LAB 4

Agile Estimation Metrics

Objective:

To understand and apply various Agile estimation techniques used to estimate effort, complexity, and delivery timelines in Agile software development projects.

Tools Used:

- **JIRA** (or any Agile project management tool)
- **Microsoft Excel / Google Sheets** (for tracking metrics)
- **Pen and Paper / Whiteboard** (for initial planning)
- **Scrum/Agile board**
- **Team collaboration platforms** (e.g., MS Teams, Slack)

Theory:

Agile estimation helps teams predict how much work they can deliver in a sprint and estimate the overall project duration. Common Agile estimation metrics include:

1. **Story Points** — Abstract units representing complexity or effort
2. **Velocity** — Average number of story points completed per sprint
3. **Planning Poker** — A consensus-based estimation technique
4. **Ideal Days** — Time estimate excluding interruptions
5. **T-Shirt Sizes** — Rough estimations using categories (XS, S, M, L, XL)
6. **Lead Time** — Time from task creation to its completion
7. **Cycle Time** — Time from starting to finishing a task
8. **Burndown Chart** — A graph showing remaining work vs. time

Procedure / Methodology:

1. **User Story Creation** — Break project requirements into smaller, manageable user stories.
2. **Estimate Using Story Points** — Conduct a planning poker session and assign story points to each story.
3. **Sprint Planning** — Select stories for the sprint based on team capacity and previous velocity.
4. **Track Velocity** — Monitor the story points completed in each sprint.
5. **Generate Burndown Chart** — Update it daily to visualize sprint progress.
6. **Measure Lead and Cycle Times** — Use tools like JIRA to record and analyze these time metrics.

Observations / Results:

Sprint	Committed SP	Completed SP	Velocity
1	18	16	16
2	20	19	19
3	22	20	20

Average Velocity: 18.3 SP/sprint
Lead Time: ~3.5 days per user story
Cycle Time: ~2 days
Team's Estimation Accuracy: Improved after each sprint

Conclusion:

Agile estimation metrics help teams plan realistically and improve sprint outcomes over time. This lab demonstrated how using metrics like velocity, lead time, and burndown charts enables more predictable project delivery, better capacity planning, and continuous improvement in Agile workflows.