analysis-on-ml-test-scores

March 30, 2023

1 Analysis on ML test Scores

[59]:
```
import pandas as pd #importing the pandas
```

[60]:
```
df = pd.read_csv('scores_data.csv') # reading the data
```

[61]:
```
df.head()
```

[61]:

	Batch	User_ID	Score
0	AI_ELITE_7	uid_149	6 / 7
1	AI_ELITE_7	uid_148	6 / 7
2	AI_ELITE_7	uid_147	7 / 7
3	AI_ELITE_7	uid_146	7 / 7
4	AI_ELITE_7	uid_145	4 / 7

[62]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 149 entries, 0 to 148
Data columns (total 3 columns):
 #   Column       Non-Null Count  Dtype
---  ------       --------------  -----
 0   Batch        149 non-null    object
 1   User_ID      149 non-null    object
 2      Score     149 non-null    object
dtypes: object(3)
memory usage: 3.6+ KB
```

[70]:
```
df.isnull().sum().sort_values(ascending = False) # There was no null values in␣
 ↪the dataframe
```

[70]:
```
Batch      0
User_ID    0
Score      0
dtype: int64
```

[63]:
```
# Score in the Column have extra Spaces before it so we need to remove by␣
 ↪replace spaces with nothing
df.columns = df.columns.str.replace(' ' , '')
```

[64]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 149 entries, 0 to 148
Data columns (total 3 columns):
 #   Column   Non-Null Count  Dtype 
---  ------   --------------  ----- 
 0   Batch    149 non-null    object
 1   User_ID  149 non-null    object
 2   Score    149 non-null    object
dtypes: object(3)
memory usage: 3.6+ KB
```

[65]:
```
# Cleaning the Score Feature for better understading and changing the type into␣
 ↪int
df['Score'] = df['Score'].str.replace('/' , '')
df['Score'] = df['Score'].str.replace(' 7' , '')
df['Score'] = df['Score'].astype('int')
```

[66]:
```
df.Score
```

[66]:
```
0      6
1      6
2      7
3      7
4      4
      ..
144    4
145    4
146    4
147    3
148    2
Name: Score, Length: 149, dtype: int32
```

[67]:
```
# Score is a Numerical variable
```

[68]:
```
df.Score.unique()
```

[68]:
```
array([6, 7, 4, 5, 3, 2, 0, 1])
```

[69]:
```
df.Batch.unique() # Batch is a Categorical variable
```

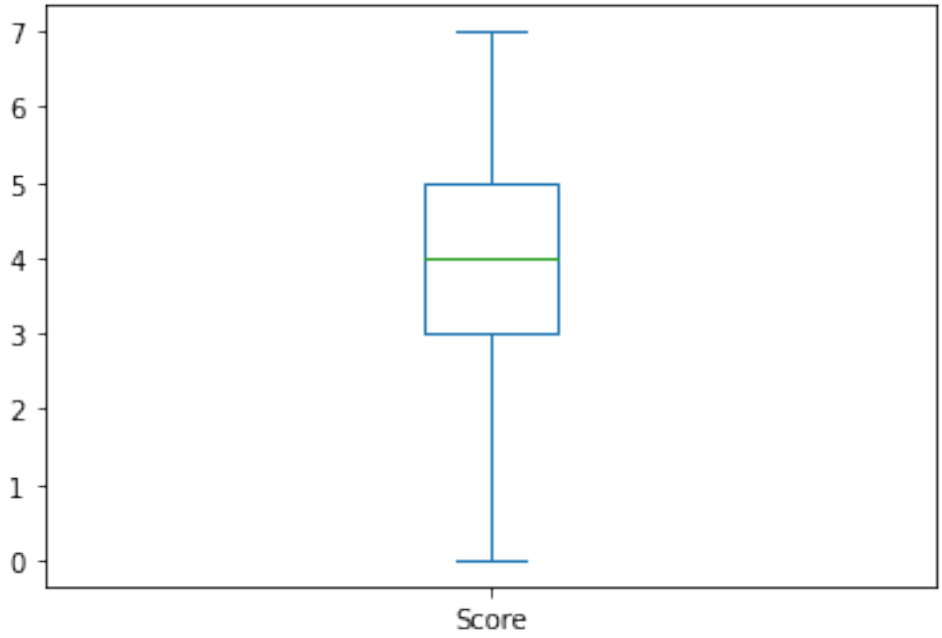
[69]:
```
array(['AI_ELITE_7', 'AI_ELITE_6', 'AI_ELITE_4'], dtype=object)
```

[74]:
```
df.Score.describe()
```

[74]:
```
count    149.000000
mean       4.382550
std        1.592199
min        0.000000
25%        3.000000
50%        4.000000
75%        5.000000
max        7.000000
Name: Score, dtype: float64
```

[77]:
```
df.Score.plot(kind = 'box')
```

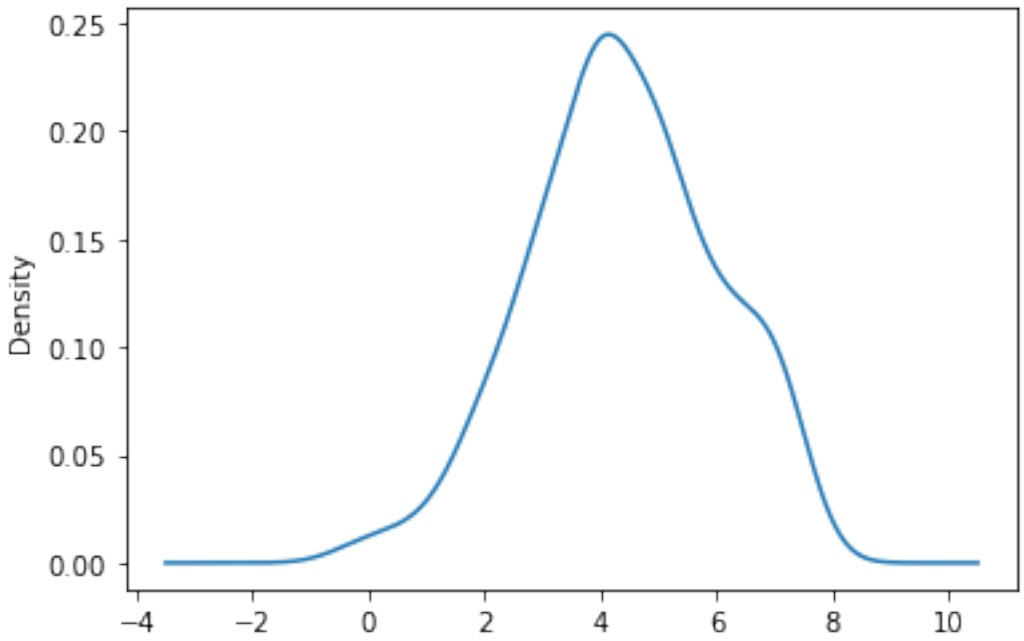
[77]:
```
<AxesSubplot:>
```



[ ]:
```
# There are no outliers in Score
```

[78]:
```
#lets see the distribution of the Score
df.Score.plot(kind = 'kde')
```

[78]:
```
<AxesSubplot:ylabel='Density'>
```

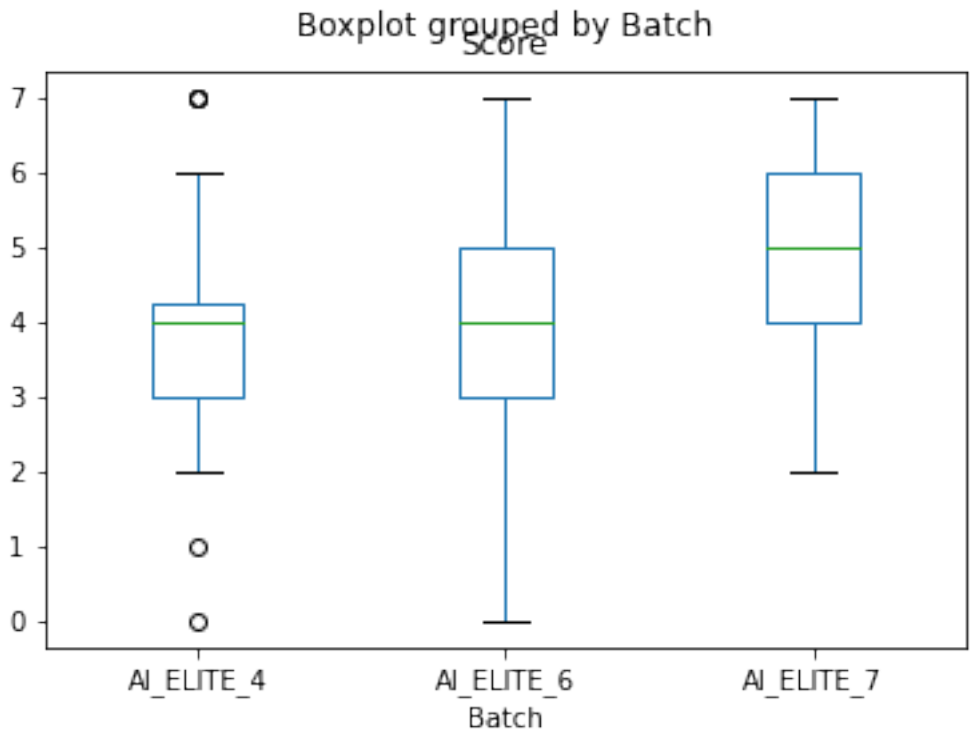


[79]:
```
# From the above graph we can say that there are many students who got 4 marks
```

1.1 Bivariant Analysis

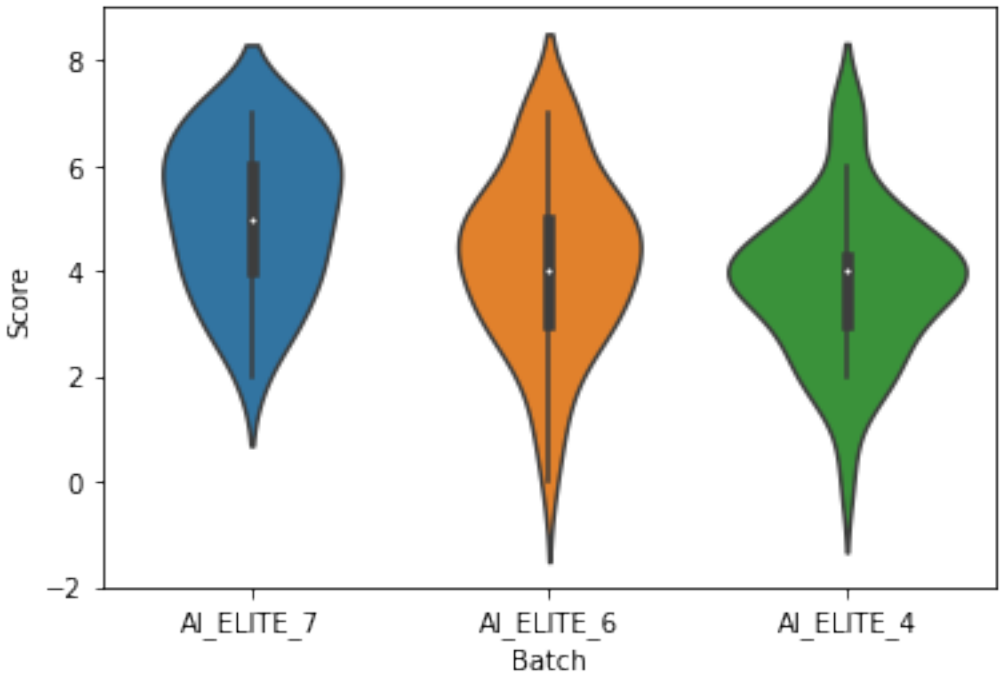
[75]:
```
# The User_id wont effect both Batch and Score ofc its just a identification␣
↪for the Student
```

[82]:
```
boxplot = df.boxplot(by='Batch', column=['Score'], grid=False)
```



[84]:
```
sns.violinplot(x = df['Batch'] , y = df['Score'])
```

[84]: <AxesSubplot:xlabel='Batch', ylabel='Score'>



[91]:
```
batch_stats = df.groupby('Batch')['Score'].describe()
batch_stats.loc['AI_ELITE_7']
```

[91]:
```
count    53.000000
mean      5.056604
std       1.446682
min       2.000000
25%       4.000000
50%       5.000000
75%       6.000000
max       7.000000
Name: AI_ELITE_7, dtype: float64
```

[92]:
```
batch_stats = df.groupby('Batch')['Score'].describe()
batch_stats.loc['AI_ELITE_6']
```

[92]:
```
count    48.000000
mean      4.229167
std       1.640441
min       0.000000
25%       3.000000
50%       4.000000
75%       5.000000
max       7.000000
Name: AI_ELITE_6, dtype: float64
```

[93]:
```
batch_stats = df.groupby('Batch')['Score'].describe()
batch_stats.loc['AI_ELITE_4']
```

[93]:
```
count    48.000000
mean      3.791667
std       1.443376
min       0.000000
25%       3.000000
50%       4.000000
75%       4.250000
max       7.000000
Name: AI_ELITE_4, dtype: float64
```

2 Batch AI_ELITE_7 has been performing well and AI_ELITE_4 performing less compared to other batches