🧩 Version Control in Data Visualization Projects

🎯 Why Version Control Matters

- Making changes directly in a deployed dashboard can:
  - Introduce **bugs**
  - Cause **conflicts** if multiple developers work simultaneously
- **Version control** helps manage changes, prevent errors, and support collaboration.

🧠 Key Concepts in Version Control

1. Repository

- A **central location** to store and manage project files and their history.
- Can be **local or remote**.
- Acts as the **single source of truth** for the project.

2. Branch

- A **working copy** of the repository.
- Allows developers to make changes **independently** without affecting the main code.
- Supports **parallel development** and **safe experimentation**.

👥 Example: Min and Carl Collaborate

- Both create **separate branches** to work on different features.
- Carl shares his branch with Min for **feedback and debugging**.
- Team members can **test code** in branches before merging.
- Once tested, changes are **merged back** into the main project and deployed.

🔧 Benefits of Version Control

- Enables **collaboration** without overwriting work
- Tracks **changes over time**
- Supports **code review and testing**
- Keeps projects **organized and high quality**

✅ Conclusion

Version control is essential for:

- Managing **complex visualization projects**
- Supporting **team collaboration**
- Ensuring **code stability and quality** before deployment