Q1.

Planning Poker : Agile Estimation Technique

Introduction to Planning Poker : Planning Poker is a consensus-based estimation technique used in Agile methodologies to estimate the effort or complexity of tasks. Developed by James Grenning and popularized by Mike Cohn, it helps teams collaboratively estimate the workload using a structured but informal approach. The key objective is to leverage the collective intelligence of the team to produce accurate and reliable estimates.

Step-by-Step Process of Planning Poker:

1. Preparation: The Product Owner prepares a list of user stories for estimation.

2. Explanation: Each story is explained in detail, including acceptance criteria.

3. Private Estimation: Team members privately select a card (using Fibonacci or modified Fibonacci sequence).

4. Simultaneous Reveal: Cards are revealed at the same time to avoid anchoring bias.

5. Discussion: If estimates differ significantly, team members discuss the reasons for their choices.

6. Re-estimation: After discussion, the process repeats until a consensus is reached.

7. Final Estimate: The agreed estimate is recorded for each story.

Example: Developing a Mobile App for Maha-Kumbh

Team:10 Members (5 Developers, 2 Designers, 2 QA, 1 Scrum Master)

Goal : Build a mobile app for Maha-kumbh in 3 months.

Key Features: Event schedule, live maps, emergency contacts, donation platform, news feed.

User Story 1: “As a visitor, I want to view an interactive map of the Maha-Kumbh area, so I can easily navigate to different locations.”

Estimation Process:

- Developer 1: 8, Developer 2: 13, Designer: 5, QA: 8, Scrum Master: 8

- Discussion on complexity of real-time tracking.

- Consensus reached at 8 story points.

User Story 2: "As a donor, I want to contribute to charity seamlessly through the app using multiple payment options."

Estimation Process:

- Developer 1: 5, Developer 2: 8, Designer: 5, QA: 5, Scrum Master: 5

- Discussion on integrating different payment gateways.

- Consensus reached at 5 story points.

Benefits and Challenges of Planning Poker

Benefits:

- Fosters open communication and knowledge sharing.

- Reduces anchoring bias by simultaneous card reveal.

- Encourages detailed discussion about requirements.

Challenges:

- Can be time-consuming for large backlogs.

- Requires active participation from all team members.

- Risk of prolonged discussions on complex stories.

Best Practices for Effective Planning Poker

- Limit the number of stories per session to avoid fatigue.

- Ensure that stories are well-defined with clear acceptance criteria.

- Use time-boxing for discussions to maintain focus.

- Encourage quieter team members to share their views.

Conclusion:

Planning Poker is a powerful tool for Agile teams to estimate effort accurately while promoting collaboration and transparency. By following best practices and addressing its challenges, teams can leverage this technique to plan and execute projects efficiently.

Q2.

Measuring Software Development Waste in OSS Projects using PRR:

PR Rejection Rate = (Number of Rejected PRs /Total Number of PRs) × 100 %

Open source link - " https://github.com/numpy/numpy", NumPy repository- a fundamental package for scientific computing with Python.

Data Collection: Using GitHub's API, we have retrieved data on pull requests as follows:

Calculation:

- **Total PRs:** 1,200
- **Merged PRs:** 1,050
- **Closed (Unmerged) PRs:** 150

Assuming that closed PRs represent rejections, the PR Rejection Rate is:

PRR = (150/1200)*100 = 12.5%

Interpretation: A 12.5% rejection rate suggests that approximately 1 in 8 pull requests is not merged. This rate could be due to various factors, including:

- **Quality Issues:** Submissions not meeting the project's standards.
- **Redundancy:** Multiple PRs addressing the same issue.
- **Misalignment:** Contributions not aligning with the project's goals.