

TASK	GRAPHLAB CREATE (VER. 1.0)	PANDAS (VER. 0.15.0)
	*topic_model = gl.load_model('lda_assignment_topic_model') *x['words'] for x in topic_model.get_topics(output_type='topic_words', num_words=10)] *get_topics	
Drop missing values from a table	sf.dropna(columns=['type'])	df.dropna(subset=['type'])
Impute a value for missing table entries	sf.fillna(column='type', value='fossa')	df.fillna(value={'type': 'fossa'}, inplace=True)
Create a boolean mask for missing values in a table	mask = gl.SFrame({c: sf[c] == None for c in sf.column_names()})	mask = pd.isnull(df)
Swap rows and columns of a table		df.T
Sort a table according to a particular column	sf.sort('A', ascending=False)	df.sort('A', ascending=False)
Convert a vector of strings into a dictionary of word counts	gl.text_analytics.count_words(sf['text'])	```from collections import Counter\nimport string\ndocument = ['this','and',….]\nword_counts = Counter(document)\n# most common 10 words\nfor word, count in word_counts.most_common(10):\n print word, count```

TASK	GRAPHLAB CREATE (VER. 1.0)	PANDAS (VER. 0.15.0)
Group and aggregate a table based on a set of columns	sf.groupby('type', [gl.aggregate.SUM('A'), gl.aggregate.SUM('B')])	df.groupby('type').sum()[['A', 'B']]
Find the unique elements in a vector	sf['type'].unique()	df['type'].unique()

Computing statistics with data tables

TASK	GRAPHLAB CREATE (VER. 1.0)	PANDAS (VER. 0.15.0)
Display statistic info	?	from IPython.display import display display(df.describe())
Compute the mean of a column	sf['A'].mean()	df['A'].mean()
Compute the mean of each column in a table	[sf[c].mean() for c in sf.column_names()]	df.mean()
Compute the minimum value of a column	sf['A'].min()	df['A'].min()
Compute the maximum value of a column	sf['A'].max()	df['A'].max()
Compute the sum of a column	sf['A'].sum()	df['A'].sum()
| Compute the sum of a | | ```
rows_list = []
for row in input_rows:
        dict1 = {}
    # get input row in dictionary format
``` |

TASK	GRAPHLAB CREATE (VER. 1.0)	PANDAS (VER. 0.15.0)
| column & add new row of sum | | ```python
# key = col_name
        dict1.update(blah..)
        rows_list.append(dict1)
df = pd.DataFrame(rows_list)
----------------------------------------
dfi = pd.DataFrame(np.arange(6).\
      reshape(3,2),columns=['A','B'])
n [2]: dfi
Out[2]:
   A  B
0  0  1
1  2  3
2  4  5

In [3]: dfi.loc[:,'C'] = dfi.loc[:,'A']
#for all row, column 'C'
In [4]: dfi
Out[4]:
   A  B  C
0  0  1  0
1  2  3  2
2  4  5  4
In [5]: dfi.loc[3] = 5

In [6]: dfi
Out[6]:
   A  B  C
0  0  1  0
1  2  3  2
2  4  5  4
3  5  5  5
``` |
Compute the variance of a column	sf['A'].var()	df['A'].var()
Compute the standard deviation of a column	sf['A'].std()	df['A'].std()
Compute the number of nonzero elements in a column	sf['A'].nnz()	sum(abs(df['A']) > 1e-8)
Compute the number of	sf['A'].num_missing()	sum(pd.isnull(df['A']))

TASK	GRAPHLAB CREATE (VER. 1.0)	PANDAS (VER. 0.15.0)
missing values in a column		
Show a statistical summary of a data table	sf.show()	df.describe()
Count the frequency of values in a column	sf.groupby('type', gl.aggregate.COUNT)	df['type'].value_counts()