TrackTempo Inference Pipeline Review Summary
1. Loading Label Encoders + Data
- Loads correctly via joblib and pandas.
- No issues with compatibility or format.

2. Applying Label Encoders (Safe Mode)

-----

- Fallback logic for unknown categories is well-implemented.
- Prevents shape mismatches with model embeddings.

#### Enhancement:

- Log the count of fallback replacements per column for visibility.

## 3. Batching the Data

-----

- Uses batch\_races correctly with `label\_col=None`.
- Supports tabular and NLP features.

# Potential Risk:

- Assumes batch order matches original DataFrame.
- No ID tracking for predictions (e.g., race\_id, horse\_id).

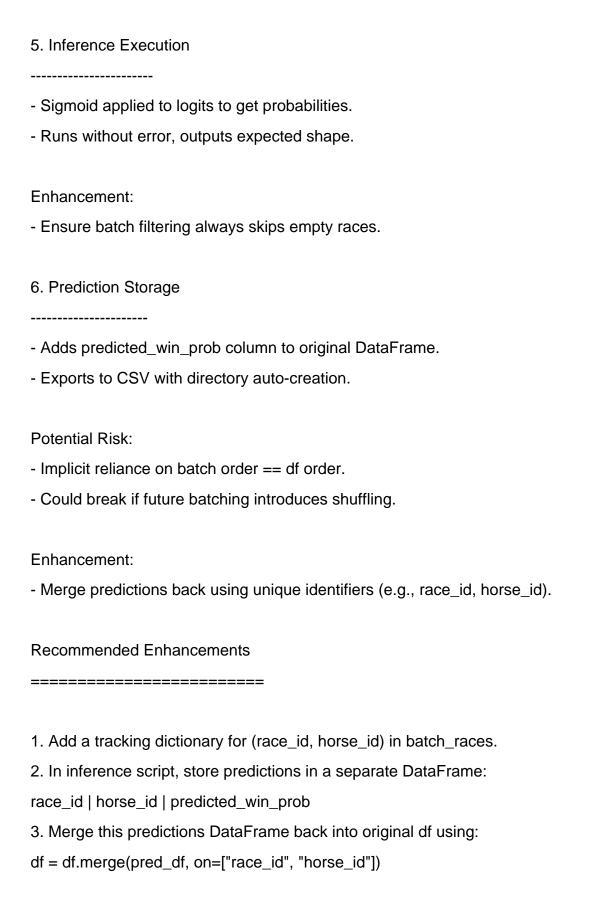
## 4. Model Setup

-----

- Correct use of RaceTransformer model.
- Clean load and CPU-safe.

### **Enhancement:**

- Add `--device` argument to enable GPU support.



- 4. Log fallback encodes per column:
- e.g., "Filled 23 unknowns in 'headgear' column with fallback."
- 5. Add a --device argument to inference CLI:

device = torch.device("cuda" if args.device == "cuda" else "cpu")

# **Overall Summary**

\_\_\_\_\_

- All core logic is sound and functional.
- A few subtle assumptions (like DataFrame alignment) could be hardened for scale.
- Strong foundation for production-ready inference.