1. Identify three features relevant to the automatic lane change feature.

    1). the system only allow the car change line at a low speed

    2). the system can measure the speed and position of other vehicles near the car to avoid car accidents

    3). the system can recognize the traffic indication signal (an arrow, solid and dashed lines) on the ground to prevent drivers from violating traffic rules

2. Describe each of the three features as a use case.   See the lecture for details on the syntax of a use case which includes:

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1. Name: change line at low speed

2. Brief description: for security, the system only allow the driver change line at a relatively low speed

3. Actors: User and system

4. Basic flow:

    1. User want to change line and then engages the turn signal

    2. System measures the speed of car

    3. If the car is running at a very high speed, the system will issue a warning to reduce the speed

    4. Changing line when the car is at a safe speed

5. Alternate flows:

    1. The system can change line at a high speed

    2. The car is at a low speed but the system doesn't change line automatically

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1. Name: measure other cars' speed and position

2. Brief description: for security, the system can measure the speed and position of other vehicles those near the car and change line at the right time to avoid car accidents

3. Actors: User and system

4. Basic flow:

    1. User want to change line and then engages the turn signal

    2. System will measure the speed and position of other nearby vehicles

    3. If other vehicles are away from user's car and driving steadily, the system will change line

5. Alternate flows:

    1. The system change line without measuring the speed and positions of other vehicles.

    2. When other vehicles are very close to the car, the system change line.

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1. Name: identify traffic indication signal

2. Brief description: the system can recognize the traffic indication signal on the ground to decide whether change line or not

3. Actors: User and system

4. Basic flow:

    1. User want to change line and then engages the turn signal

    2. System recognize the traffic indication signal on the ground with camera

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> 3. If traffic rules allow to change line, the system will change line
>
> 5. Alternate flows:
>
> 1. The system change line at a place where is prohibited by traffic rules

3. Describe each of the same features as user stories.   See the lecture for details, but recall that a user story includes:

Title: change line at low speed		
Acceptance Test: change line at high speed	Priority: 1	Story Points:4
As a user I want to change line at a low speed So that I can change line much more safely		

<div align="center">1 = high priority, 4 story points = 4 days</div>

Title: get other cars' information		
Acceptance Test: measure other cars' speed and position	Priority: 2	Story Points:5
As a user I want to know other cars' speed and position when changing lines So that I can avoid traffic accidents.		

<div align="center">2 = Medium priority, 5 story points = 5 days</div>

Title: identify traffic indication signal		
Acceptance Test: identify traffic indication signal on the ground	Priority: 3	Story Points:5
As a user I want the system identify traffic indication signal on the ground So that I can legally change line		

<div align="center">3 = low priority, 5 story points = 5 days</div>

4. Describe the advantages and disadvantages of use cases and user stories for this task?
Use cases:
　Adv.:
　　1). Use case is more rigorous and it can reduce the risk of the project

2). Use case can specify most of the possible scenarios

3). Use case can provide more details on how to accomplish those scenarios

Dis-adv.:
    1). Lack of communication with customers
    2). It is a bit complicated when compared to the user story
    3). Some use cases are not testable

User stories:
  Adv.:
    1). Promote communication between users and developers and developers can help users to elaborate user stories
    2). Each story is valuable for users.
    3). Users can decide the priority of the story
    4). User can know the estimated time of the story
    5). The story is always small and brief.
    6). All the stories are testable
    7). User stories are more flexible easier for small project
  Dis-adv.:
    1). Developers need to plan far enough ahead so that customers can give the answers at time
    2). More dependent on customers will increase the uncertainty
    3). Only fit for small group with small project
    4). As the project evolves, there may be a lack of completeness