I undertook this project to address a problem that has recently affected my city, Karachi, where severe urban flooding caused widespread disruption and highlighted the vulnerability of our infrastructure. Witnessing these events, I wanted to explore how deep learning and AI can be used to predict urban flooding**,** enabling early warnings and better preparedness at the local level.

Using historical weather data, I built an **LSTM-based model** to forecast flood risk based on key environmental variables such as rainfall, temperature, humidity, wind, and pressure. This approach not only allows for scenario simulations, such as predicting flood risk under increased rainfall, but also demonstrates how AI can provide actionable insights for city planners and residents.

I believe this framework is scalable to other major cities like Mumbai or New York, where rapid urbanization and changing climate patterns similarly increase flood risks. By leveraging AI, cities can enhance resilience against extreme weather events, improve early warning systems, and better allocate resources to protect communities.

Ultimately, this project reflects my commitment to applying technology for local climate adaptation, turning real-world challenges into solutions that can have meaningful social impact.