INSTRUCTIONS:
Fill out the hazard analysis and risk assessment below.
HA-001 should be for the lane departure warning function as discussed
HA-002 should be for the lane keeping assistance function as discussed
Then come up with your own situations and hazards for the lane assista
When finished, export your spreadsheet as a pdf file so that a reviewer

Hazard ID			
	Operational Mode	**Operational Scenario**	**Environmental Details**
HA-001	OM03 - Normal Driving	OS04 - Highway	EN06 - Rain (slippery road)
HA-002	OM03 - Normal Driving	OS03 - Country Road	EN01 - Normal conditions
HA-003	OM03 - Normal Driving	OS04 - Highway	EN01 - Normal conditions
HA-004	OM03 - Normal Driving	OS03 - Country Road	EN01 - Normal conditions

in the lecture.
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ance system. Fill in the HA-003 and HA-004 rows.
· can easily see your work.

Situational Analysis

Situation Details	Other Details (optional)	Item Usage (function)
SD02 - High speed		IU01 - Correctly used
SD02 - High speed		IU01 - Incorrectly used
SD02 - High speed		IU01 - Correctly used
SD02 - High speed		IU01 - Correctly used

Situation Description	Function	Deviation
Normal driving on a highway during rain (slippery road) with high speed and correctly used system.	Lane Departure Warning (LDW) function shall apply an oscillating steering torque to provide the driver with haptic feedback	DV04 - Actor effect is too much
Normal Driving on Country Road during Normal conditions with High speed and incorrectly used system	Lane Keeping Assistance (LKA) function shall apply the steering torque when active in order to stay in ego lane	DV03 - Function always activated
Normal driving on highway in normal condition with high speed and correctly used system	Lane Keeping Assistance (LKA) function shall apply the steering oscillating torque to give the driver a haptic feedback	DV02 - Function unexpectedly activated
Normal driving on country road in normal condition with high speed and correctly used system	Lane Keeping Assistance (LKA) function shall apply the steering torque when active in order to stay in ego lane	DV02 - Function unexpectedly activated

Hazard Identification		
Deviation Details	**Hazardous Event (resulting effect)**	**Event Details**
The Lane Departure Warning function applies an oscillating torgue with very high torque (above limit.)	EV00 - Collision with other vehicle.	High haptic feedback can affect driver's ability to steer as intended. The driver could lose control of the vehicle and collide with another vehicle or with road infrastructure.
Lane keep assistance is always activated	EV00 - Collision with other vehicle.	Driver misuses the system and consider it as an autonomous system
Camera sensor fails to get the correct location though the LDW function is active	EV00 - Collision with other vehicle.	The LDW remains active and produces random torque which may lead the driver to loose control and may lead to collison with other vehicle
Camera sensor fails to get the correct location though the LDW function is active	EV00 - Collision with other vehicle.	The LDW remains active and produces random torque which may lead the driver to loose control and may lead to collison with other vehicle

Hazardous Event Description	Exposure (of situation)	Rationale (for exposure)
The Lane Departure Warning function applies an oscillating torgue with very high torque (above limit.)	E3 - Medium probability	Driving on a highway with rain could happen between 1% and 10% of the time operating the vehicle.
driver misuses the function	E2 - Low probability	Driving on the country road and missusing the system
When the camera is not working the LKA start working randomly	E3 - Medium probability	Driving on a highway with rain could happen between 1% and 10% of the time operating the vehicle.
When the camera is not working the LKA start working randomly	E3 - Medium probability	Driving on a highway with rain could happen between 1% and 10% of the time operating the vehicle.

Hazardous Event Classification		
Severity (of potential harm)	**Rationale (for severity)**	**Controllability (of hazardous event)**
S3 - Life-threatening or fatal injuries	Collitions at high speed could cause fatal injuries.	C3 - Difficult to control or uncontrollable
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	Determina
Rationale (for controllability)	**ASIL Determination**
It is difficult to stay calm and react properly when the steering well is moving too much.	C
When the driver looses control from driving it becomes difficult for him to get back the control immediately to avoid collision	B
The raction time for the driver is too less to get back the control once he looses it	C
The raction time for the driver is too less to get back the control once he looses it	C

ation of ASIL and Safety Goals

Safety Goal
The oscillating steering torque from the Lane Departure Warning function shall be limited.
The LKA assistance should be time limited and torque applied on steering wheel should be for a specific duration so that the driver cannot missuse the system
LKA should be deactivated and warning light should be displayed if camera is not working
LKA should be deactivated and warning light should be displayed if camera is not working