```
import pandas as pd

dic1 = {' Name' : ['Messi', 'Ronaldo', 'Neymar', 'Mbappe', 'Salah', 'Van Djik', 'Nunez' ],
        'Goals' : [320, 250, 100, 95, 90, 65, 50],
        'Position' : ['CF', 'LW', 'LW', 'CF', 'LW', 'CDM', 'RAM']}

df = pd.DataFrame(dic1)

df
```

	Name	Goals	Position
0	Messi	320	CF
1	Ronaldo	250	LW
2	Neymar	100	LW
3	Mbappe	95	CF
4	Salah	90	LW
5	Van Djik	65	CDM
6	Nunez	50	RAM

```
#display top three rows of the dataset

df.head(3)
```

	Name	Goals	Position
0	Messi	320	CF
1	Ronaldo	250	LW
2	Neymar	100	LW

```
#display bottom three rows of the dataset

df.tail(3)
```

	Name	Goals	Position
4	Salah	90	LW
5	Van Djik	65	CDM
6	Nunez	50	RAM

```
#find the shape of the dataset (number of rows and columns)

df.shape
print('Number of rows:', df.shape[0])
print('Number of columns:', df.shape[1])
```

```
Number of rows: 7
Number of columns: 3
```

```
#get the overall information about the dataset

df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 7 entries, 0 to 6
Data columns (total 3 columns):
 #   Column    Non-Null Count  Dtype 
---  ------    --------------  ----- 
 0    Name     7 non-null      object
 1   Goals     7 non-null      int64 
 2   Position  7 non-null      object
dtypes: int64(1), object(2)
memory usage: 296.0+ bytes
```

```
# checking null values in the dataset

df.isnull().sum()
```

```
Name        0
Goals       0
Position    0
dtype: int64
```

```
#get the overall summary statisctics of the dataset

df.describe()
```

	Goals
count	7.000000
mean	138.571429
std	103.550080
min	50.000000
25%	77.500000
50%	95.000000
75%	175.000000
max	320.000000

```
#find unique values from a particular column

df['Position'].unique()
```

```
array(['CF', 'LW', 'CDM', 'RAM'], dtype=object)
```

```
#find number of unique values from a particuar column

df['Position'].nunique()
```

```
4
```

```
#value counts gives us the count of each unique value of a particular column in a dataset

df['Position'].value_counts()
```

```
LW     3
CF     2
CDM    1
RAM    1
Name: Position, dtype: int64
```

```
# find all the players who have scored more than 50 but less than 150 goals

sum(df['Goals'].between(50,150))
```

```
5
```

```
#applying functions on the dataset
#goals per minute is defined as number of goals / duration of the game (90)

def goals_per_game(x):
  return x/90



statistics = df['Goals'].apply(goals_per_game)


statistics
```

```
0    3.555556
1    2.777778
2    1.111111
3    1.055556
4    1.000000
```

```
5    0.722222
6    0.555556
Name: Goals, dtype: float64
```

```
df['Goals Per Game'] = statistics
```

```
df
```

	Name	Goals	Position	Goals Per Game
0	Messi	320	CF	3.555556
1	Ronaldo	250	LW	2.777778
2	Neymar	100	LW	1.111111
3	Mbappe	95	CF	1.055556
4	Salah	90	LW	1.000000
5	Van Djik	65	CDM	0.722222
6	Nunez	50	RAM	0.555556

```
#mapping functions
full_position = df['Position'].map({'CF': 'Centre Forward', 'LW' : 'Left Wing', 'CDM' : 'Central Defensive Midfielder', 'RAM' : 'Right A
```

Double-click (or enter) to edit

```
#adding the mapped column to the dataframe
df['Position Name'] = full_position
```

```
df
```

	Name	Goals	Position	Goals Per Game	Position Name
0	Messi	320	CF	3.555556	Centre Forward
1	Ronaldo	250	LW	2.777778	Left Wing
2	Neymar	100	LW	1.111111	Left Wing
3	Mbappe	95	CF	1.055556	Centre Forward
4	Salah	90	LW	1.000000	Left Wing
5	Van Djik	65	CDM	0.722222	Central Defensive Midfielder
6	Nunez	50	RAM	0.555556	Right Attacking Midfielder

```
#print the number of columns and the index information

print('Column information:', df.columns)
print('Index information:', df.index)
```

```
Column information: Index([' Name', 'Goals', 'Position', 'Goals Per Game', 'Position Name'], dtype='object')
Index information: RangeIndex(start=0, stop=7, step=1)
```

```
#sorting the dataframe by increasing values of goals per game

df.sort_values(by = 'Goals Per Game').reset_index()
```

```
df[df['Position'] == 'LW'][['Position', 'Goals', 'Position Name']].reset_index()
```

	index	Position	Goals	Position Name
0	1	LW	250	Left Wing
1	2	LW	100	Left Wing
2	4	LW	90	Left Wing
5	1	Ronaldo	250	LW	2.777778	Left Wing
6	0	Messi	320	CF	3.555556	Centre Forward

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