Compare and comment on the accuracy/metrics of the non-DP and DP models

- **Non-DP model** delivers substantially higher accuracy and predictive performance.
- **DP model** introduces significant performance trade-offs due to privacy-preserving mechanisms.
- Accuracy degradation makes the DP model less suitable for high-precision tasks.
- DP model remains valuable for use cases where **data privacy** is prioritized over model accuracy.

Metric	Non-DP Model (_v2)	DP Model (_v3)
Test Loss (MAE)	71.06	404.86
MSE	13,307.08	415,619.36
MAE	61.18	404.86
MAPE	8%	44%
R-squared	0.83	-4.41
Adjusted R-squared	0.82	-4.70
MBD	-46.12	-185.55

Comparsion: lakeFS vs DVC

	LakeFS	DVC
Ease of installation	**Moderate** – Requires deploying and configuring a server or cloud service	**Easy** – Installed locally with a single command
Ease of data versioning	**High** – Git-like versioning of data with strong consistency guarantees	**High** – Lightweight and scriptable, great for local versioning
Ease of switching between versions for the same model	**High** – Supports atomic commits, branching, and merging of data versions	**Moderate** – Requires manual checkout and environment syncing
Effect of DP on model accuracy/metrics	Not handled natively; relies on external differential privacy implementations	Same – DVC does not include built-in DP; accuracy impact depends on external tools