



	routeRequestHandler		MapLoader	laneletMap		routePlanner	pathGenerator	
	getUserInput()	validateInput()	loadMap()	getNearestLanelet()	getConnectivityGraph()	computeRoute()	generatePath()	exportPath()
1			Yes					
2			Yes					
3	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4				Yes		Yes	Yes	Yes
5				Yes	Yes			
6	Yes	Yes						

# Senior Design Single Responsibility and Open/Closed Principle

## RouteRequestHandler class

Its single responsibility is to handle user input for route requests. To extend this class, we can change the input method so that it comes from another class. Which could have GPS coordinates for predefined drop off and pick up location.

## MapLoader class

Its single responsibility is to load and parse map data from an OSM file. To extend this class, we can add a subclass that loads maps from other formats like PCD (point cloud data from lidar).

## LaneletMap class

Its single responsibility is to handle lanelet data like getting each lanelet and finding the nearest lanelet for pathfinding in another class. To extend this class, we can add new functions that add new query features and analyze the data without editing core structures.

## RoutePlanner class

Its single responsibility is to handle computing routes between two lanelets based on predefined traffic rules. To extend this class, we can add new routing algorithms or traffic rules.

## PathFinder class

Its single responsibility is to extract the coordinates from a computed route. It doesn't plan or validate it just converts route into usable path points. To extend this class, we can add a new method to export the path or processing options for path.