Chapter 2: Summarizing Single Variable Data

1) Identify the Research Question.
2) Decide what to measure.
3) Gather Data.
4) Summarize Data.
5) Make an Inference.

Section 2.1 → Frequency Tables & Histograms

Exercise: Female Heights (Adult) in cm.

\[ \begin{align*}
\text{min} & = 148.0, 152.2, 155.2, 152.7, 155.1, 155.5, 156.8, 158.4, 158.3, 156.2 \\
\text{max} & = 158.6, 159.9, 164.2, 157.9, 159.8, 160.9, 162.3, 158.0, 159.8, 156.9 \\
\end{align*} \]

→ Frequency Table: divides interval over which values are scattered into sub-intervals ("classes"), then tallies the number of values in each class.

- **Range** = \( \text{max} - \text{min} = 184.1 - 148.0 = 36.1 \)
- **Divide the range into classes (or bins)**
  
\[
\text{class width} = \frac{\text{range}}{\# \text{ of classes}} = \frac{36.1}{5} = 7.22 \approx 7.3
\]

- Round class width up to same precision as data.

<table>
<thead>
<tr>
<th>Class (bin)</th>
<th>Tally</th>
<th>Frequency = ( f )</th>
<th>Relative Frequency = ( \frac{f}{n} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>148.0 - 155.2</td>
<td>HHH</td>
<td>5</td>
<td>( \frac{5}{30} \approx 17% )</td>
</tr>
<tr>
<td>155.3 - 162.5</td>
<td>HHHHH</td>
<td>16</td>
<td>( \frac{16}{30} \approx 53% )</td>
</tr>
<tr>
<td>155.3 - 162.5</td>
<td>HHHHH</td>
<td>16</td>
<td>( \frac{16}{30} \approx 53% )</td>
</tr>
<tr>
<td>162.6 - 169.8</td>
<td>HHH</td>
<td>5</td>
<td>( \frac{5}{30} \approx 17% )</td>
</tr>
<tr>
<td>169.9 - 177.1</td>
<td>III</td>
<td>3</td>
<td>( \frac{3}{30} = 10% )</td>
</tr>
<tr>
<td>177.2 - 184.4</td>
<td>I</td>
<td>1</td>
<td>( \frac{1}{30} \approx 3% )</td>
</tr>
</tbody>
</table>

\[ \text{Total} \Rightarrow 30 \]

(Sample size: \( n = 30 \))

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