**Introduction**

Traffic accident has been a great threat to public health and security. It causes the loss of properties and lives, for both individual and society. Traffic accident severity prediction research recognize the key factors that contribute to a car accident. Successful prediction can improve the public traffic safety and transportation efficiency by multiple measurements, such as reinforce aged infrastructure in critical spots to reduce the accidental risk, redistribute assistance resource for timely rescue in case of emergency, alert divers to pay more attention to accident-prone condition and so on.

This project examines the collisions data of Seattle since 2004 till 2020, compares different classification algorithms to select the best model for accident prediction, and identifies some dangerous situations for drivers by clustering to formulate appropriate prevention strategies and actions.