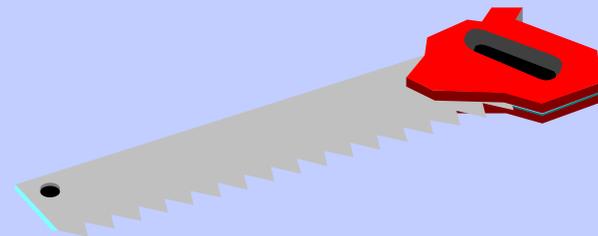
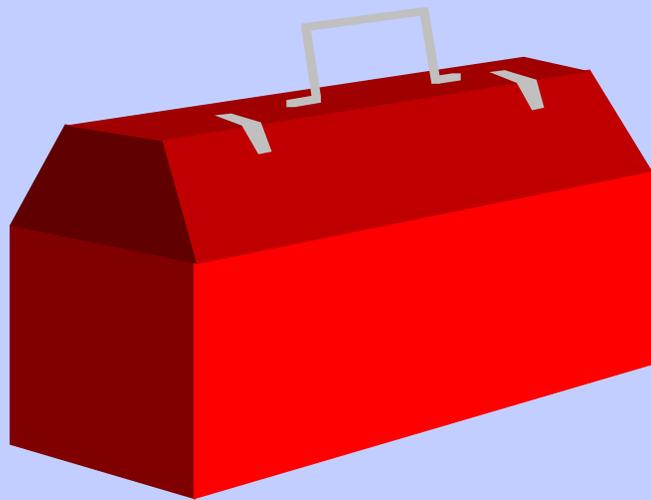
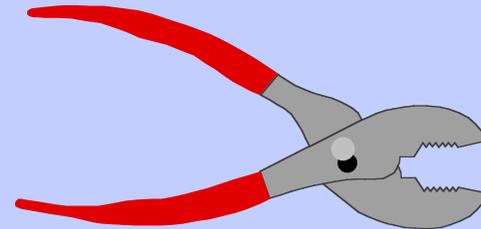


TQ Tool Box: The Basic TQ Tools



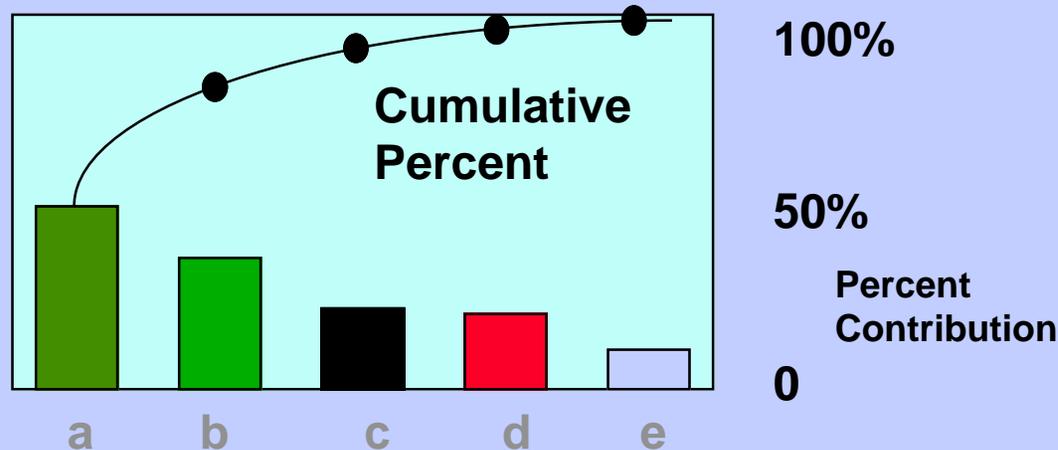
Checksheets

Defect Type	Defect Count	Subtotal
Wrong form	### ### ###	15
No approval	###	5
Invalid data	### ### ///	13
Not on file	### ///	8
	Grand Total	41

Definition: A list of check-off items that permits data to be collected quickly and easily in a simple standardized format which lends itself to quantitative analysis.

Purpose: Facilitates data collection by providing a standardized format for recording information.

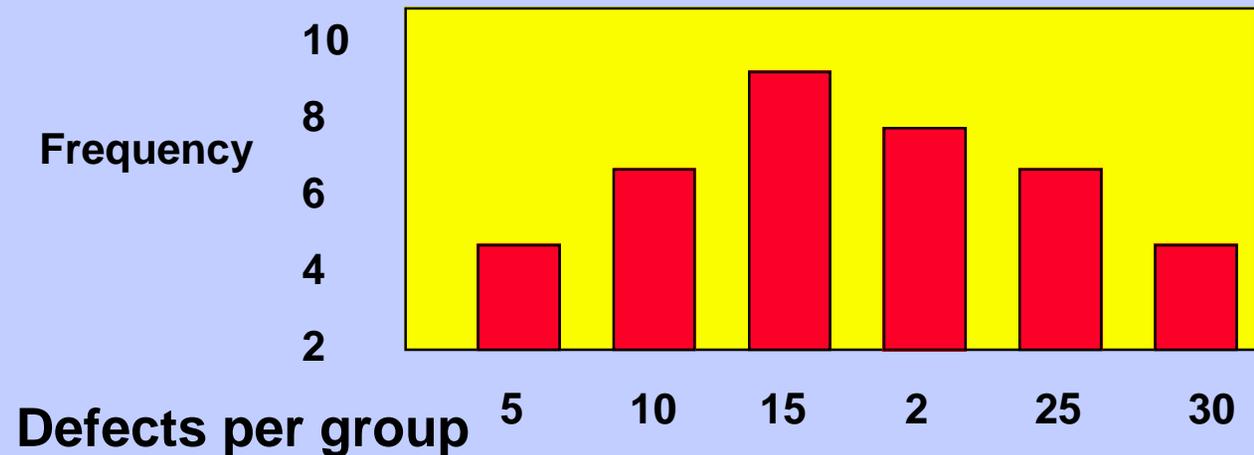
Pareto Chart



Definition: A chart depicting the relative contribution of sub-problems to the total problem (arranged in descending order)

Purpose: Based on the “Pareto Principle,” which states that a few problems often account for most of the effect. Aids in identifying the “vital few” problems which should be addressed first.

Histogram

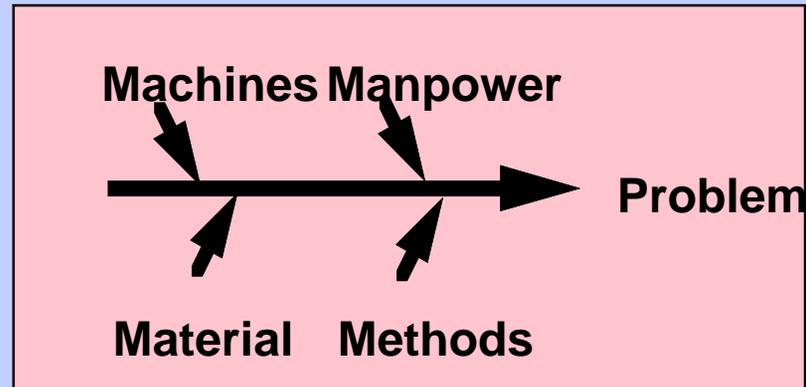


Definition: A graph which displays frequency of data in column form.

Purpose: Helps identify changes or shifts in processes as changes are made. Shows how variable measurements of a process or product can be and is useful when establishing standards.

Cause and Effect Diagram

Fishbone
Diagrams



Ishikawa
Diagrams

Definition: A method of representing the relationship between a problem and its potential causes.

Purpose: Helps sort out and relate the interaction among the factors affecting a process.

Nominal Group Technique (NGT)

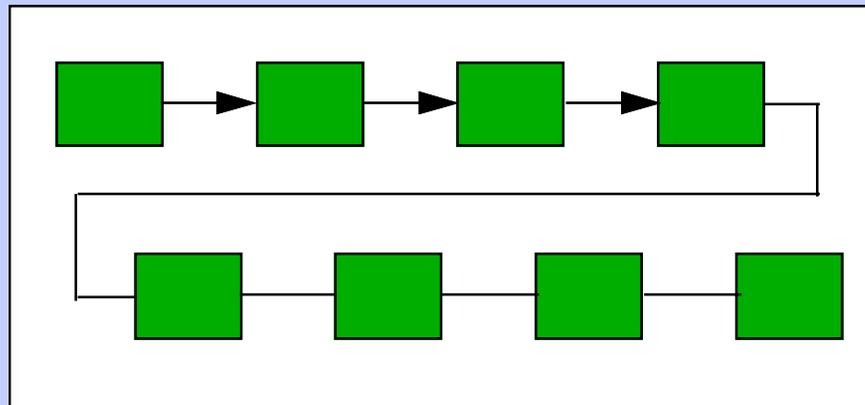


Definition: Structural brainstorming technique

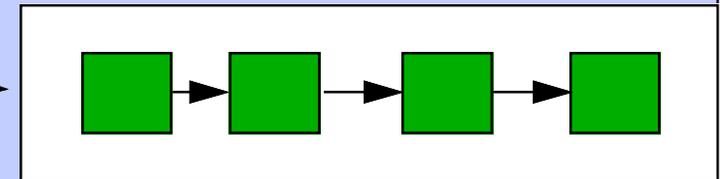
Purpose: Produces a lot of ideas. Involves everyone. Promotes team ownership. Produces variety of ideas.

Process Flow Analysis Flowcharting

Current Process



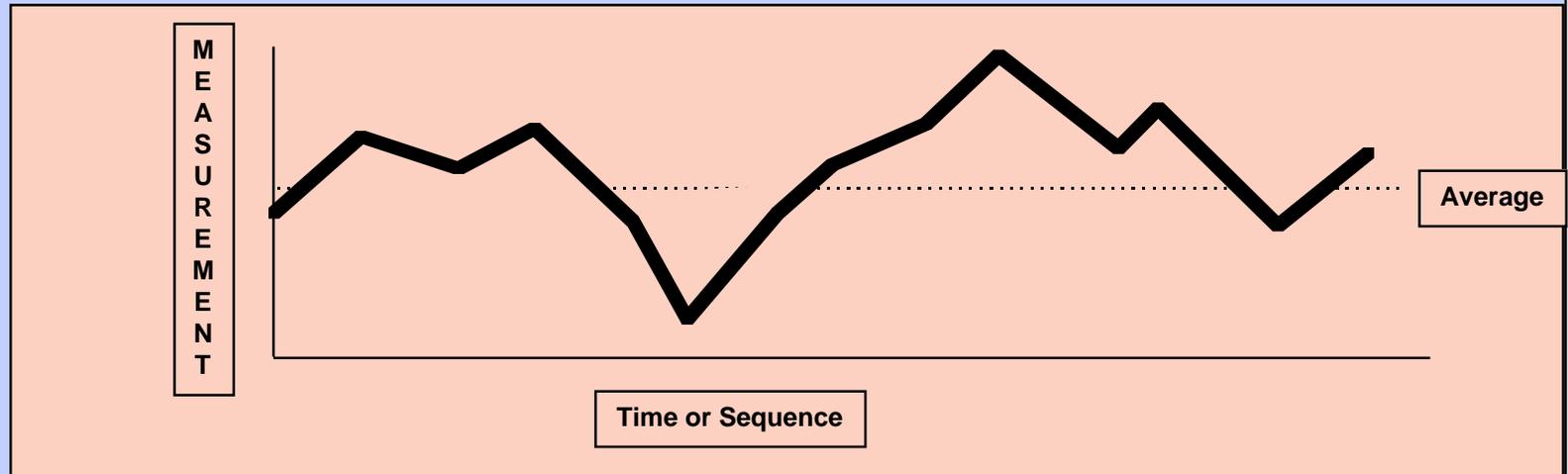
Proposed Process



Definition: A technique to visually document the steps in a process. “A picture is worth a thousand words.”

Purpose: Allows seeing the relationships among steps and their relative timing and occurrence. Provides a method to document a new process and contrast it to the old process.

Run Chart



Definition: A chart which displays measurements or observation points over a specified period of time (or sequence)

Purpose: Provides a simple tool for performance monitoring and data analysis, provides a reference baseline, and promotes participation and decision making by the people involved. Helps identify trends and shifts in the process.

Criteria \ Alternatives	A	B	C
Defects	50%	10%	5%
Cycle Time	8 hrs.	2 hrs.	1 Hr.
Cost	\$25	\$36	\$42
Flexibility	Single Prod	Multi Prod	Multi Prod

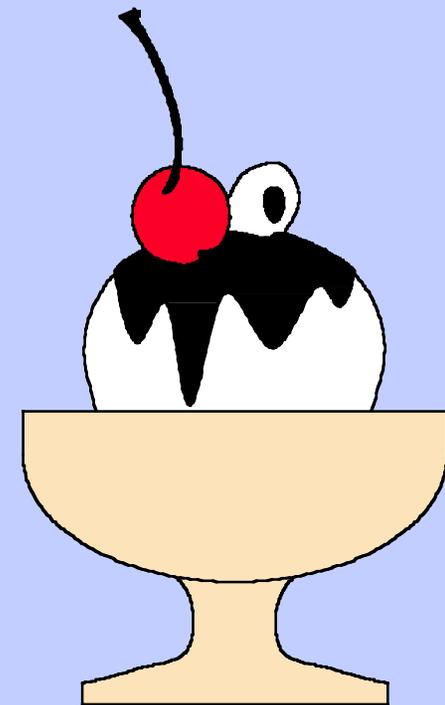
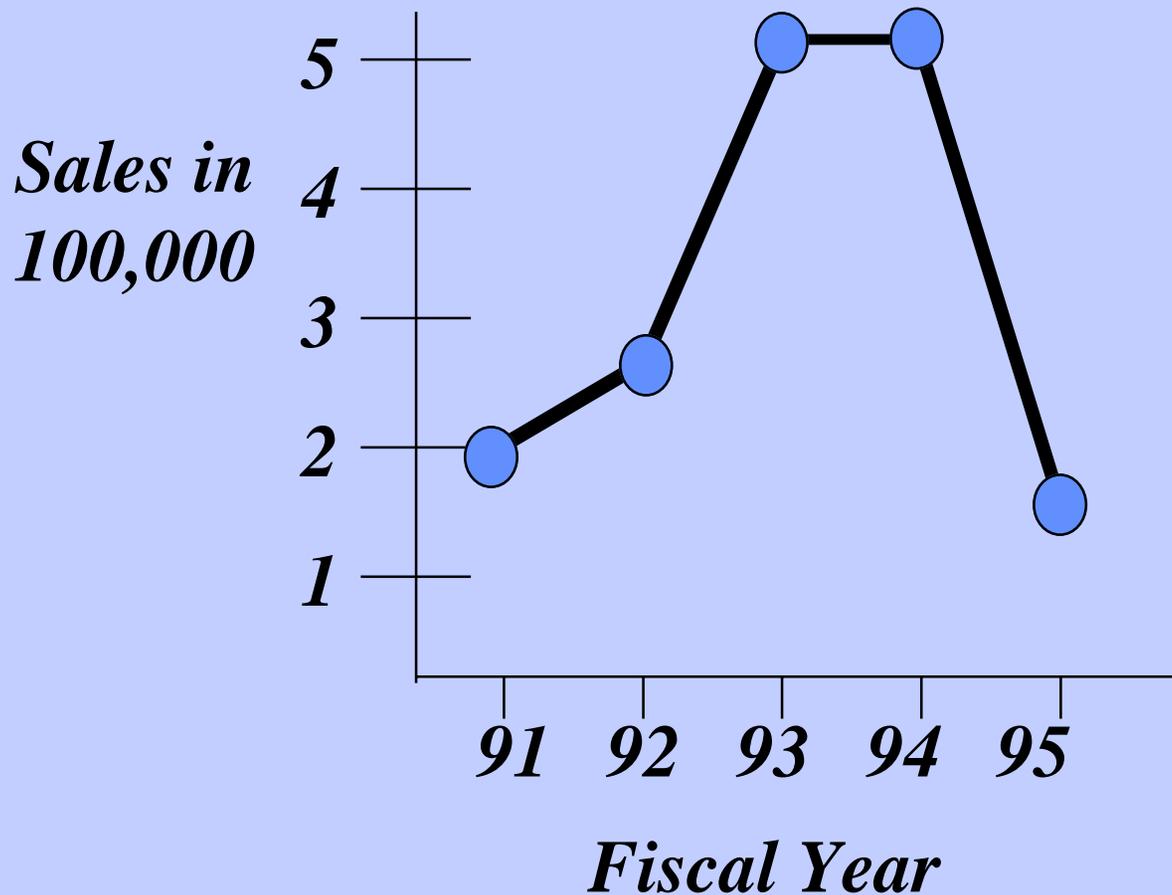
Decision Matrix

Definition: A chart which provides comparison of criteria for different alternatives

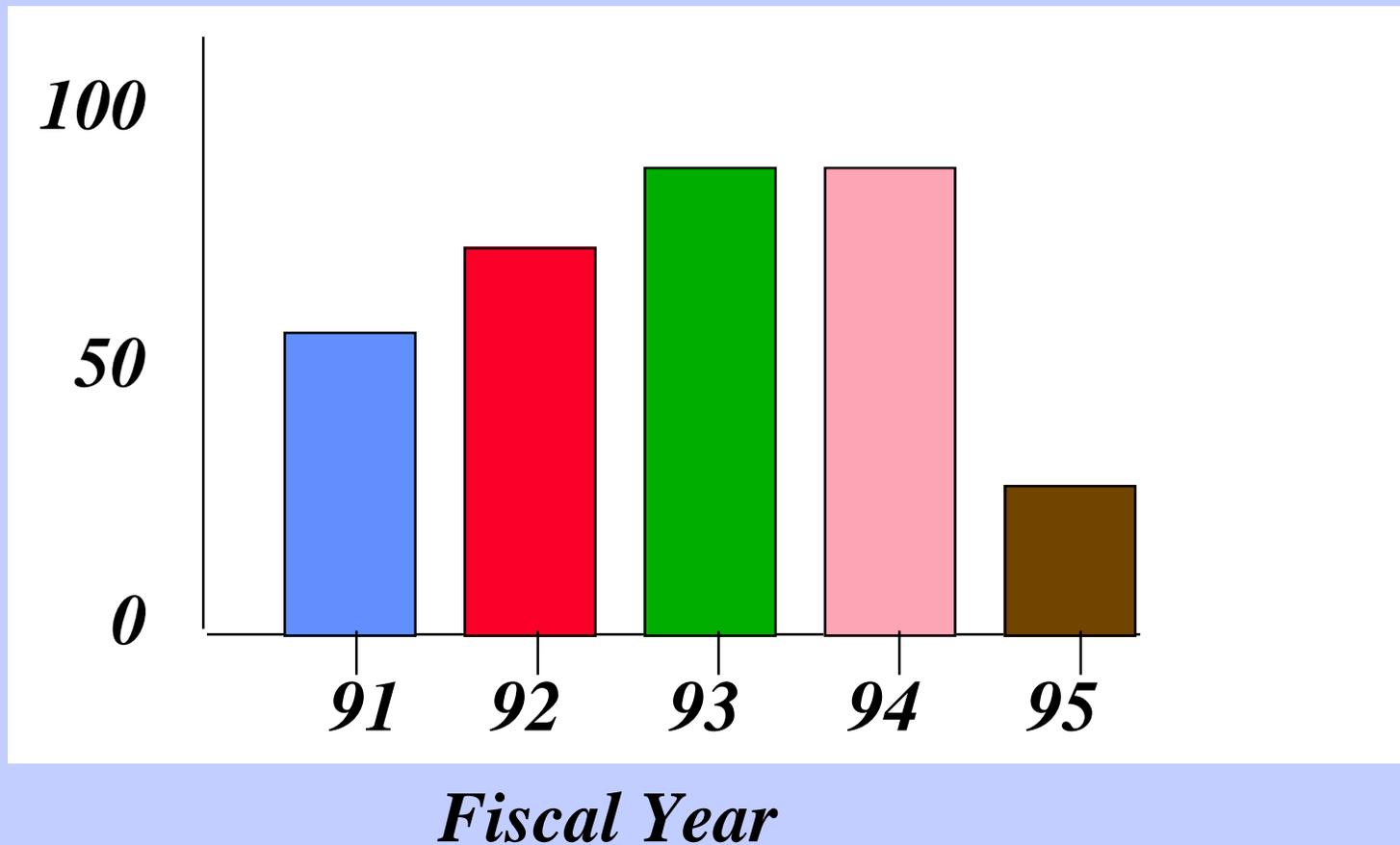
Purpose: Provides a simple tool for analyzing and comparing different alternatives to aid in the selection of criteria.

The Ice Cream Shoppe Example

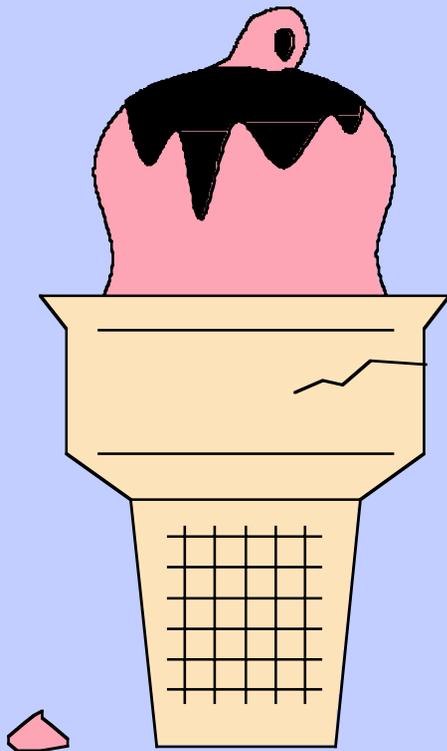
Lickety Split Sales



Lickety Split Share of Market

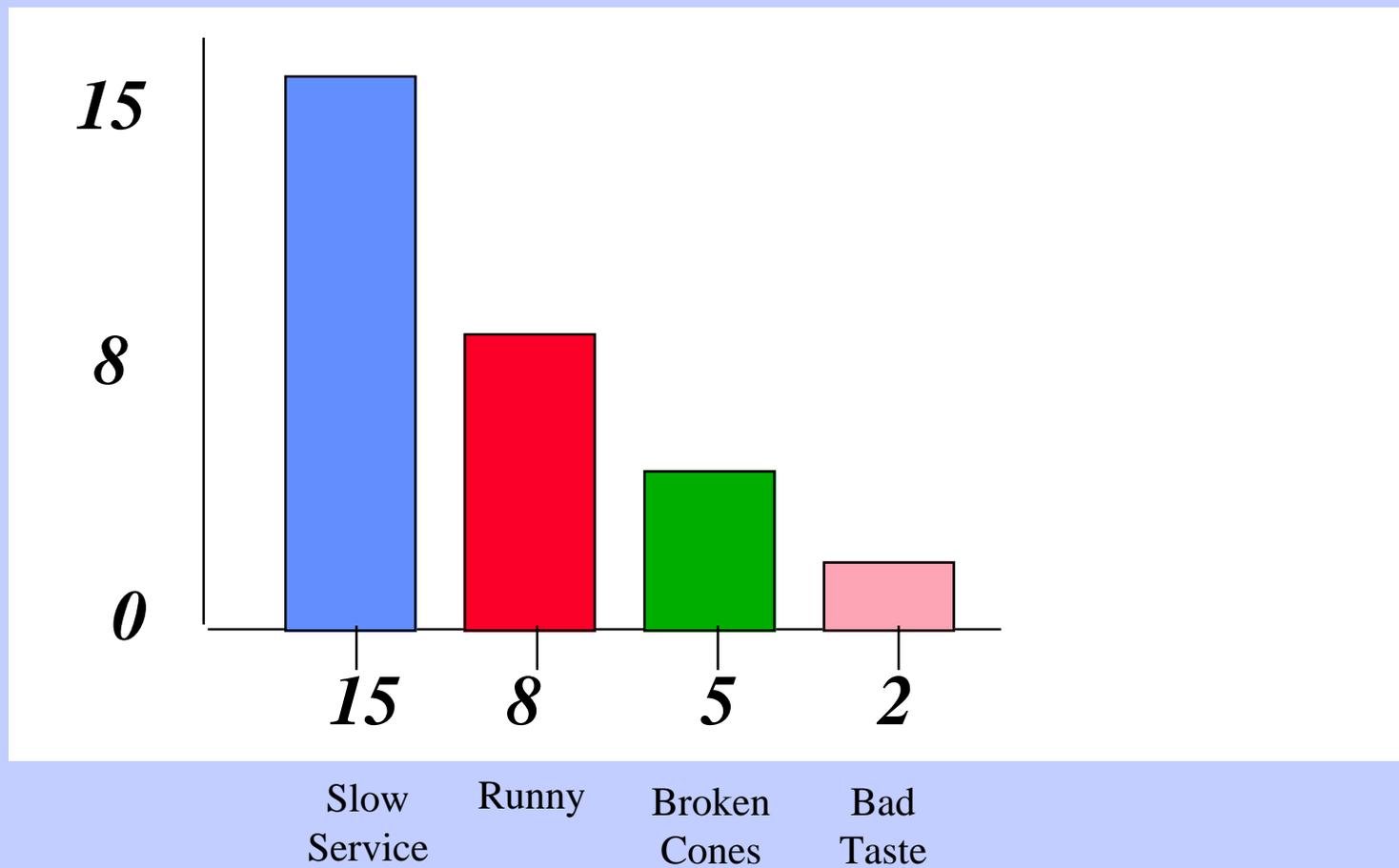


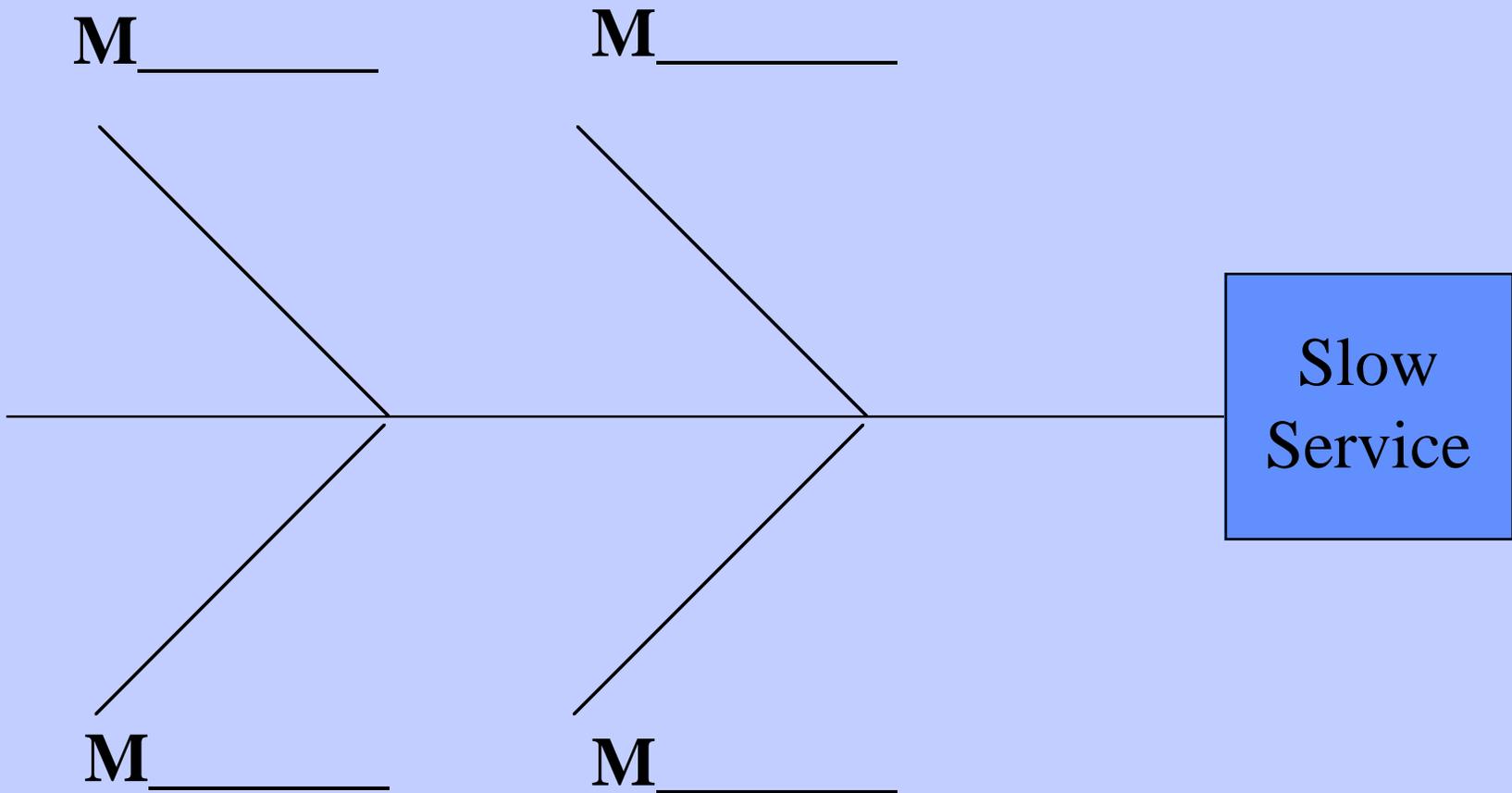
Lickety Split Ice Cream

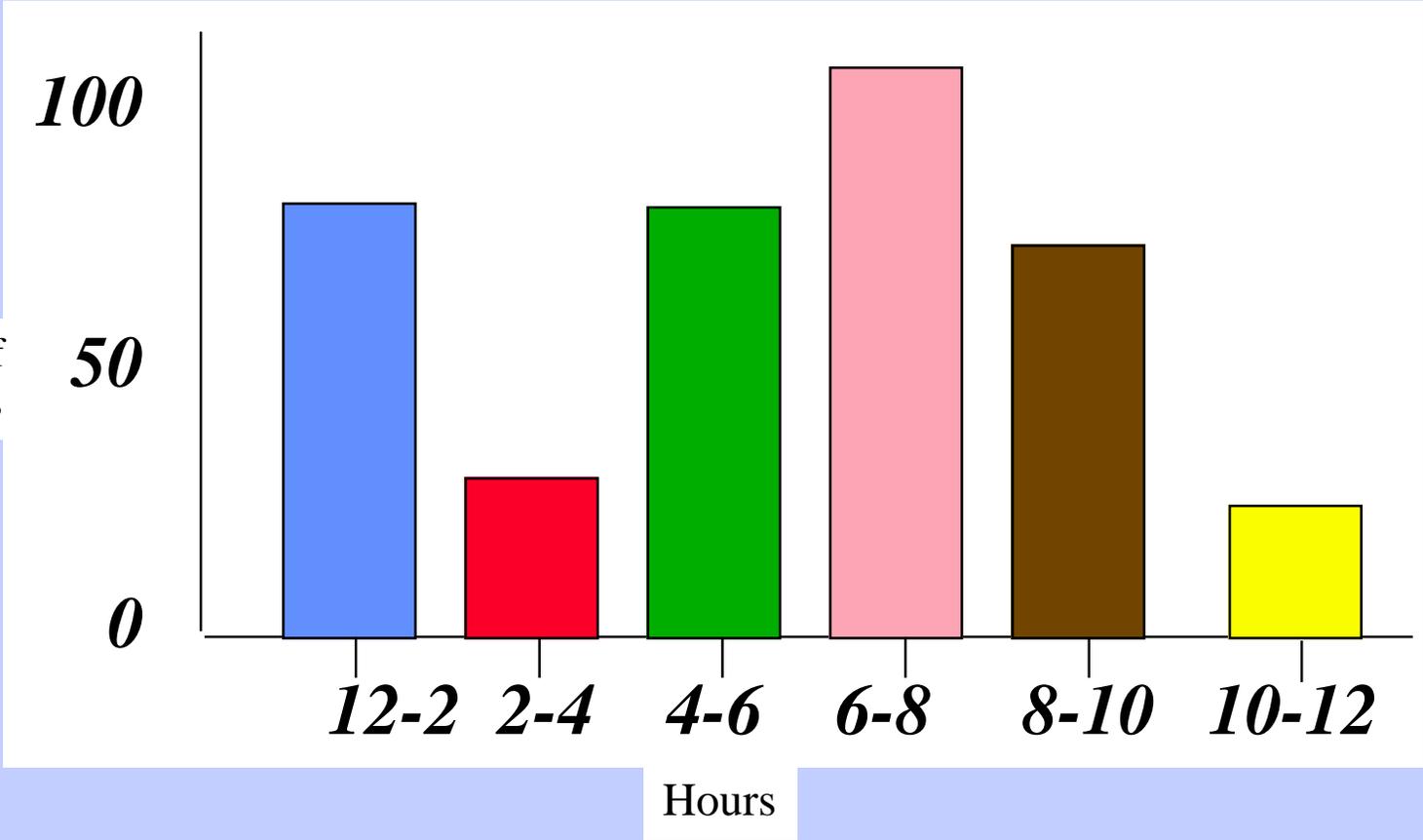


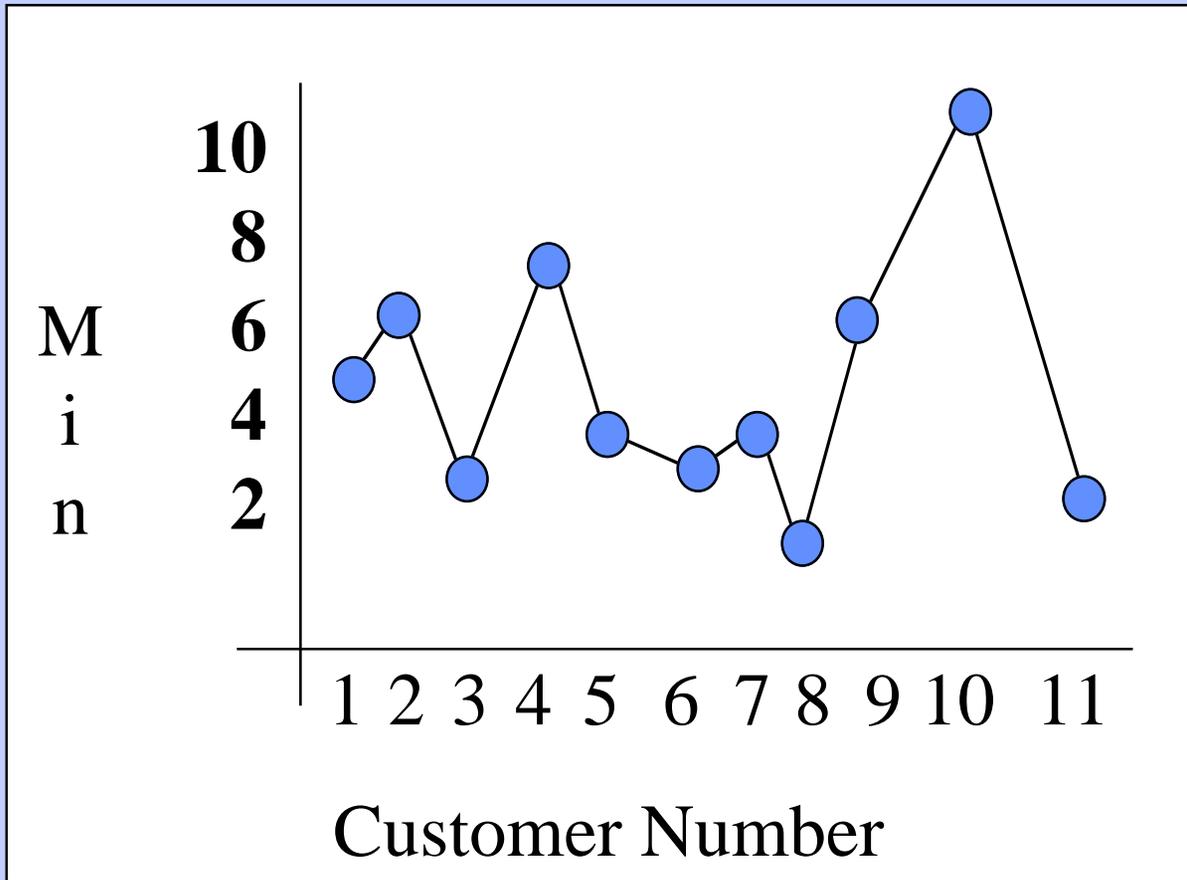
<i>Broken Cones</i>	<i>5</i>
<i>Runny</i>	<i>8</i>
<i>Slow Service</i>	<i>15</i>
<i>Bad Taste</i>	<i>2</i>
	<hr/>
	<i>30</i>

Lickety Split Ice Cream

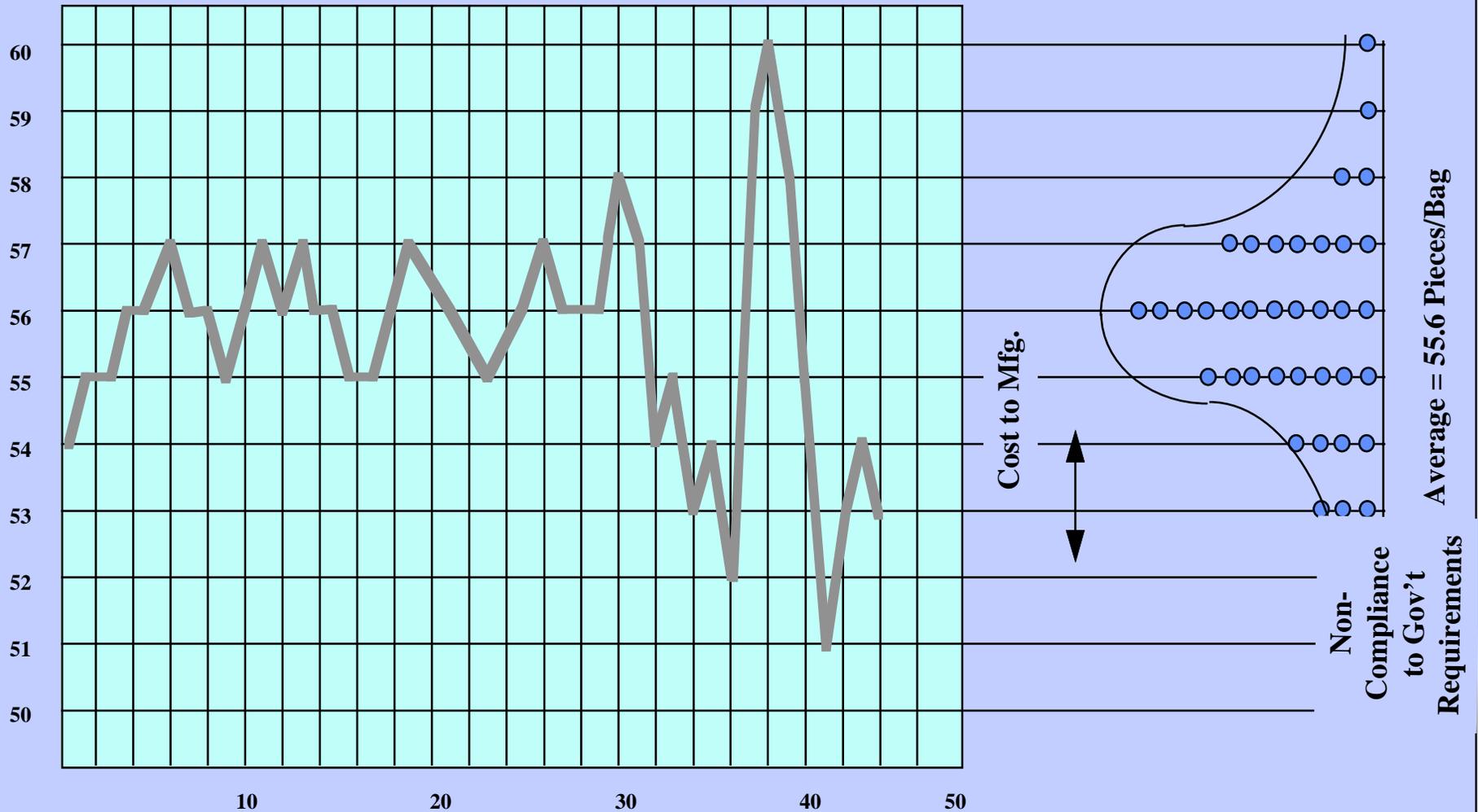






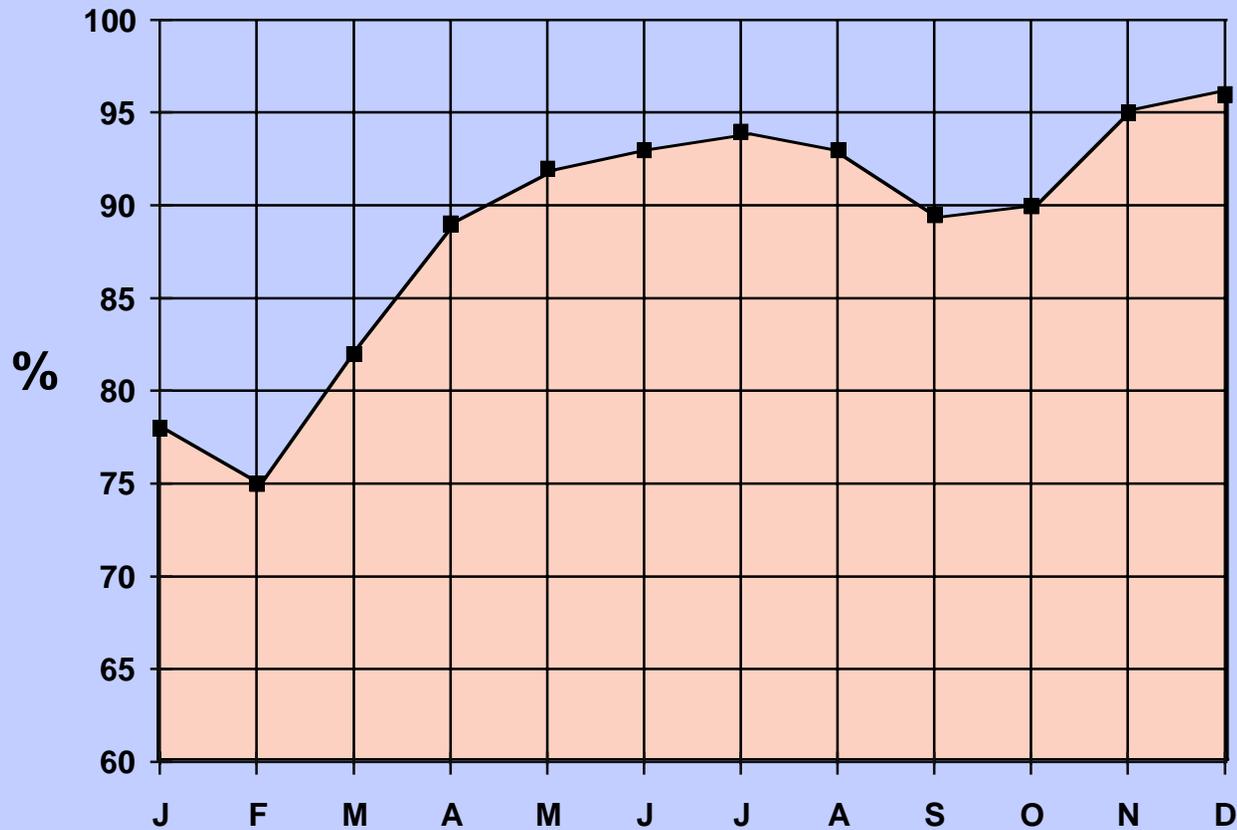


M&M Run Chart and Histogram



Data Display Example

Delivery Performance



Maintained by _____