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In [ ]: """
Que 1 what are the three measures of central tendency
Ans 1 three measure central tendanc are

a)Mean
b)median
c)mode

Que 2-What is the difference between the mean, median, and mode? How are they
central tendency of a dataset?
Ans 2-mean is the average of a given data set, median is the middlemost data
value and the mode represents the most frequently occurring data value in the
set

Que 3-Q3. Measure the three measures of central tendency for the given height
[178,177,176,177,178.2,178,175,179,180,175,178.9,176.2,177,172.5,178,176.5]
"""
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In [1]: import numpy as np
a=[178,177,176,177,178.2,178,175,179,180,175,178.9,176.2,177,172.5,178,176.5]
```

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In [2]: # mean
np.mean(a)
```

Out[2]: 177.01875

```
In [3]: # for median
np.median(a)
```

Out[3]: 177.0

```
In [4]: # for mode
from scipy import stats
stats.mode(a)
```

Out[4]: ModeResult(mode=array([177.]), count=array([3]))

```
In [6]: """
Que 4-Find the standard deviation for the given data:
[178,177,176,177,178.2,178,175,179,180,175,178.9,176.2,177,172.5,178,176.5]"""
```

Out[6]: ''

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In [7]: b=[178,177,176,177,178.2,178,175,179,180,175,178.9,176.2,177,172.5,178,176.5]
```

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In [8]: # for the standard  
np.std(b)
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Out[8]: 1.7885814036548633
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In [ ]: """
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Que 5-How are measures of dispersion such as range, variance, and standard deviation used to describe the spread of a dataset? Provide an example.

Ans 5-

The range is the easiest way to calculate dispersion. The range is calculated by subtracting the lowest number from the highest number in a data set

If the highest value in a dataset is 50 and the lowest value is 12. Then the range would be calculated by completing the calculation $50 - 12$. Therefore, it is 38

for standard-

Let's take a look and simplify how the standard deviation can be calculated.

Find the mean of the data set (\bar{x}).

Subtract the mean from each value in the data set; this is the deviation from

Square each deviation.

Find the sum of the squared deviations (Σ).

Divide this number by $n-1$ (the total number of values in the data set minus 1)

Find the square root of this number.

Let us try this with a data set. Suppose we have a data set of 48, 71, 34, 62,

Find the mean: $\bar{x} = (48 + 71 + 34 + 62 + 54 + 43) \div 6 = 52$

Subtract the mean from each value in the data set:

$47-52 = -5$

$70-52 = 18$

$33-52 = -19$

$61-52 = 9$

$53-52 = 1$

$42-52 = -10$

Square each deviation: $(-5)^2 = 25$, $18^2 = 324$, $(-19)^2 = 361$, $9^2 = 81$, $1^2 = 1$,

Find the sum of the squared deviations: $25 + 324 + 361 + 81 + 1 + 100 = 892$

Divide this number by $n-1$: $892 / 6-1 = 892/5 = 178.4$

Find the square root of this number: $\sqrt{178.4} = 13.36$

Thus the SD is 13.36.

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In [ ]: """
Que 6-What is a Venn diagram?
Ans 6-A Venn diagram is a widely used diagram style that shows the logical
relation between sets, popularized
"""
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In [ ]: """
Que 7-For the two given sets A = (2,3,4,5,6,7) & B = (0,2,6,8,10). Find:
(i) A ∩ B
(ii) A ∪ B"""
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In [10]: A={2,3,4,5,6,7}
B={0,2,6,8,10}
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Out[10]: {2, 6}
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In [11]: # for find the intersection
A.intersection(B)
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Out[11]: {2, 6}
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In [12]: # for find the union
A.union(B)
```

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Out[12]: {0, 2, 3, 4, 5, 6, 7, 8, 10}
```