AI

QUESTION 2:

2.1: CREATING A PANDA DATAFRAME:

```
import pandas as pa
import numpy as np
details=np.array([
    [153,46,17,96,3],
    [155,47,17,89,4],
    [156,44,16,92,5],
    [160,50,18,97,7],
    [158,48,17,82,5],
    [169,53,19,93,9],
    [165,52,18,83,6],
    [164,57,17,96,8],
    [170,50,20,94,6],
    [155,49,19,81,3],
    [168,51,15,84,7],
    [162,48,21,94,4],
    [165,49,19,93,8],
    [164,55,18,93,7],
    [169,58,17,94,8]
])
frame=pa.DataFrame(details,columns=['Height', 'Weight', 'Age', 'Avg_Grade', 'Courses'])
print(frame)
```

```
================================================
    Height  Weight  Age  Avg_Grade  Courses
0      153      46   17         96        3
1      155      47   17         89        4
2      156      44   16         92        5
3      160      50   18         97        7
4      158      48   17         82        5
5      169      53   19         93        9
6      165      52   18         83        6
7      164      57   17         96        8
8      170      50   20         94        6
9      155      49   19         81        3
10     168      51   15         84        7
11     162      48   21         94        4
12     165      49   19         93        8
13     164      55   18         93        7
14     169      58   17         94        8
>>>
```

2.2 DESCRIBING THE DATAFRAME:

```
s=frame.describe()
print(s)
```

```
          Height     Weight        Age  Avg_Grade    Courses
count  15.000000  15.000000  15.000000  15.000000  15.000000
mean   162.200000  50.466667  17.866667  90.733333   6.000000
std     5.722137   3.961722   1.552264   5.496319   1.927248
min    153.000000  44.000000  15.000000  81.000000   3.000000
25%    157.000000  48.000000  17.000000  86.500000   4.500000
50%    164.000000  50.000000  18.000000  93.000000   6.000000
75%    166.500000  52.500000  19.000000  94.000000   7.500000
max    170.000000  58.000000  21.000000  97.000000   9.000000
>>>
```

2.3 COUNT THE NUMBER OF STUDENTS IN EACH AGE GROUP:

```
count=frame['Age'].value_counts()
print(count)
```

```
Age
17    5
18    3
19    3
16    1
20    1
15    1
21    1
Name: count, dtype: int64
>>>
```

2.4: FILTERING THE DATAFRAME:

```
filter=frame[frame['Courses']==4]
print(filter)
```

```
    Height  Weight  Age  Avg_Grade  Courses
1      155      47   17         89        4
11     162      48   21         94        4
>>>
```

2.5: CALCULATE AVERAGE GRADE FOR EACH AGE GROUP:

```
group=frame.groupby('Age')['Avg_Grade'].mean()
print(group)
```

```
Age
15    84.0
16    92.0
17    91.4
18    91.0
19    89.0
20    94.0
21    94.0
Name: Avg_Grade, dtype: float64
>>>
```

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