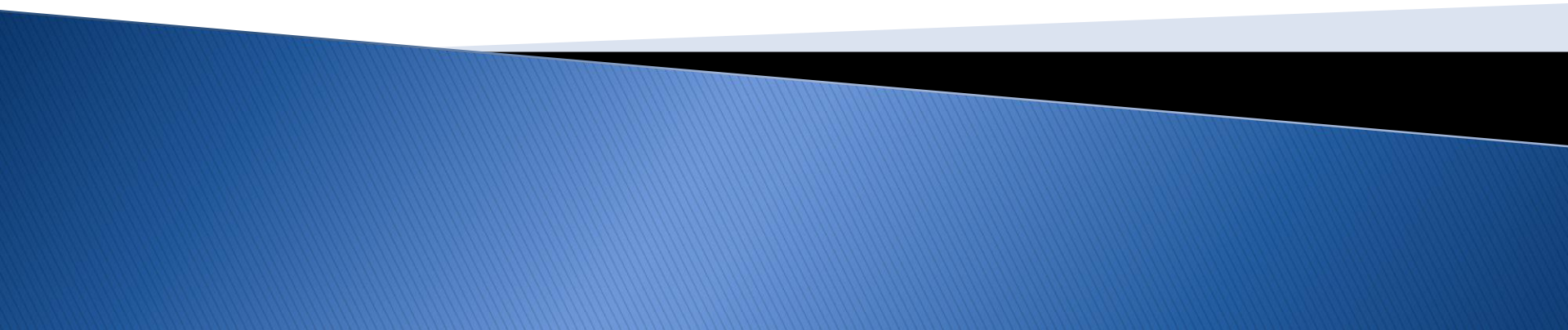


INSE 6230

Total Quality Project Management

Lecture 6

Project Quality Management



What Is Quality?

- ▶ Definitions based on:
 - **Ability to satisfy the needs**
 - The totality of characteristics of an entity that bear on its ability to satisfy stated or implied needs (*ISO - International Organization for Standardization*)
 - **Conformance to requirements**
 - The project's processes and products meet written specifications
 - **Fitness for use**
 - A product can be used as it was intended

Project Quality Management

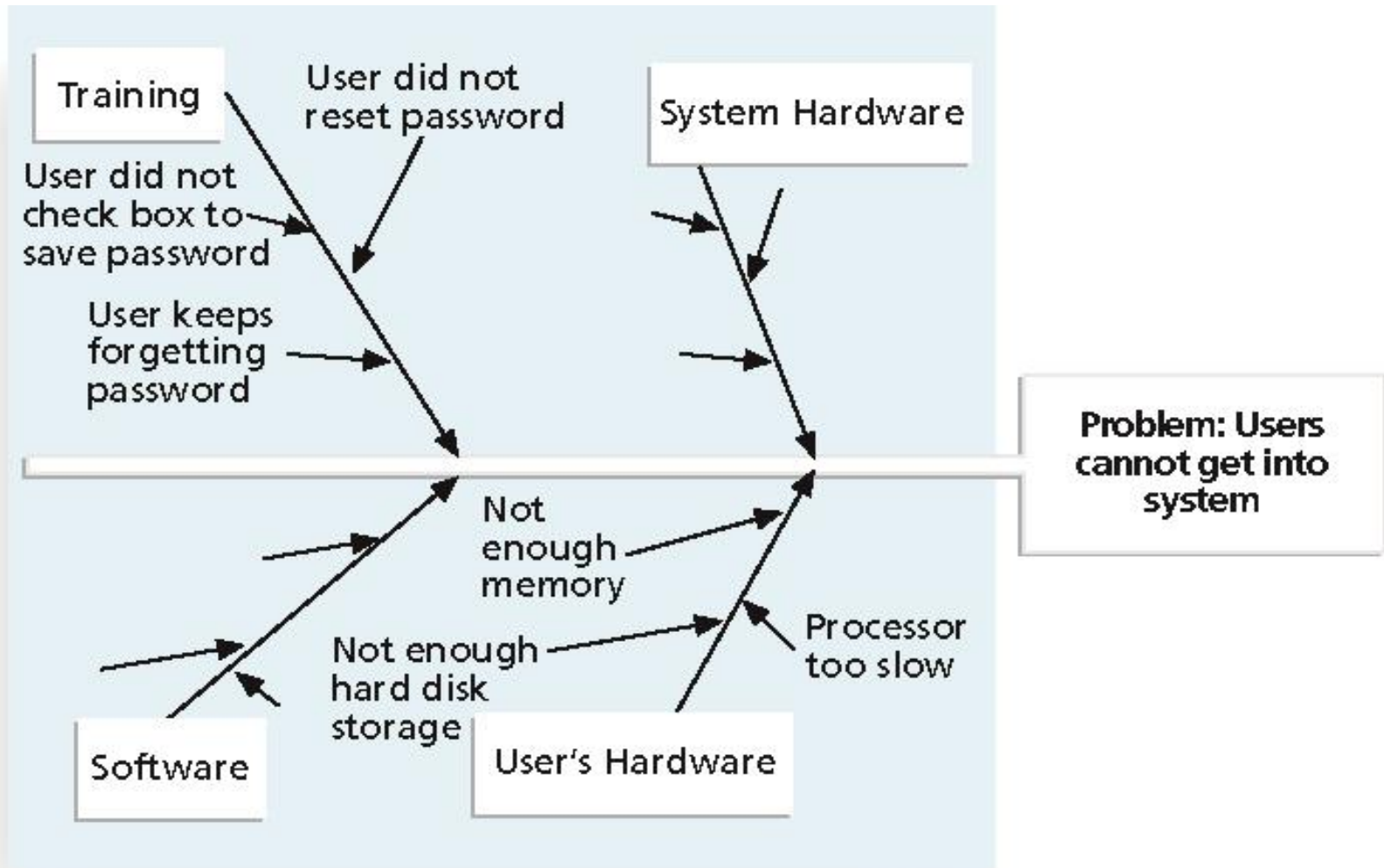
- ▶ **Project quality management** ensures that the project will satisfy the needs for which it was undertaken
- ▶ Project quality considers both the *quality of the project* itself and the *quality of the resulting product*
- ▶ Processes include:
 - **Planning quality**
 - Identifying which *quality standards* are relevant to the project and how to satisfy them
 - **Performing quality assurance**
 - Periodically evaluating overall project performance *to ensure the project will satisfy* the relevant quality standards (improving, preventing/avoiding defects)
 - **Performing quality control**
 - Monitoring specific project results *to ensure that they comply* with the relevant quality standards (testing, evaluating, uncovering/rejecting defects)

1. Cause-and-Effect Diagrams

- ▶ **Cause-and-effect diagrams** trace complaints about quality problems back to the responsible production operations
- ▶ They help you find the **root cause of a problem**
- ▶ Also known as **fishbone** or **Ishikawa diagrams**
- ▶ Can also use the **5 whys technique** where you repeatedly ask the question “Why” (five is a good rule of thumb) to peel away the layers of symptoms that can lead to the root cause

Cause-and-Effect Diagram

Example

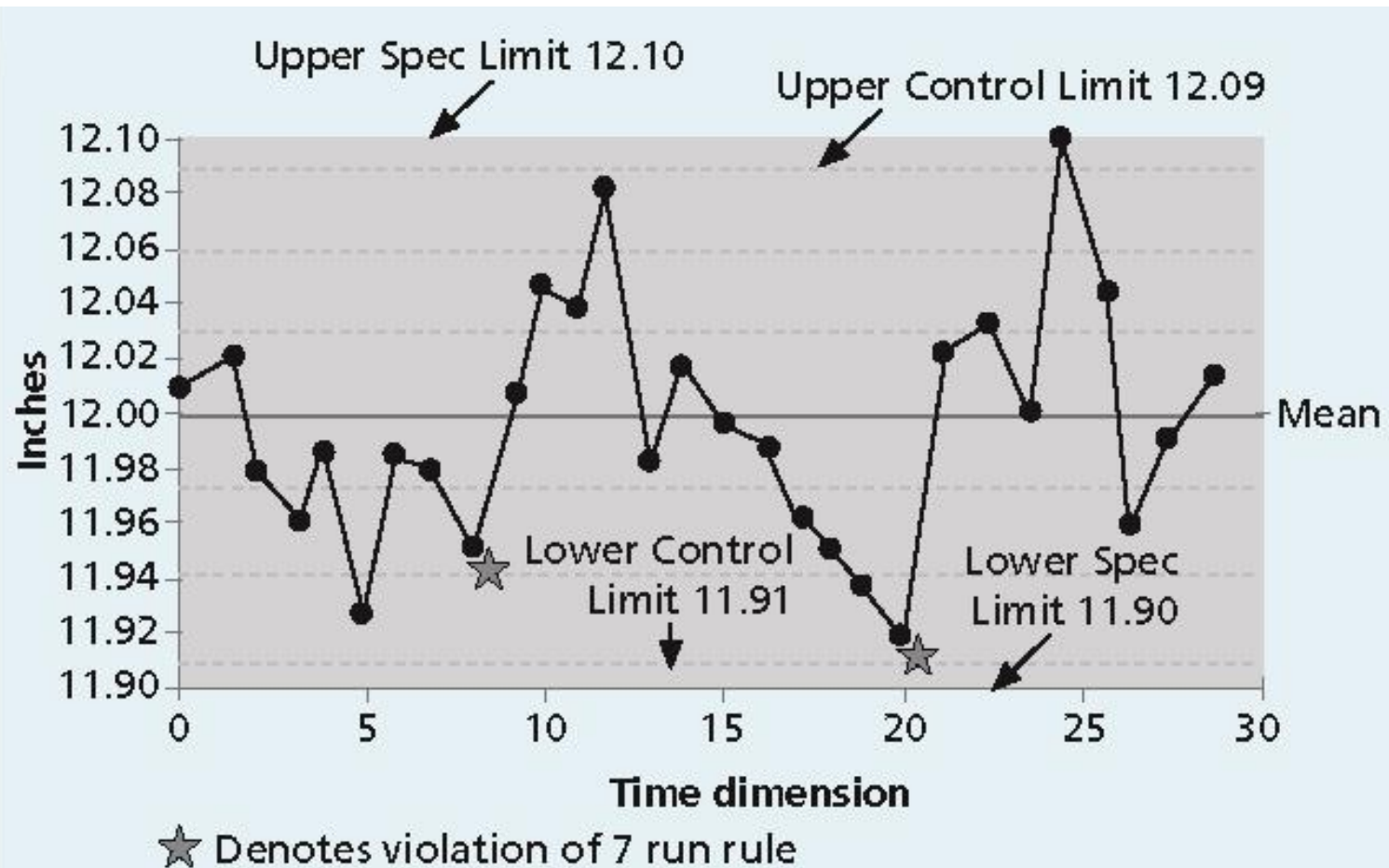


2. Quality Control Charts

- ▶ A **control chart** is a graphic display of data that illustrates the results of a process over time
 - To determine whether a process is in control or out of control
 - When a process is **in control**, any variations in the results of the process are created by random events; processes that are in control do not need to be adjusted
 - When a process is **out of control**, variations in the results of the process are caused by non-random events; you need to identify the causes of those non-random events and adjust the process to correct or eliminate them
 - To look for patterns in data
 - The **seven run rule** states that if seven data points in a row are all below the mean, above the mean, or are all increasing or decreasing, then the process needs to be examined for non-random problems

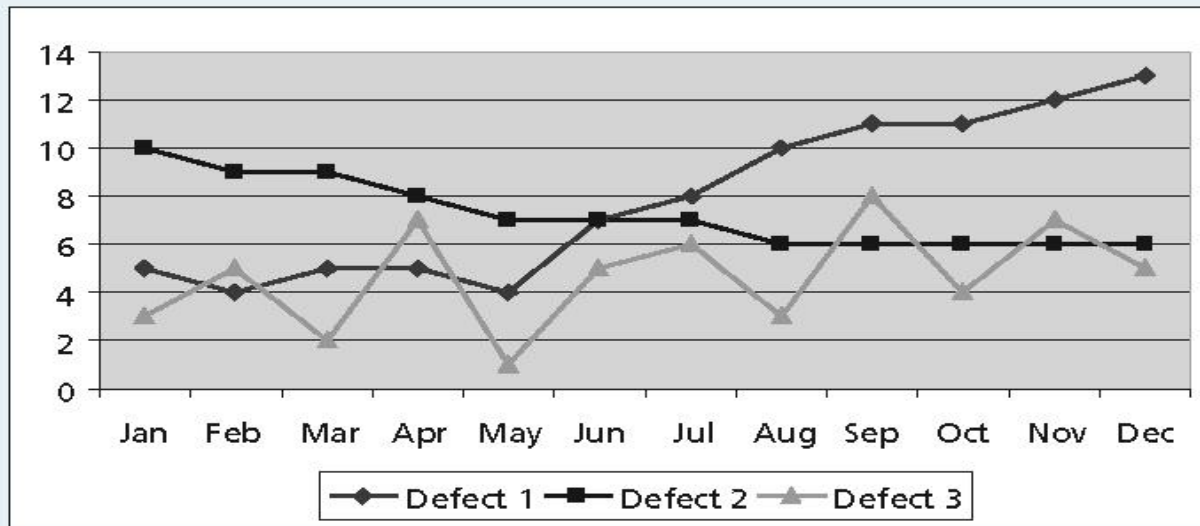
Quality Control Chart

Example



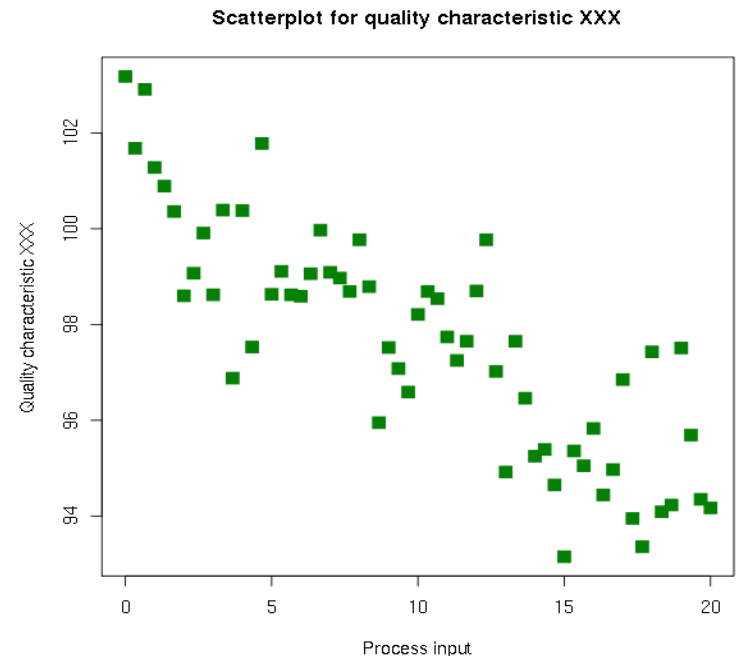
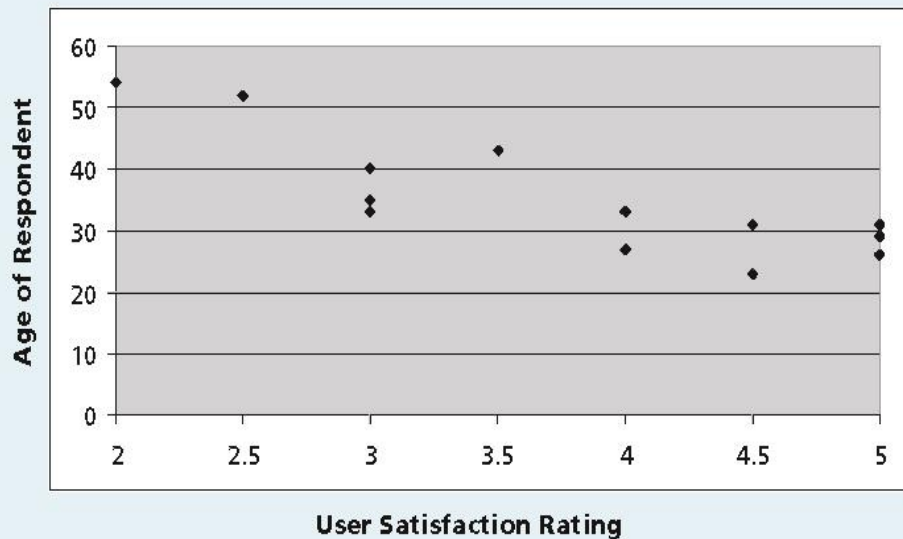
3. Run Chart

- ▶ **A run chart** displays the history and pattern of variation of a process *over time*
- ▶ Displays data in a time sequence
- ▶ Can be used to perform trend analysis to forecast future outcomes based on historical patterns
- ▶ For example we can determine:
 - How many defects have been identified over time
 - Whether there are any trends in the defects



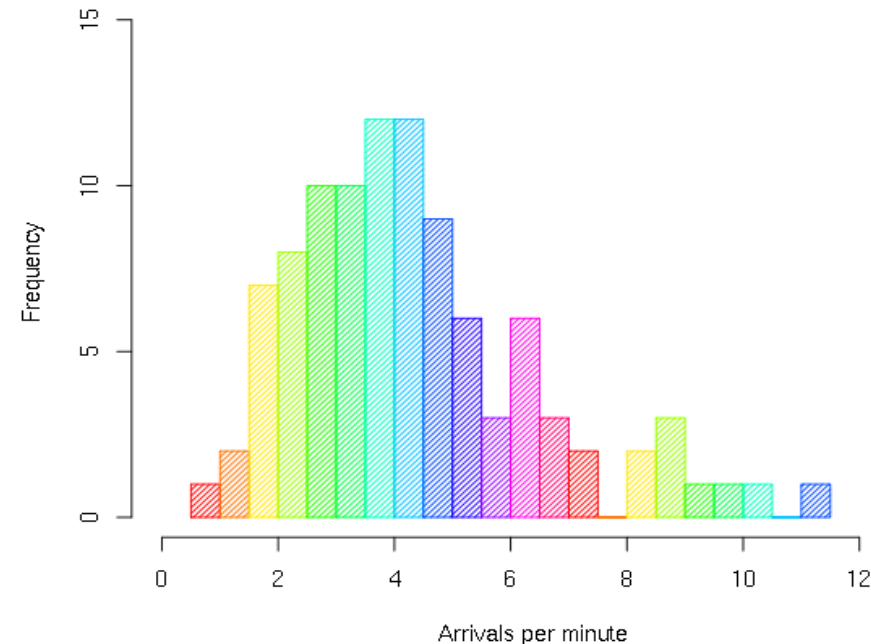
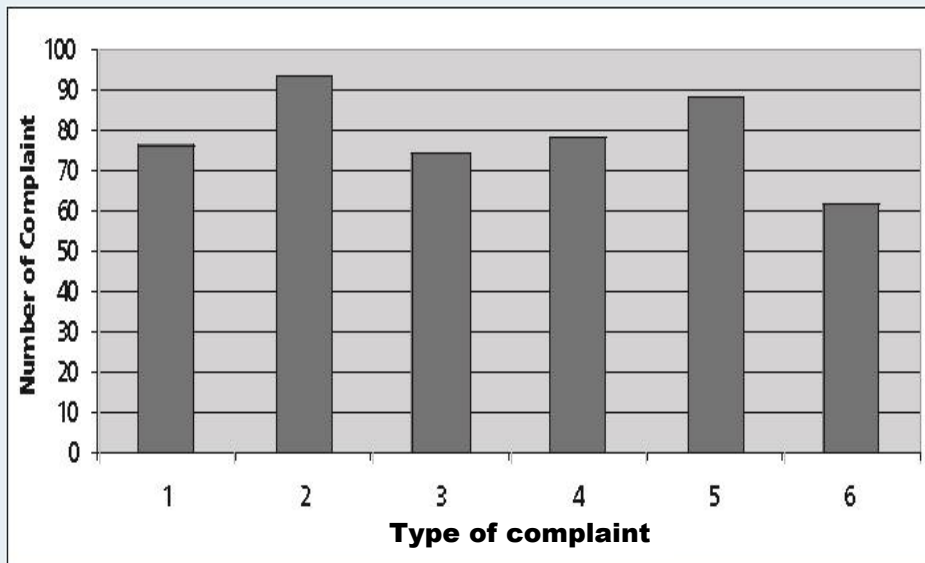
4. Scatter Diagram

- ▶ A **scatter diagram** helps to show if there is a relationship between two variables
- ▶ The closer data points are to a diagonal line, the more closely the two variables are related



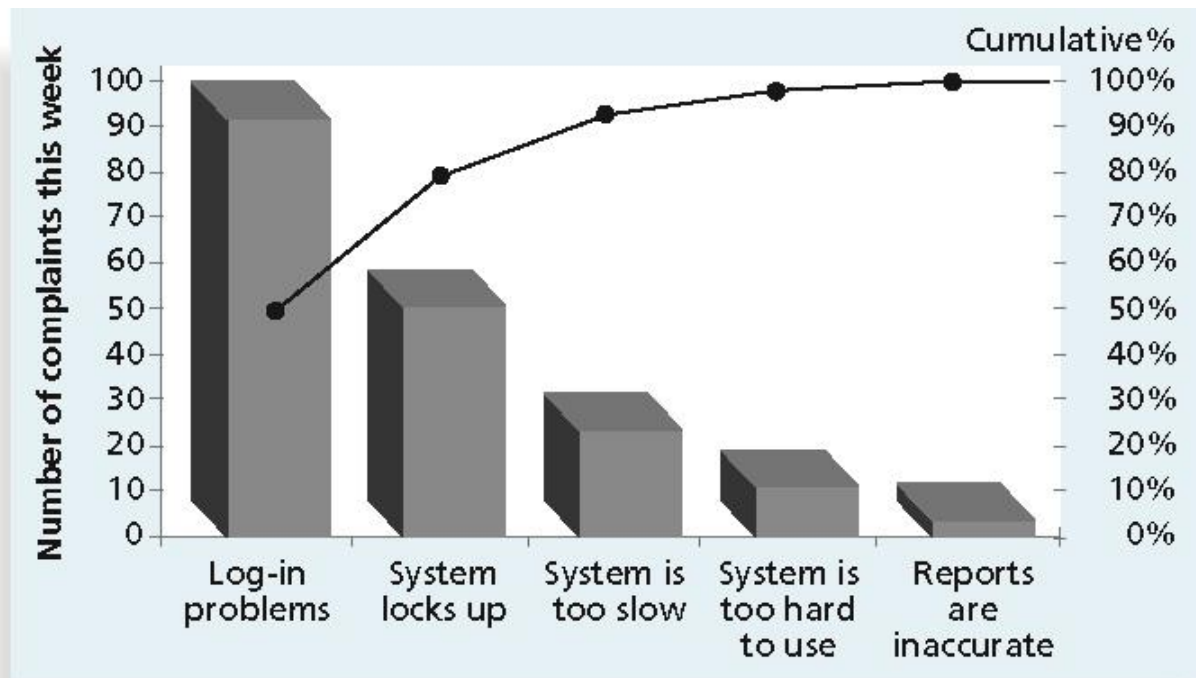
5. Histograms

- ▶ A **histogram** is a bar graph of a distribution of variables
- ▶ Each bar represents an attribute or characteristic of a problem or situation, and the height of the bar represents its frequency



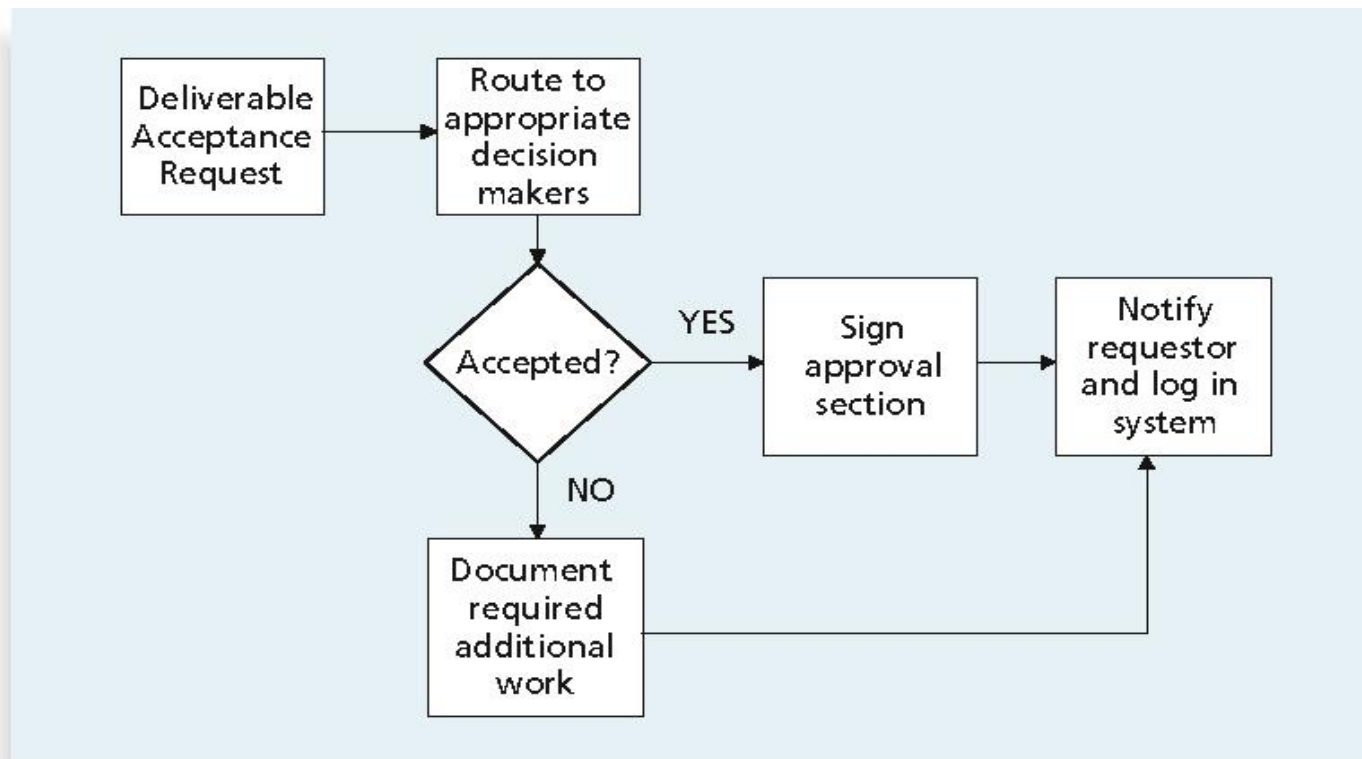
6. Pareto Charts

- ▶ A **Pareto chart** is a histogram that can help you identify and prioritize problem areas
- ▶ **Pareto analysis** is also called the 80-20 rule, meaning that 80 % of problems are often due to 20 % of the causes



7. Flowcharts

- ▶ **Flowcharts** are graphic displays of the logic and flow of processes that help you analyze how problems occur and how processes can be improved
- ▶ They show activities, decision points, and the order of how information is processed



Chapter Summary

- ▶ Project quality management ensures that the project will satisfy the needs for which it was undertaken
- ▶ Main processes include:
 - Plan quality
 - Perform quality assurance
 - Perform quality control

Next lecture - QUIZ

- ▶ Good luck!