

6. Quality management

1. Analyze why project management is essential?

1) The International Organization for Standardization (ISO) defines quality as "the degree to which a set of inherent characteristics fulfils requirements" (ISO 9000-2000).

2) Other experts define quality based on:

- Conformance to requirements: the project's processes and products meet written specifications.
- Fitness for use: a product can be used as it was intended.

3) Project quality management ensures that the project will satisfy the needs for which it was undertaken.

Processes include in project quality management:-

1) Quality management planning- Identifying which quality standards are relevant to the project and how to satisfy them.

2) Quality Assurance: periodically evaluating overall project performance to ensure the project will satisfy the relevant quality standards.

3) Quality control: monitoring specific project results to ensure that they comply with the relevant quality standards.

Describe any two main processes involved for project quality management.

1) Quality Planning :

- i) Implies the ability to anticipate situations and prepare actions to bring about the desired outcome.
- ii) Important to prevent defects by
 - selecting proper materials
 - Training and indoctrinating people in quality
 - Planning a process that ensures the appropriate outcome
- iii) Design of experiments is a quality planning technique that helps identify which variables have the most influence on the overall outcome of a process.
- iv) Scope aspects of IT projects.
 - a) Performance addresses how well a product or service performs the customer's intended use
 - b) Reliability is the ability of a product or service to perform as expected under normal conditions
 - c) Maintainability addresses the ease of performing maintenance on a product

2) Quality Assurance :

- Includes all the activities related to satisfying the relevant quality standards for a project.
- i) Another goal of quality assurance is continuous quality improvement
 - ii) Benchmarking generates ideas for quality improvements by comparing specific

project practices or product characteristics to those of other projects or products within or outside the performing organization.

iv) A quality audit is a structured review of specific quality management activities that help identify lessons learned that could improve performance on current or future projects.

3) Quality control:-

7 tools and techniques for quality control:

1. Cause and effect diagrams trace complaints about quality problems back to the responsible production operations.

i) They help you find the root cause of a problem.

ii) Also known as Fishbone or Ishikawa diagram

iii) Can also use the 5 whys technique where you repeat the question "why" to peel away the layers of symptoms that can lead to the root cause.

2. Quality control charts:-

i) Graphic display of data that illustrates the results of a process over time.

ii) main use is to prevent defects, rather than to detect or reject them.

iii) Quality control charts allow you to determine whether a process is in control or out of control.

3. Run chart :-

- i) A run chart displays the history and pattern of variation of process over time.
- ii) It is a line chart that shows at data points plotted in the order in which they occur.
- iii) Can be used to perform trend analysis to forecast future outcomes based on historical patterns e.g. of defects.

4. Scatter Diagram :-

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

5. Histograms :-

- i) A histogram is a bar graph of a distribution of variables.
- ii) Each bar represents an attribute or characteristics of a problem or situation, and the height of the bar represents its frequency.

6. Pareto Charts :-

- i) Pareto analysis is also called the 80-20 rule, meaning that 80 percent of problems are often due to 20 percent of the causes.

7. Flowcharts :-

- i) Flowcharts are graphic displays of

logic and flow of processes that help you analyze how problems occur and how processes can be improved.

ii) they show activities, decision points, and the order of how information is processed.

8. Show use of cause-effect diagram and flow chart for quality management.

→ cause-effect diagram use :-

i) cause-and-effect diagrams trace complaints about quality problems back to the responsible production operations.

ii) they help you find the root cause of a problem.

iii) can also use the 5 whys technique where you repeat the question "why" to peel away the layers of symptoms that can lead to the root cause.

a. why the users can not get into the system.

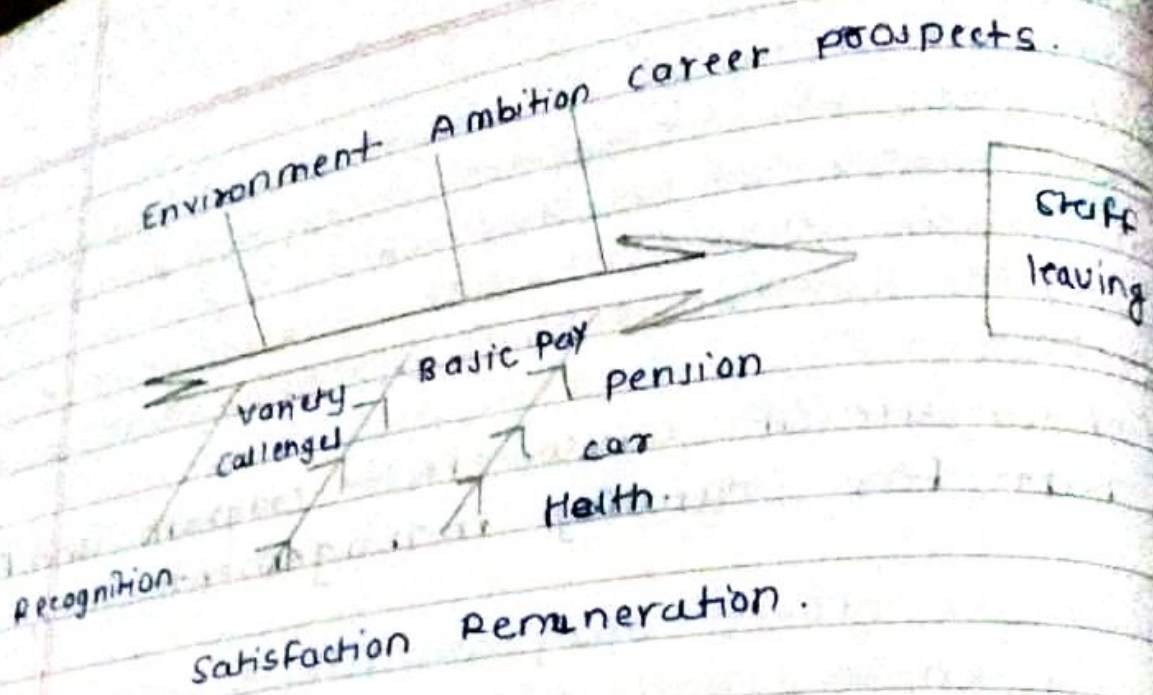
b. why they keep forgetting passwords.

c. why didn't they reset their passwords.

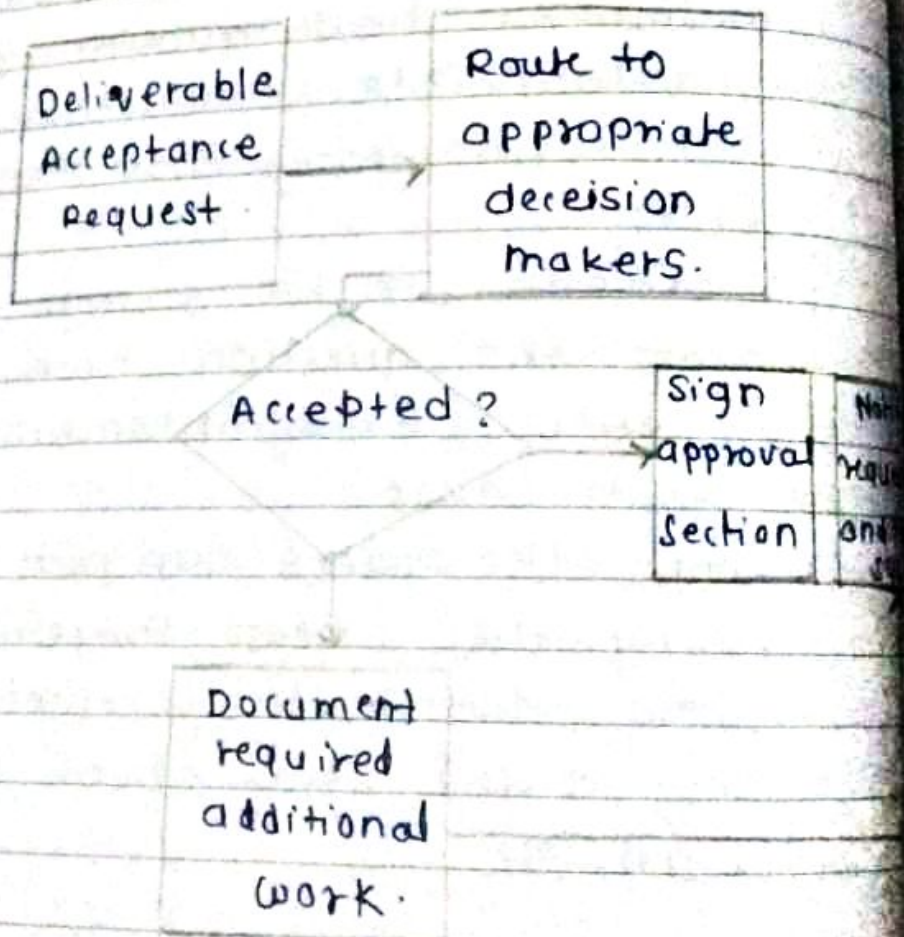
d. why didn't they check the box to save their password, etc.

e.g.: Possible cause of staff leaving before the end of a project.

They may include environment, ambition, career prospects, satisfaction, remuneration.



• Flowcharts:-



4. Quality control charts and Histograms
checks project quality management?

Quality control charts:-

- i) you can use quality control charts and the seven run rule to look for patterns in data.
- ii) 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 nonrandom problems.
- iii) Quality control charts allow you to determine whether a process is in control or out of control.

- when a process is in control, any variations in the results of 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 nonrandom events; you need to identify the causes of those nonrandom events and adjust the process to correct or eliminate them.

- Histogram eg: