Why QA Metrics

* They provide full visibility into the quality of the product being developed, as well as insight into the overall effectiveness of the development process
* Once equipped with this information, teams can take corrective actions to optimize the quality and efficiency of their development efforts.

Types of QA Metrics

There are 100s of QA metrics, but they fall into two main categories like Result metrics and Predictive metrics

Result Metrics:

* Result metrics provide an “absolute” measure surrounding something that has already been completed.
* These metrics are a good gauge of how thorough and efficient your testing process is but
* They aren’t usually enough to provide actionable insights for improvement.

Types of Result Metrics:

* Total number of test cases
* Number of test cases passed
* Number of test cases failed
* Number of test cases blocked
* Number of defects found
* Number of defects accepted
* Number of defects rejected
* Number of defects deferred
* Number of critical defects
* Number of planned test hours
* Number of actual test hours
* Number of bugs found after shipping

Predictive metrics:

Predictive metrics use and combine absolute metrics to discover early warning signs of things that may hinder the speed or quality of development.

**Common Predictive Metrics**

* + **Passed test cases percentage**= (Number of passed tests/Number of tests executed) x 100
  + **Failed test cases percentage**= (Number of failed tests/Number of tests executed) x 100
  + **Fixed defects percentage**= (Number of defects fixed/Number of defects reported) x 100
  + **Test design efficiency** = Number of tests designed/Total time
  + **Defect containment efficiency** = (Number of defects found during QA/Number of defects) x 100
  + **Defect leakage**= (Number of defects reported by users/Number of defects) x 100
  + **Defects reopen ratio**= (Number of reopened defects/Number of defects reported) x 100
  + **Defects rejection rate**= (Number of invalid defects/Number of defects reported) x 100

QA Metric Life Cycle: This is circular process

Analyze -> Communicate -> Evaluate -> Report&Analyze -> Analyze

Analyze:

* This phase is about identifying the metrics needed for the project

Communicate:

* This is the phase where we need to explain the stake holders and the team why we chose that metric
* This is also time for the team to decide what data is to be collected to get proper metric

Evaluate:

* In this phase the data is collected via automated process. Once the collected data is validated then metrics are calculated

Report & Analyze:

* This is the phase where we have the metrics calculated already and the reports are created and shared with stake holders with recommendations for improvement

The **Plan, Do, Check, and Act (PDCA) Cycle**

This cycle provides teams with the guidance necessary to use the metrics gathered to improve the process, product, and project. As its name suggests, the cycle consists of four stages.

Plan:

goal-setting stage where team will pick new processes, practices, and activities that must be introduced or adjusted in the development and QA processes

Do:

 Team acts and follow the new practices or processes.

Check:

Check in with the project and ensure that the new practices are working and improving the overall process and increasing efficiency

Act:

Review flaws or obstacles and create a plan to address them. The goal of this stage is to ensure the process is continually improved until the product is ready to be released.