In [1]:
```
# import the required libraries
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
import numpy as np
%matplotlib inline
WData = pd.read_csv("C:\\Users\\oakin\\Documents\\Data Science Udemy\\Python Programmi
WData
```

Out[1]:

	DoW	FY2018/19	FY2019/20	FY2020/21	FY2021/22	Total
0	Sunday	39	22	16	35	112
1	Monday	17	23	23	20	83
2	Tuesday	21	19	28	24	92
3	Wednesday	15	26	25	26	92
4	Thursday	23	34	20	34	111
5	Friday	14	30	25	19	88
6	Saturday	21	23	29	27	100

In [2]:
```
# We need to remove the column names so that the data frame doesn't act like a contige
x = len(WData.columns)
WData.columns = np.arange(x)
WData
```

Out[2]:

	0	1	2	3	4	5
0	Sunday	39	22	16	35	112
1	Monday	17	23	23	20	83
2	Tuesday	21	19	28	24	92
3	Wednesday	15	26	25	26	92
4	Thursday	23	34	20	34	111
5	Friday	14	30	25	19	88
6	Saturday	21	23	29	27	100

In [3]:
```
WData  = WData.transpose()
WData
```

Out[3]:

	0	1	2	3	4	5	6
0	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	39	17	21	15	23	14	21
2	22	23	19	26	34	30	23
3	16	23	28	25	20	25	29
4	35	20	24	26	34	19	27
5	112	83	92	92	111	88	100

In [4]:
```
# rename column names and dropping unwanted rows
WData.columns = ['Sunday','Monday','Tuesday','Wednesday','Thursday','Friday','Saturday
WData = WData.drop(0,0)
```

```
C:\Users\oakin\AppData\Local\Temp\ipykernel_1752\3174423368.py:3: FutureWarning: In a
future version of pandas all arguments of DataFrame.drop except for the argument 'lab
els' will be keyword-only.
  WData = WData.drop(0,0)
```

In [5]:
```
WData = WData.drop(5,0)
WData
```

```
C:\Users\oakin\AppData\Local\Temp\ipykernel_1752\1493848559.py:1: FutureWarning: In a
future version of pandas all arguments of DataFrame.drop except for the argument 'lab
els' will be keyword-only.
  WData = WData.drop(5,0)
```

Out[5]:

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	39	17	21	15	23	14	21
2	22	23	19	26	34	30	23
3	16	23	28	25	20	25	29
4	35	20	24	26	34	19	27

In [6]:
```
#converting data to integer type. it took object type because of the contingency table
WData = WData.astype('int')
WData.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 4 entries, 1 to 4
Data columns (total 7 columns):
 #   Column     Non-Null Count  Dtype
---  ------     --------------  -----
 0   Sunday     4 non-null      int32
 1   Monday     4 non-null      int32
 2   Tuesday    4 non-null      int32
 3   Wednesday  4 non-null      int32
 4   Thursday   4 non-null      int32
 5   Friday     4 non-null      int32
 6   Saturday   4 non-null      int32
dtypes: int32(7)
memory usage: 144.0 bytes
```

In [7]:
```
WData.describe().transpose()
```

Out[7]:

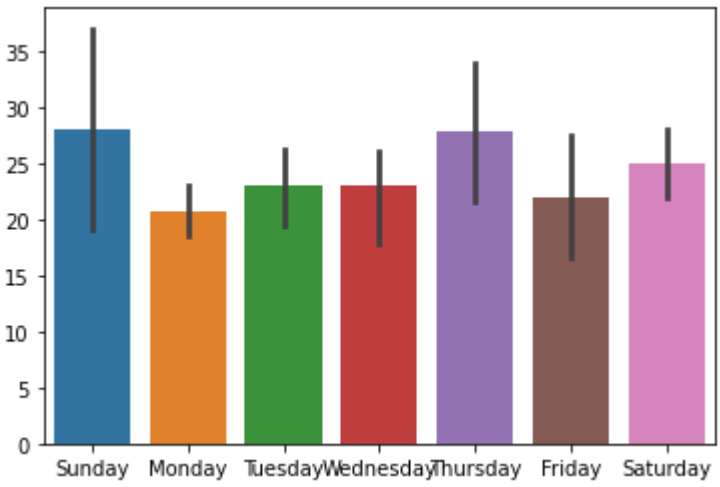
	count	mean	std	min	25%	50%	75%	max
Sunday	4.0	28.00	10.801234	16.0	20.50	28.5	36.00	39.0
Monday	4.0	20.75	2.872281	17.0	19.25	21.5	23.00	23.0
Tuesday	4.0	23.00	3.915780	19.0	20.50	22.5	25.00	28.0
Wednesday	4.0	23.00	5.354126	15.0	22.50	25.5	26.00	26.0
Thursday	4.0	27.75	7.320064	20.0	22.25	28.5	34.00	34.0
Friday	4.0	22.00	6.976150	14.0	17.75	22.0	26.25	30.0
Saturday	4.0	25.00	3.651484	21.0	22.50	25.0	27.50	29.0

In [8]:
```
#Creating a field for the fiscal years
WData.insert (7, "FYear",['FY2018/19','FY2019/20','FY2020/21','FY2021/22'])
WData
```

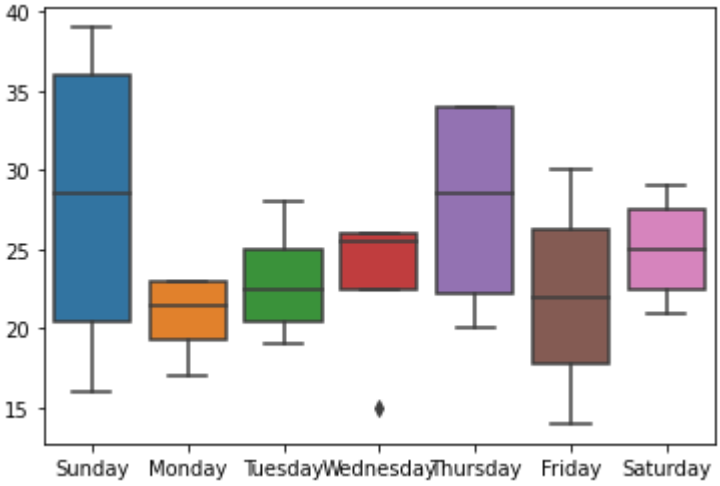
Out[8]:

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	FYear
1	39	17	21	15	23	14	21	FY2018/19
2	22	23	19	26	34	30	23	FY2019/20
3	16	23	28	25	20	25	29	FY2020/21
4	35	20	24	26	34	19	27	FY2021/22

In [14]:
```
# Average plot by DoW- barchart
p =sns.barplot(data = WData)
```



In [13]:
```
# this is a box plot, but note that this is comparianf medians, quartiles and min-max
p2 = sns.boxplot(data = WData)
```



In [10]:
```
import scipy.stats as sc
value = sc.f_oneway(WData['Sunday'], WData['Monday'], WData['Tuesday'], WData['Wednesc
if value[1] <= 0.05:
    print('Reject Null Hypothesis', ",p-vlaue=", value[1])
else:
    print('Accept Null Hypothesis',",p-vlaue=", value[1])
```

```
Accept Null Hypothesis ,p-vlaue= 0.5977449512261408
```

In [11]:
```
#------------End of Work------------
```