Dear professor, these are my ideas for the project (these got a some AI help). At the moment, I only have 2 and I’m trying to think more

**F1 Lap Time Prediction System**

* **Description**: A web application where users can predict F1 lap time. The app would allow users to select from multiple metrics. Using AI and machine learning to predict the success of different strategies based on historical race data and simulation algorithms.

Data:

lap\_num:

Reason: Indicates the lap number in the race, which can influence lap time due to factors like tire wear, fuel load, and driver performance changes over the course of the race.

position\_during\_lap:

Reason: Reflects the driver's position on the track, which can impact lap time due to differences in track conditions, traffic, and strategies during the race.

driver\_ref:

Reason: Identifies the driver, which is crucial since different drivers have varying skill levels, driving styles, and experience that can significantly affect lap times.

age:

Reason: Provides insight into the driver’s experience and potential performance. Age can correlate with a driver’s maturity and understanding of race dynamics.

team:

Reason: Teams have different car setups, technologies, and strategies that affect lap times. Performance variations between teams are essential for accurate predictions.

circuit:

Reason: Each circuit has unique characteristics (e.g., track layout, surface, elevation changes, length) that influence lap times. This field helps the model account for these variations.

session\_status:

Reason: Indicates whether the lap was during qualifying, the race, or practice. Lap times can differ significantly across these sessions due to varying conditions and objectives.

start\_pos:

Reason: The starting position can influence a driver’s strategy and performance in the early laps, potentially affecting lap times, especially in the context of track position.

race\_date:

Reason: The date of the race can provide context on weather conditions, temperature, and other temporal factors that may affect lap times.

laps\_since\_last\_pit\_or\_start:

Reason: Indicates tire conditio, both of which can have a substantial impact on lap performance as the race progresses.

driver\_years\_since\_first\_in\_f1:

Reason: Measures the driver’s experience level, which can correlate with performance consistency and speed. More experienced drivers might perform better under pressure.