Assignment

Let's assume we have the following DataFrame, which represents information about students' scores:

data = {'Name': ['Alice', 'Bob', 'Charlie', 'David'], 'Math Score': [85, 92, 78, 88], 'English Score': [90, 86, 92, 80]}

df = pd.DataFrame(data)

1. Retrieve the English score of 'Charlie'.
2. Get the Math scores of all students.
3. Access the English score of the first student.
4. Retrieve the Math score of the last student.
5. Update Bob's Math score to 95.
6. Increase Charlie's English score by 5 points.
7. Add a new row for 'Eve' with Math Score 88 and English Score 95.
8. Delete the row for 'David' from the DataFrame.
9. Insert a new column called 'Science Score' with values [92, 84, 89, 78].
10. Delete the 'English Score' column from the DataFrame.
11. Create a new column 'Total Score' that represents the sum of Math Score and English Score for each student.
12. Find the student with the highest Total Score.

Create a second DataFrame with the following data:

data2 = {'Name': ['Eve', 'Frank'], 'Math Score': [87, 76], 'English Score': [94, 82]}

df2 = pd.DataFrame(data2)

Combine this DataFrame (df2) with the original DataFrame (df) to create a new DataFrame that includes all students.

Importing Libraries

```
import pandas as pd
import numpy as np
```

Let's assume we have the following DataFrame, which represents information about students' scores:

```
# 1st DataFrame

data = {'Name': ['Alice', 'Bob', 'Charlie', 'David'],
'Math Score': [85, 92, 78, 88],
'English Score': [90, 86, 92, 80]}

df = pd.DataFrame(data)


df
```

	Name	Math Score	English Score
0	Alice	85	90
1	Bob	92	86
2	Charlie	78	92
3	David	88	80

1. Retrieving the English score of 'Charlie'.

```
df.loc[df.Name == 'Charlie', 'English Score']
```

```
2    92
Name: English Score, dtype: int64
```

.

2. Math scores of all students.

```
df.loc[:, 'Math Score']
```

```
0    85
1    92
2    78
3    88
Name: Math Score, dtype: int64
```

3. English score of the first student.

```
df.loc[0, 'English Score']
```

```
90
```

4. Retrieving the Math score of the last student.

```
df.loc[len(df) - 1, 'Math Score']
```

```
88
```

5. Updating Bob's Math score to 95.

```
df.loc[df.Name == 'Bob', 'Math Score'] = 95
df
```

	Name	Math Score	English Score
0	Alice	85	90
1	Bob	95	86
2	Charlie	78	92
3	David	88	80

6. Increasing Charlie's English score by 5 points.

```
increament = df.loc[df.Name == 'Charlie', 'English Score'] + 5
df.loc[df.Name == 'Charlie', 'English Score'] = increament
df
```

	Name	Math Score	English Score
0	Alice	85	90
1	Bob	95	86
2	Charlie	78	97
3	David	88	80

7. Adding a new row for 'Eve' with Math Score 88 and English Score 95.

```
df.loc[4] = ['Eve', '88', '95']
df
```

	Name	Math Score	English Score
0	Alice	85	90
1	Bob	95	86
2	Charlie	78	97
3	David	88	80
4	Eve	88	95

8. Deleting the row for 'David' from the DataFrame.

```
df.drop(df.index[df.Name == 'David'], inplace = True)
df
```

	Name	Math Score	English Score
0	Alice	85	90
1	Bob	95	86
2	Charlie	78	97
4	Eve	88	95

9. Inserting a new column called 'Science Score' with values [92, 84, 89, 78].

```
df['Science Score'] = [92, 84, 89, 78]
df
```

	Name	Math Score	English Score	Science Score
0	Alice	85	90	92
1	Bob	95	86	84
2	Charlie	78	97	89
4	Eve	88	95	78

10. Deleting the 'English Score' column from the DataFrame.

```
del df['English Score']
df
```

	Name	Math Score	Science Score
0	Alice	85	92
1	Bob	95	84
2	Charlie	78	89
4	Eve	88	78

11. Creating a new column 'Total Score' that represents the sum of Math Score and English Score for each student.

```
df.insert(loc = 2, column = 'English Score', value = [90, 86, 92, 80])
del df['Science Score']
df
```

	Name	Math Score	English Score
0	Alice	85	90
1	Bob	95	86
2	Charlie	78	92
4	Eve	88	80

```
df.dtypes
```

```
Name             object
Math Score       object
English Score     int64
dtype: object
```

.

.

```
df = df.astype(dtype = {'Math Score' : np.int64})
df.dtypes
```

```
Name             object
Math Score        int64
English Score     int64
dtype: object
```

```
df['Total Score'] =  df['Math Score'] + df['English Score']
df
```

	Name	Math Score	English Score	Total Score
0	Alice	85	90	175
1	Bob	95	86	181
2	Charlie	78	92	170
4	Eve	88	80	168

12. Finding the student with the highest Total Score.

```
highest_total_score = df.loc[df['Total Score'].idxmax()]
highest_total_score
```

```
Name             Bob
Math Score        95
English Score     86
Total Score      181
Name: 1, dtype: object
```

Creating a second DataFrame with the following data:

```
# 2nd Dataframe

data2 = {'Name': ['Eve', 'Frank'],
'Math Score': [87, 76],
'English Score': [94, 82]}

df2 = pd.DataFrame(data2)

df2
```

	Name	Math Score	English Score
0	Eve	87	94
1	Frank	76	82

Combining this DataFrame (df2) with the original DataFrame (df) to create a new DataFrame that includes all students.

```
# 1st DataFrame

data = {'Name': ['Alice', 'Bob', 'Charlie', 'David'],
'Math Score': [85, 92, 78, 88],
'English Score': [90, 86, 92, 80]}

df = pd.DataFrame(data)


new_df = pd.concat([df, df2], ignore_index = True)
new_df
```

	Name	Math Score	English Score
0	Alice	85	90
1	Bob	92	86
2	Charlie	78	92
3	David	88	80
4	Eve	87	94
5	Frank	76	82