Exercise 1

1. Google Driveless Car

Divide-and-Conquer:

The driveless system is divided into several parts: sensor system, engine system, controlling system and high-level UI.

Encapsulation & Interface:

take sensor system as an example

Each laser sensor could acquire target distance, while the encapsulation of these laser sensors and rotation data could generate a detailed 3D map of the car's environment.

GPS sensor could connect with the satellite and acquire location fix to receive location data. GPS sensor encapsulates those protocols, communications, calculations and so on to provide a clean interface for acquiring Lat & Lng data.

Information-hiding:

take sensor system as an example

GPS sensor hides raw satellite data (including protocols and so on), and provides easy-to-use interfaces to access those data.

2. UML