INSTRUCTIONS:
Fill out the hazard analysis and risk assessment below.
HA-001 should be for the lane departure warning function as discussed in the lecture.
HA-002 should be for the lane keeping assistance function as discussed in the lecture.
Then come up with your own situations and hazards for the lane assistance system. Fill in the HA-003 and HA-004 rows.
When finished, export your spreadsheet as a pdf file so that a reviewer can easily see your work.

Hazard ID	Situational Analysis							Hazard Identification						Hazardous Event Classification						Determination of ASIL and Safety Goals	
	Operational Mode	Operational Scenario	Environmental Details	Situation Details	Other Details (optional)	Item Usage (function)	Situation Description	Function	Deviation	Deviation Details	Hazardous Event (resulting effect)	Event Details	Hazardous Event Description	Exposure (of situation)	Rationale (for exposure)	Severity (of potential harm)	Rationale (for severity)	Controllability (of hazardous event)	Rationale (for controllability)	ASIL Determination	Safety Goal
HA-001	OM03 - Normal Driving	OS04-Highway	EN06-Rain	SD02-High Speed		IU01-Correctly Used	Normal driving on the highway during rain 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	The LDW function applies on oscillating touque with too high torque	EV00-Collision with other vehicle	Haptic feedback may affect driver's ability to control the steel as intended. Car may loose control as a result.	The LKA system applies too much torque on the steering wheel.	E3-Medium Probability	Occurs once a month or more often for an average driver	S3-Life threatening or fatal injuries	Fatal crashes may happen	C3-Difficult to control or uncontrollable	Given the test, most of the drivers can not react in time to the fault caused by too high torque on wheel steering.	C	The steering torque related to lane departure warning shall be limited
HA-002	OM03 - Normal Driving	OS03-Country Road	EN01-Normal Conditions	SD02-High Speed		IU01-Incorrectly Used	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	The Lane keeping assistance function continues to operate while the driver isn't involved in control	EV00-Collision with other vehicle	The LKA is not designed for autonomous driving. The collision with other cars may happen.	The LKA continues to operate without involving the driver. Situations may beyond the understanding ability of the system and accidence may happen as a result.	E2-Low Probability	Occurs a few times a year for the great majority of drivers. Contry roads is not very preferable on testing high-tech	S3-Life threatening or fatal injuries	Fatal crashes may happen	C3-Difficult to control or uncontrollable	The accident can not be controlled in time without using the wheel	B	LKA function shall only work for a certain amount of time.
HA-003	OM03 - Normal Driving	OS01-Any Road	EN07-Snow	SD02-High Speed		IU01-Correctly Used	Normal driving on any road during snow 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	DV13-Sensor sensitivity is too low	The camera of LKA system can not recognize lane lines in snowing weather.	EV07-None	The LKA doesn't provide steering assistance without notice	The LKA can not measure the lane line in snowing weather. The system shut down.	E3-Medium Probability	Occurs once a month or more often for an average driver. It considers a few other weather like rain, fog which makes the lane line difficult to sense.	S0-No Injuries	The driver controls the vehicle manually	C0-Controllable in general	The driver can control the vehicle without LKA	QM	LKA shall disactive and inform the driver when the lane detection is failed.
HA-004	OM03 - Normal Driving	OS10-Road with construction site	EN01-Normal Conditions	SD02-High Speed		IU01-Correctly Used	Normal driving on roads with construction site at high speed with correctly used system.	Lane Keeping Assistance (LKA) function shall apply the steering torque when active in order to stay in ego lane	DV19-Sensor Detection is wrong	The LKA system unable to detect the lane line correctly and steers the vehicle into the other lane.	EV00-Collision with other vehicle	The LKA makes mistake on lane line measurement and applies steering torque inappropriately	The LKA measures the lane line incorrectly and reacts with wrong steering torque.	E3-Medium Probability	Occurs once a month or more often for an average driver	S3-Life threatening or fatal injuries	Fatal crashes may happen	C2-Normally controllable	Given the test, most of drivers can control the vehicle over the fault of the LKA system.	B	LKA shall provide certainty score of its measurement, and build mechanism to deal with low score situations.