

# Aggregates in Pandas

## Pandas' Groupby

In a pandas `DataFrame`, aggregate statistic functions can be applied across multiple rows by using a `groupby` function. In the example, the code takes all of the elements that are the same in `Name` and groups them, replacing the values in `Grade` with their mean. Instead of `mean()` any aggregate statistics function, like `median()` or `max()`, can be used. Note that to use the `groupby()` function, at least two columns must be supplied.

```
df = pd.DataFrame([
    ["Amy", "Assignment 1", 75],
    ["Amy", "Assignment 2", 35],
    ["Bob", "Assignment 1", 99],
    ["Bob", "Assignment 2", 35]
], columns=["Name", "Assignment",
            "Grade"])
```

```
df.groupby('Name').Grade.mean()
```

# output of the groupby command

```
| Name | Grade |
| --- | --- |
| Amy  | 55    |
| Bob  | 67    |
```

## Pandas DataFrame Aggregate Function

Pandas' aggregate statistics functions can be used to calculate statistics on a column of a `DataFrame`. For example, `df.columnName.mean()` computes the mean of the column `columnName` of dataframe `df`. The code block shows how to calculate statistics on the column `columnName` of `df` using Pandas' aggregate statistics functions.

```
df.columnName.mean() # Average of all
values in column
df.columnName.std() # Standard deviation
of column
df.columnName.median() # Median value of
column
df.columnName.max() # Maximum value in
column
df.columnName.min() # Minimum value in
column
df.columnName.count() # Number of values
in column
df.columnName.nunique() # Number of
unique values in column
df.columnName.unique() # List of unique
values in column
```

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