Review Guideline

Objective

- Define the review process to successfully review projects and follow a unified standard.
- Provide guidelines which project managers, leads or any other team member can follow..
- Define the roles and responsibilities of each member of a project group.

The document is intended to be updated regularly. Whenever new processes are discovered they can be reviewed and updated into the document.

Pre-Requisites

- Every project repository should be managed using a Git version control system like Github, Gitlab, Bitbucket.
- Standard Coding practices guidebook/checklist for each technology used in the project needs to be available
- Approved Architecture/Sequence diagrams should be available before the start of the project.

Why Code Review?

- Improved code quality: Code review allows multiple sets of eyes to review code, which can help identify bugs, security vulnerabilities, and other issues that might not have been caught otherwise.
- Increased collaboration: Code review encourages collaboration among team members and can help foster a culture of shared ownership and accountability.
- Enhanced learning: Code review provides an opportunity for team members to learn from each other and improve their skills. It can also help junior team members learn from more experienced colleagues.
- Reduced defects: By identifying and fixing issues early on, code review can help reduce the number of defects that make it into production.
- Improved code maintainability: Code review helps ensure that code is written in a way that is easy to understand and maintain, which can save time and effort in the long run.

Review Process

Peer Review

Reviewed By: Peer Reviewer
When: for every PR/MR to Dev environment

- Each Feature/Task/Bugfix should be done in separate branches.
- Pull/Merge Requests(PRs) should be created to merge these branches to the development branch
- Tech Lead/another Peer working in the project should be added as reviewer of the PR
- The reviewer should review the changes and should merge it, if everything is okay else request changes with appropriate comments and approve only the changes are done.
- The review should include standard Coding practices and basic logic of the change.
- The Tech Lead of the project should be verifying if this is being done.

Final/External Review:

Reviewed By: Final Reviewer
When: Every PR/MR to UAT/Prod(On Every Sprint)

- Once the development/QA is completed, PR should be created to merge the code to the UAT/production branch.
- Tech Lead/ Senior Developer(external to the project) should be reviewing the PR.
- Any findings should be documented as the review report
- The review report should be shared with the entire team including the PM, Tech Lead, developers.
- This review report should be kept in the project's document repository
- These findings should be addressed within the next sprint.
- The reviewer should also make sure if the findings reported in the preview review were addressed properly. Any misses in this should be reported to the Tech Board.
- The Project Manager should be making sure that the Final review process is carried out properly and should make sure the availability of the reviewer before the review process.

Roles and responsibilities

Developer

- Should go through the User stories and make sure to understand the requirements before developing the code.
- Should go through the standard coding guidelines and follow the same in development
- Should do Peer Review of the PRs created by other team members

Tech Lead

- Should make sure that standard coding practices are followed.
- Should either do the Peer Review or make sure the Peer Review process is followed properly.
- Should either do the Final Review or assist the external reviewer in understanding the project and complete the review process
- Should be attending all the project calls to understand the client requirements properly. In case of any questions regarding the requirements, the PM should be contacted and the requirement should be clearly understood before doing the Review.
- Should make sure the Architecture/sequence diagram approved by the Tech board for the project is followed properly.
- If any changes are required in the Architecture/Sequence diagram due to client requirement changes, TL should update the documents accordingly and get the changes approved by the Tech board
- Should be the primary point of Contact for the Tech team.

Project Manager

- Should make sure that the User stories and well defined and the developers understand the requirements
- Should make sure that the Final Review process is followed properly.
- Should make sure the review report is kept up to date and is available for review.
- Should check the availability of the Reviewer and assist the reviewer during the Review process
- Should be the secondary point of Contact for the Tech team.

Tech Board

- Identify the Tech leads in different technologies who are capable of doing the review process effectively.
- Should audit the project to check if the Review process is followed properly.
- The Tech board audit should take place once every 2 months.
- Should make sure that the code practices are being reviewed
- Should do random checks on the project code.
- Should make sure that the architecture, sequence diagram and other required documents are proper and approved before the start of the project.

Project and Roles

- Project with only junior/Mid level resources in the technology
    - Peer Review and Final Review must be done by the Tech Lead
- Project with only one senior resource in the technology
    - Peer Review can be skipped.
    - Final Review must be done by the Tech Lead
- Project with multiple resources with at least one Senior Resource
    - Peer Review must be done by the Senior Resources
    - Final Review must be done by the Tech Lead

Tech Lead must have proper understanding about the Technology. Otherwise, Tech Lead can delegate the Peer Review to any other External Senior Resource specific to the technology. If delegated, the senior resource must either join the daily stand up calls to understand the requirements or should connect with the PM/TL to understand the requirement properly before reviewing it

Review Report

The Review report must contain the below information.

- Code quality metrics: These include metrics such as code maintainability, test coverage, and code complexity. We can get most of this information from the sonarqube report.
- Code review metrics: These include metrics such as the number of code review requests, the number of comments per review, and the time taken to complete a review.
- Defect metrics: These include metrics such as the number of defects found during code review, the severity of the defects, and the time taken to fix them.

Each Final Review must have an entry in the Review Report associated with it. The PM should make sure the Report is updated.

Ref:https://docs.google.com/spreadsheets/d/1jZfhTmmrFD1pAJYOmr9ew3Lau6jyrPr5KAoPD0LMus4/edit?usp=sharing