Basic Statistics Class

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All the basics of statistics in one simple class.

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DESCRIPTION

This PHP Statistics class allows you to calculate the basic statistical formulas for a given array of scores(values):

Statistics

- Scores (X values)
- Frequency (F values)
- FX (F * X)
- XminA (X - (X mean))
- XminAsqr (X - (X mean) squared)
- Relative Frequency (RF)
- Relative Frequency Percentages (RF * 100)
- Cumulative Frequency (CF)
- Population Size (N)
- Sample Size (N - 1)

Measures of Central Location

- Mean
- Median
- Mode

Measures of Dispersion

- Sample Variance
- Population Variance
- Sample Standard Deviation
- Population Standard Deviation
- Range
- Interquartile Range
- Quartile 1, 2 and 3

- Highest Value
- Lowest Value

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INSTALLATION

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Package Contents

The package contains the following files:

- statistics.class.php
- example.php

Including for Use

Simply upload the *statistics.class.php* file to a directory of your choice and include it in your website like so:

```
<?php
    include_once("statistics.class.php");
 ?>
```

DOCUMENTATION

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Using the Class

First you need an array of numerical values to feed into the class, they can either be whole numbers or decimal numbers:

```
$scores = array(4,7,3,8,5,2,7); // Whole Numbers (acceptable)
$scores = array(4.2,7.1,3.3,8.9,2.0,7.1); // Decimal Numbers (acceptable)
$scores = array(4,7.1,3.3,8,5,2,7.1); // Combination of both (acceptable)
```

Then you simple call the class, feeding the array into it as an argument:

```
$stats = new Statistics($scores);
```

By default the class rounds all values to two decimal places. You can make it round to however many decimal places as you like by feeding it in as the second argument:

```
$stats = new Statistics($scores,5); // all values rounded to five decimal places
```

Before you can get your results, you must first produce them by the calling the methods you require. For example; if you want the *mean* of your values you must first call the method which calculates the mean:

```
$stats->mean = $stats->Find_Mean();
```

Once you have done that, you can then select the mean.

Calculation Methods

Statistics

- Calculate_F (Frequency)
- Calculate_FX (F * X)
- Calculate_XminAvg(square root: true/false | yes/no) (X - (X Mean) squared) or (X - (X Mean))
- Calculate_RF (Relative Frequency)
- Calculate_RFP (Relative Frequency Percentages)
- Calculate_CF (Cumulative Frequency)

Measures of Central Location

- Find_Mean
- Find_Median
- Find_Mode

Measures of Dispersion

- Find_Range
- Find_IQR (Interquartile Range)
- Find_V(Population or Sample: 'p' or 's') (Sample/Population Variance)
- Find_SD(Population or Sample: 'p' or 's') (Sample/Population Standard Deviation)
- Find_Q (Quartiles 1, 2 and 3)
- Find_Max (Highest Value)
- Find_Min (Lowest Value)

Selecting Stats

There is two methods you can use to select the results of the statistics class:

1. using $stats->var
2. using the Get methods within the class

1. Selecting Stats with $stats->var

You can simply select the stats via the property:

```
echo $stats->mean // displays the mean
```

The following is all the stats property names:

Statistics

- scores
- frequency
- fx (F * X)
- XminA (X - (X mean))
- XminAsqr (X - (X Mean) squared)
- rf (Relative Frequency)
- rfp (Relative Frequency Percentages)
- cf (Cumulative Frequency)
- pn (Population Size)
- sn (Sample Size (Population Size - 1))

Measures of Central Location

- mean
- median
- mode

Measures of Dispersion

- range
- iqr (Interquartile Range)
- pv (Population Variance)
- sv (Sample Variance)
- psd (Population Standard Deviation)
- ssd (Sample Standard Deviation)
- q[1] (Quartile 1, lower quartile)
- q[2] (Quartile 2)
- q[3] (Quartile 3, upper quartile)
- max (Highest Value)
- min (Lowest Value)

2. Using the Get methods within the class

You can select the stats via the Get methods in the class:

```
echo $stats->Get_Mean();
```

The following is all the stats Get method names:

Statistics

- Get_Scores
- Get_Frequency
- Get_FX (F * X)
- Get_XminAvg (X - (X mean))
- Get_XminAvgsqr (X - (X Mean) squared)
- Get_RF (Relative Frequency)
- Get_RFP (Relative Frequency Percentages)
- Get_CF (Cumulative Frequency)
- Get_PN (Population Size)
- Get_SN (Sample Size)

Measures of Central Location

- Get_Mean
- Get_Median
- Get_Mode

Measures of Dispersion

- Get_Range
- Get_IQR (Interquartile Range)
- Get_PV (Population Variance)
- Get_SV (Sample Variance)
- Get_PSD (Population Standard Deviation)

- Get_SSD (Sample Standard Deviation)
- Get_Q (Quartiles 1, 2 and 3)
- Get_Max (Highest Value)
- Get_Min (Lowest Value)

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