**Test Duration: 3 hrs**

**Description :**

The data come from the GPS of a car, along with the corresponding accelerometer and Gyroscope sensor observations along three axes.

The file gps\_test.csv has the GPS data with a driver\_id and timestamp in milliseconds, with approximate frequency 1 Hz (1 per second). The relevant columns are raw\_speed (in meters per second), latitude and longitude (the location of the car at that timestamp), horizontal accuracy (in meter, indicating how accurate the GPS measurement is), and some other variables which indicate the bearing, course, etc.

The file motion\_test.csv has the inertia sensor data with the same driver\_id, and timestamp in ms, with approximate frequency 5 Hz (5 per second), in the same approximate time range as the GPS data. The columns are accelerations in the directions x, y, z, gyroscopes in the directions x, y, z, and Euler angles - roll, pitch and yaw.

1. Find out potential segments of the trip where the car had a high acceleration (picked up speed too quickly for safety), and had a very sudden, dangerous brake (dropped speed suddenly, indicating safety hazards).
2. When a driver handles the phone, the Gyroscope of the phone (that measures how the phone changes its orientation) shows aberrant behavior. Build a model that can capture potential candidates for phone use during the trip.

All the geo-related formulae can be obtained from this page :

<http://www.movable-type.co.uk/scripts/latlong.html>