Data Normalization

Perform minmax normalization using MinMax scaler in sklearn on both training and test data (train_df and test_df)

```
[ ] # MinMax normalization for training data

    train_df['cycle_norm'] = train_df['cycle']
    cols_normalize = train_df.columns.difference(['id','cycle','RUL','label1'])
    min_max_scaler = preprocessing.MinMaxScaler()
    norm_train_df = pd.DataFrame(min_max_scaler.fit_transform(train_df[cols_normalize]),
                                 columns=cols_normalize,
                                 index=train_df.index)
    join_df = train_df[train_df.columns.difference(cols_normalize)].join(norm_train_df)
    train_df = join_df.reindex(columns = train_df.columns)
    train_df.head()
```

	id	cycle	setting1	setting2	setting3	s1	s2	s3	s4	s5	...	s15	s16	s17	s18	s19	s20	s21	RUL	label1	cycle_norm
0	1	1	0.459770	0.166667	0.0	0.0	0.183735	0.406802	0.309757	0.0	...	0.363986	0.0	0.333333	0.0	0.0	0.713178	0.724662	191	0	0.00000
1	1	2	0.609195	0.250000	0.0	0.0	0.283133	0.453019	0.352633	0.0	...	0.411312	0.0	0.333333	0.0	0.0	0.666667	0.731014	190	0	0.00277
2	1	3	0.252874	0.750000	0.0	0.0	0.343373	0.369523	0.370527	0.0	...	0.357445	0.0	0.166667	0.0	0.0	0.627907	0.621375	189	0	0.00554
3	1	4	0.540230	0.500000	0.0	0.0	0.343373	0.256159	0.331195	0.0	...	0.166603	0.0	0.333333	0.0	0.0	0.573643	0.662386	188	0	0.00831
4	1	5	0.390805	0.333333	0.0	0.0	0.349398	0.257467	0.404625	0.0	...	0.402078	0.0	0.416667	0.0	0.0	0.589147	0.704502	187	0	0.01108

5 rows × 29 columns

```
[ ] # MinMax normalization for test data

    test_df['cycle_norm'] = test_df['cycle']
    norm_test_df = pd.DataFrame(min_max_scaler.transform(test_df[cols_normalize]),
                                columns=cols_normalize,
                                index=test_df.index)
    test_join_df = test_df[test_df.columns.difference(cols_normalize)].join(norm_test_df)
    test_df = test_join_df.reindex(columns = test_df.columns)
    test_df = test_df.reset_index(drop=True)
    test_df.head()
```

	id	cycle	setting1	setting2	setting3	s1	s2	s3	s4	s5	...	s15	s16	s17	s18	s19	s20	s21	RUL	label1	cycle_norm
0	1	1	0.632184	0.750000	0.0	0.0	0.545181	0.310661	0.269413	0.0	...	0.308965	0.0	0.333333	0.0	0.0	0.558140	0.661834	142	0	0.00000
1	1	2	0.344828	0.250000	0.0	0.0	0.150602	0.379551	0.222316	0.0	...	0.213159	0.0	0.416667	0.0	0.0	0.682171	0.686827	141	0	0.00277
2	1	3	0.517241	0.583333	0.0	0.0	0.376506	0.346632	0.322248	0.0	...	0.458638	0.0	0.416667	0.0	0.0	0.728682	0.721348	140	0	0.00554
3	1	4	0.741379	0.500000	0.0	0.0	0.370482	0.285154	0.408001	0.0	...	0.257022	0.0	0.250000	0.0	0.0	0.666667	0.662110	139	0	0.00831
4	1	5	0.580460	0.500000	0.0	0.0	0.391566	0.352082	0.332039	0.0	...	0.300885	0.0	0.166667	0.0	0.0	0.658915	0.716377	138	0	0.01108

5 rows × 29 columns