Calculating Single Variable Statistics from a Single List

Once you have your data in a list, you can calculate some of the statistics for the data. Assume the data of interest is stored in list \( L_1 \). Press \( \text{STAT} \) to access the Stat functions and press \( \fbox{1} \) to select the \( \text{CALC} \) menu of Stat functions. Press \( \fbox{1} \) or \( \text{ENTER} \) to select the \( 1\varstats \) function to the home screen. Press \( \text{2nd} \fbox{1} \) to select list \( L_1 \) and press \( \text{ENTER} \) to perform the calculations.

\[
\begin{align*}
\text{EDIT} & \quad \text{CALC} & \quad \text{TESTS} \\
1: 1\varstats \quad 2: 2\varstats \quad 3: \text{Med-Med} \\
4: \text{LinReg}(ax+b) \quad 5: \text{QuadReg} \\
6: \text{CubicReg} \quad 7: \text{QuartReg}
\end{align*}
\]

Select the function

On the main screen

\[
\begin{align*}
\text{1-Var Stats} & \\
\overline{x} &= 50 \\
\Sigma x &= 1000 \\
\Sigma x^2 &= 92770 \\
\overline{x} &= 47.44525932 \\
\sigma x &= 46.24391852 \\
\downarrow n &= 20
\end{align*}
\]

Note: The down arrow next to the last entry indicates that there are more functions available. Use the up and down arrow keys to scroll through the functions.

\[
\begin{align*}
\text{1-Var Stats} & \\
\uparrow n &= 60 \\
\min x &= 30 \\
\overline{Q_1} &= 34.5 \\
\text{Med} &= 40 \\
\overline{Q_3} &= 45.5 \\
\max x &= 250
\end{align*}
\]

Note: The down arrow next to the last entry indicates that the results take up more than a full screen. Use the up and down arrow keys to view all of the results.

NOTE: The calculator does not know if the list contains a sample or an entire population, so both standard deviation values are given. Be sure to use the correct one for your situation.

Calculating Single Variable Statistics for Grouped Data Using Two Lists

Sometimes data are gathered according to ranges of values rather than as individual values. This is called grouped data. To calculate statistics from grouped data, you enter the representative values in one list and the frequency or count in another. You then give both lists to the \( 1\varstats \) program, giving the values list first, then the frequency list.

For example, suppose you have the following grouped data:

\[
\begin{array}{|c|c|}
\hline
\text{Data Ranges} & \text{Frequency (Count)} \\
\hline
18 - 25 & 18 \\
26 - 40 & 23 \\
41 - 60 & 32 \\
61 - 80 & 15 \\
81 - 100 & 12 \\
\hline
\end{array}
\]

Calculate the following statistics:

- \( \overline{x} \)
- \( \Sigma x \)
- \( \Sigma x^2 \)
- \( \overline{x} \)
- \( \sigma x \)
- \( \downarrow n \)
- \( \uparrow n \)
- \( \min x \)
- \( \overline{Q_1} \)
- \( \text{Med} \)
- \( \overline{Q_3} \)
- \( \max x \)
First, you need to select a representative value for each data range. Next, enter these values and the frequency values into two lists. We will use the midpoints of each data range as the representative value and put it in list \( L_2 \). We put the counts in list \( L_3 \).

<table>
<thead>
<tr>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>45</td>
<td>21.5</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>46</td>
<td>33</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>47</td>
<td>50.5</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>70.5</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>49</td>
<td>90.5</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>250</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Grouped data in two lists

Now we can calculate the statistics for this grouped data sample by using the \texttt{1-Var Stats} function as follows:

On the main screen

Notice that we gave the list with the representative values first, a comma, and then the list with the count or frequency.