Sequence Diagrams

Iteration 1

version 1.0

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Introduction

This document contains all the sequence diagrams from iteration 1.
These sequence diagrams are based on the use cases we included in the "User Requirements Specifications" document.
Each one of the diagrams has a title and a short description.

Diagrams:

- ● **Pause Simulation:** This diagram displays the interaction between classes that occurs every time the user pauses an already simulation.

Pause Simulation Sequence Diagram
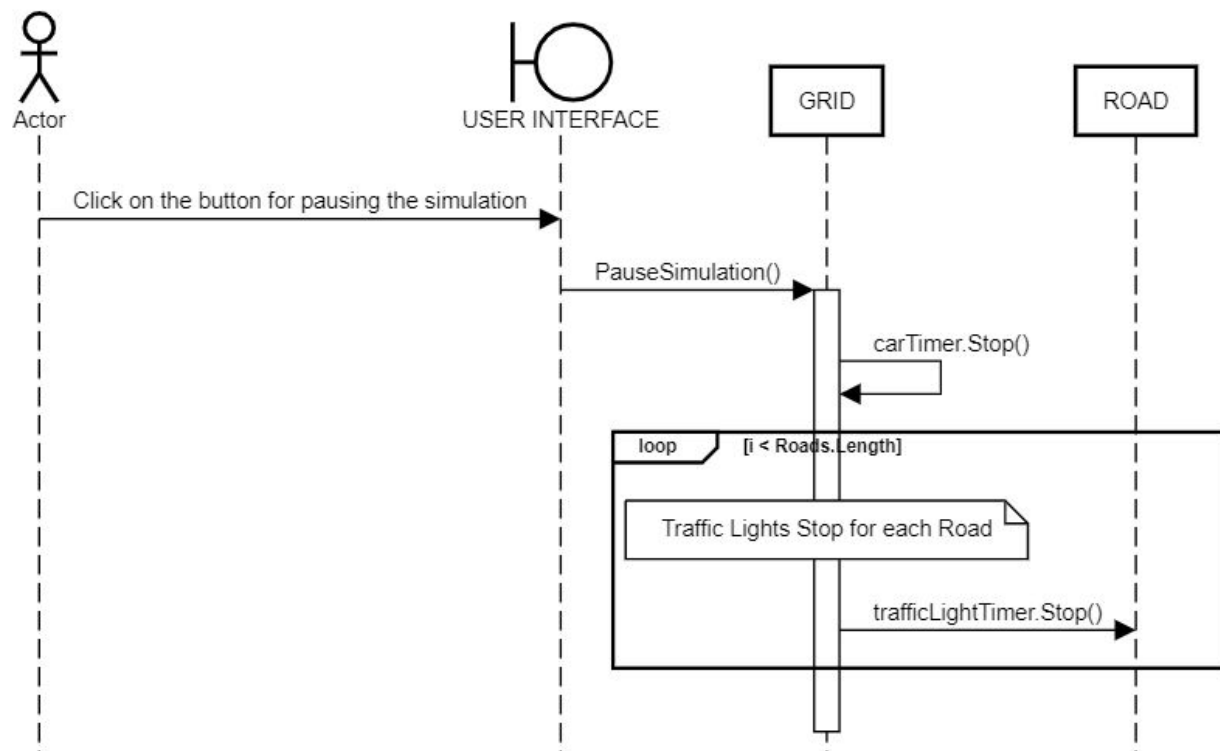
- **Stop Simulation:** This diagram displays the interaction between classes that occurs every time the user saves a finished simulation:
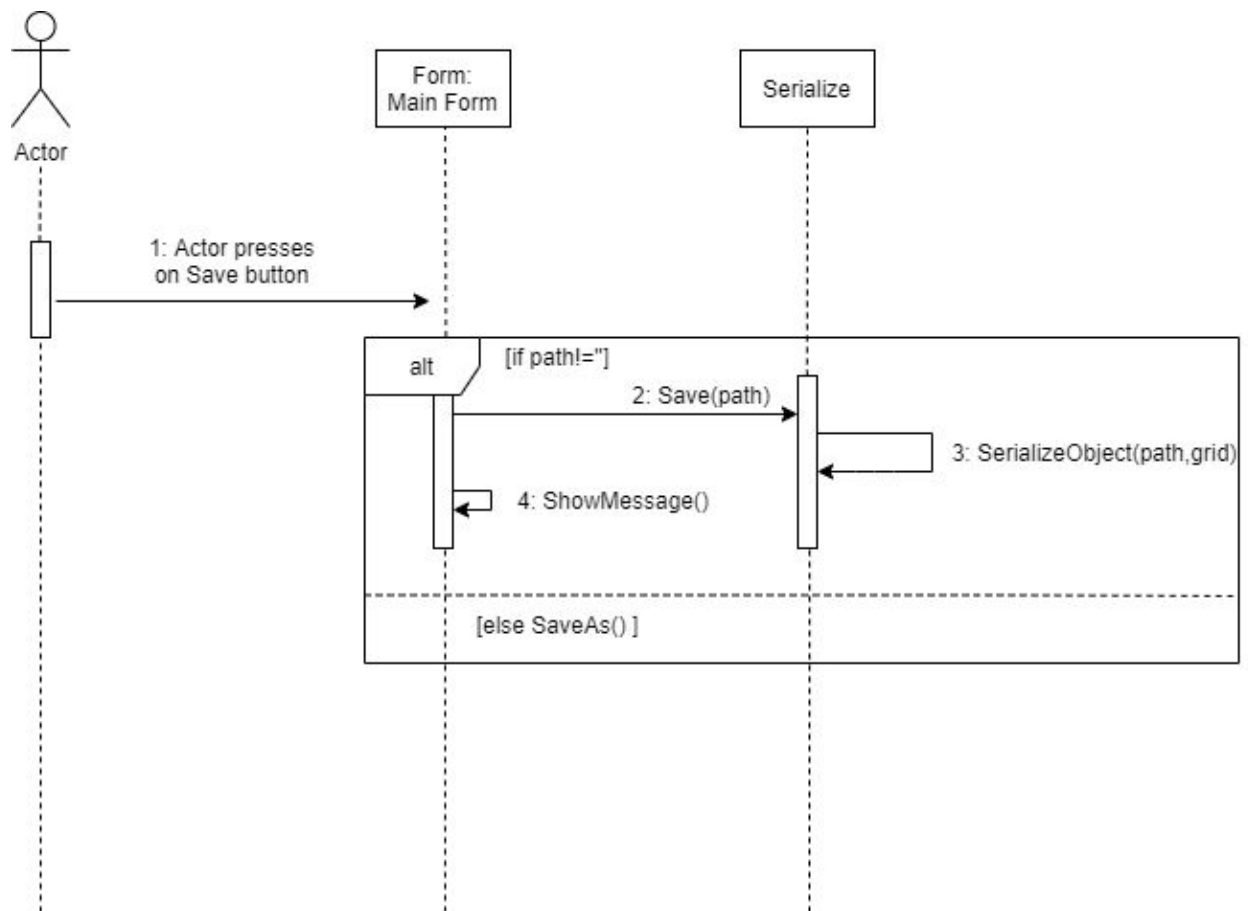
● **Add an intersection (With Zebra crossings):** the following diagrams displays interactions necessary in order to place an intersection with a zebra crossing on the canvas:

Add Crossing With ZebraCross
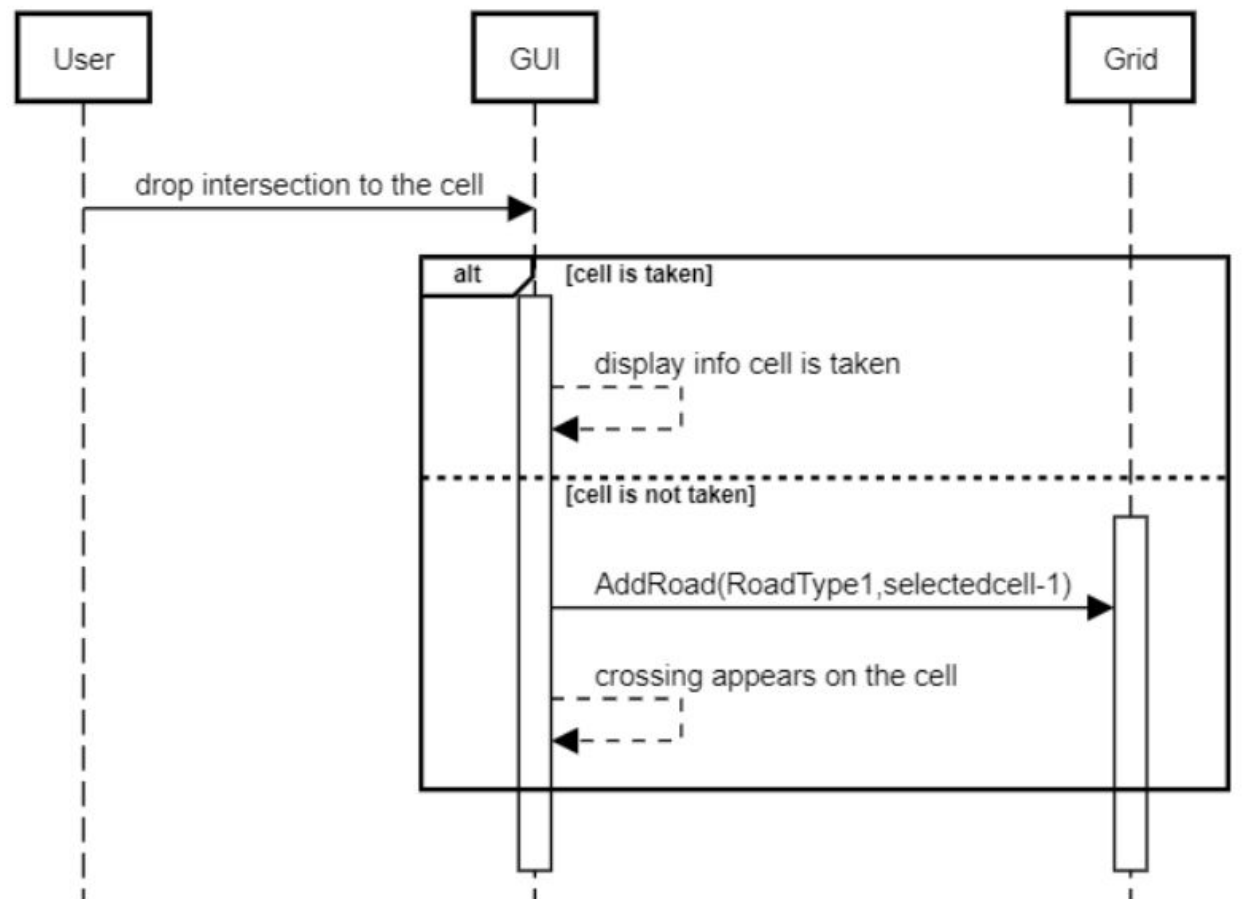
● **Add an intersection (Without a zebra crossing):** this diagram's purpose is similar to the last one, except it's for a different type of road:

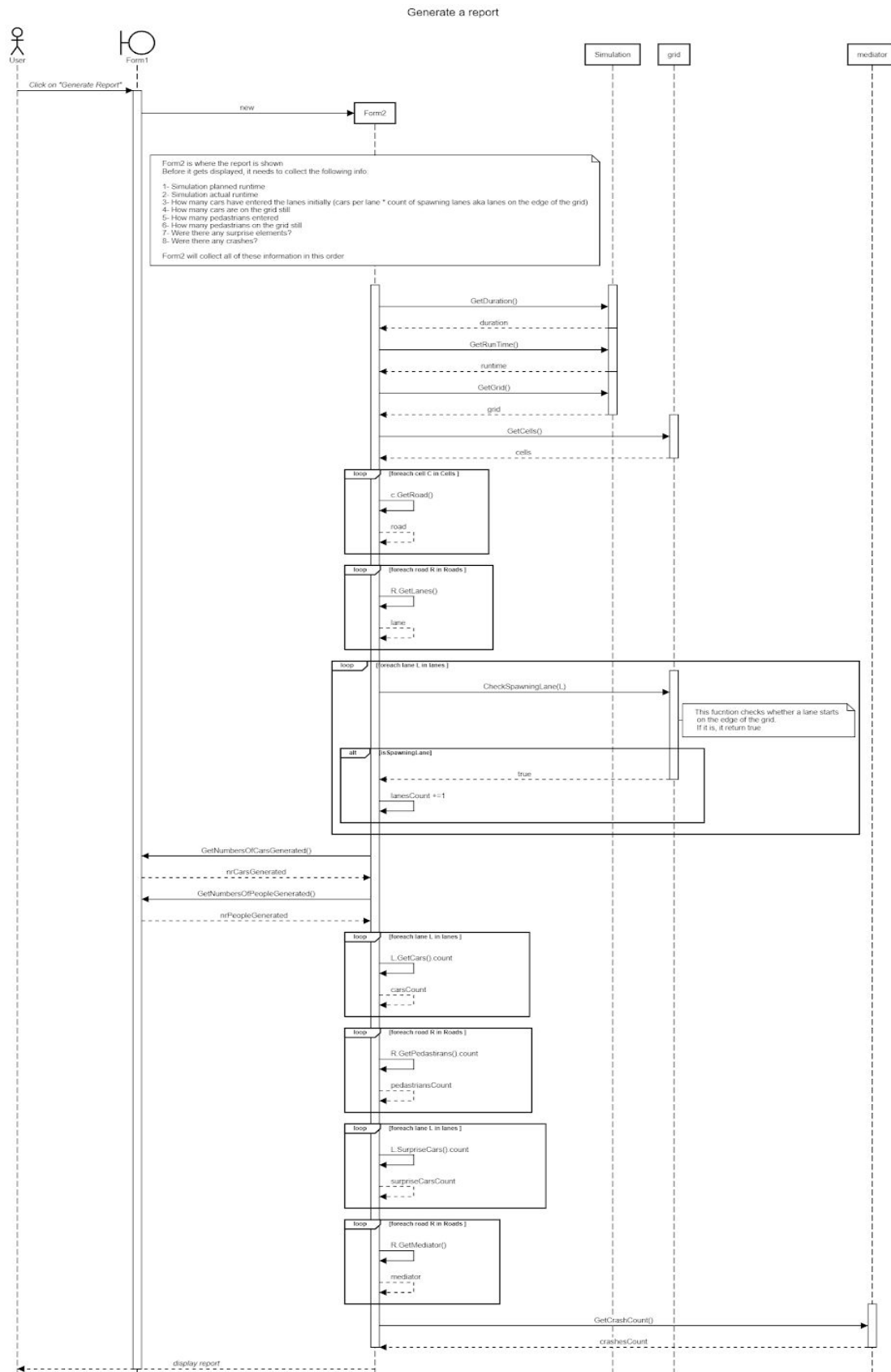## Add Crossing Without ZebraCross
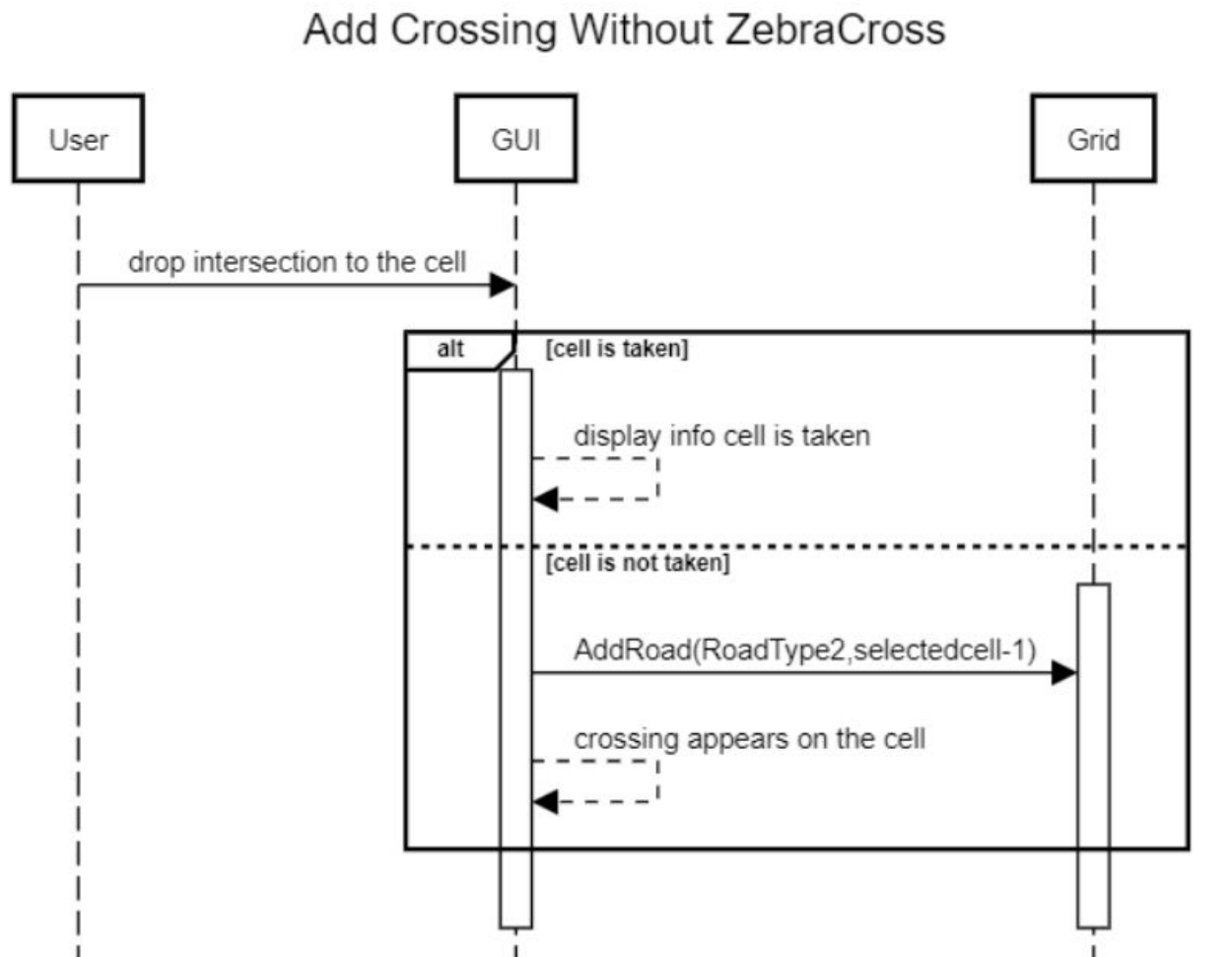
- **Remove intersections:** This diagrams describes the interactions between classes necessary to remove an already placed intersection from canvas:

Remove Intersections
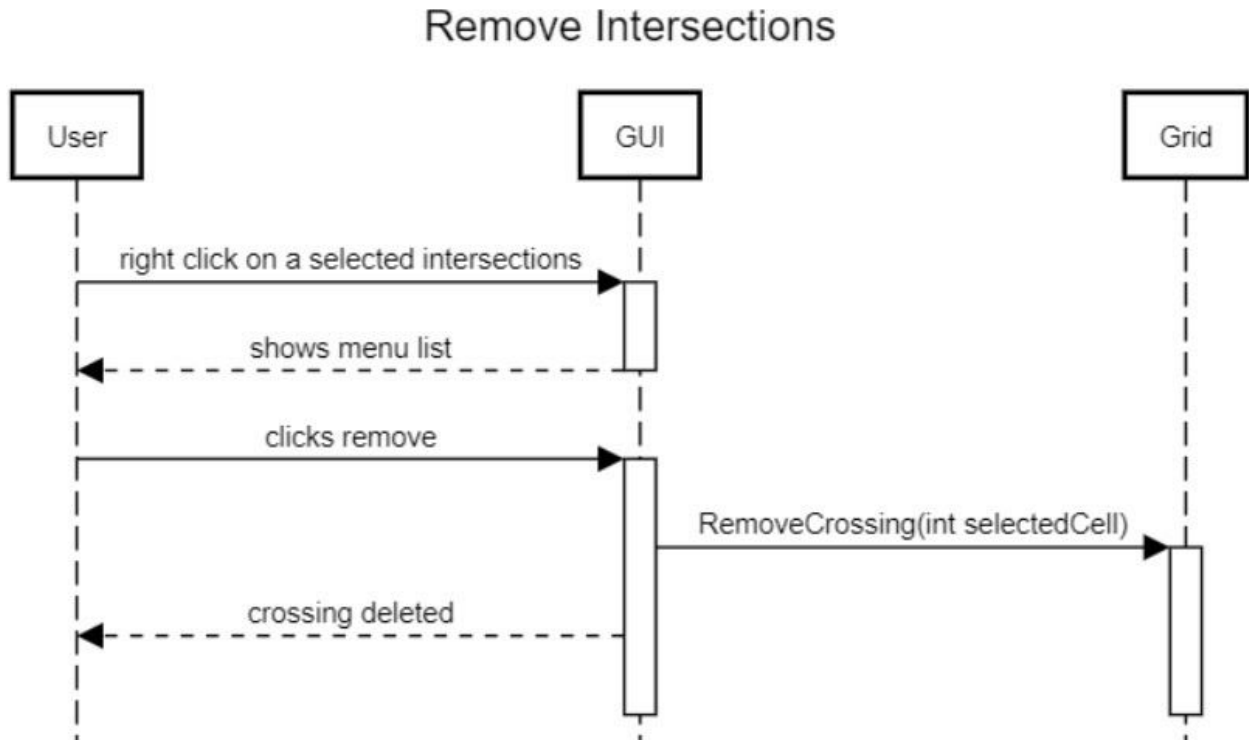
- **Reset map layout:** this diagram describes class interaction that happens every time the user clicks "Reset layout".

Reset Map Layout Sequence Diagram
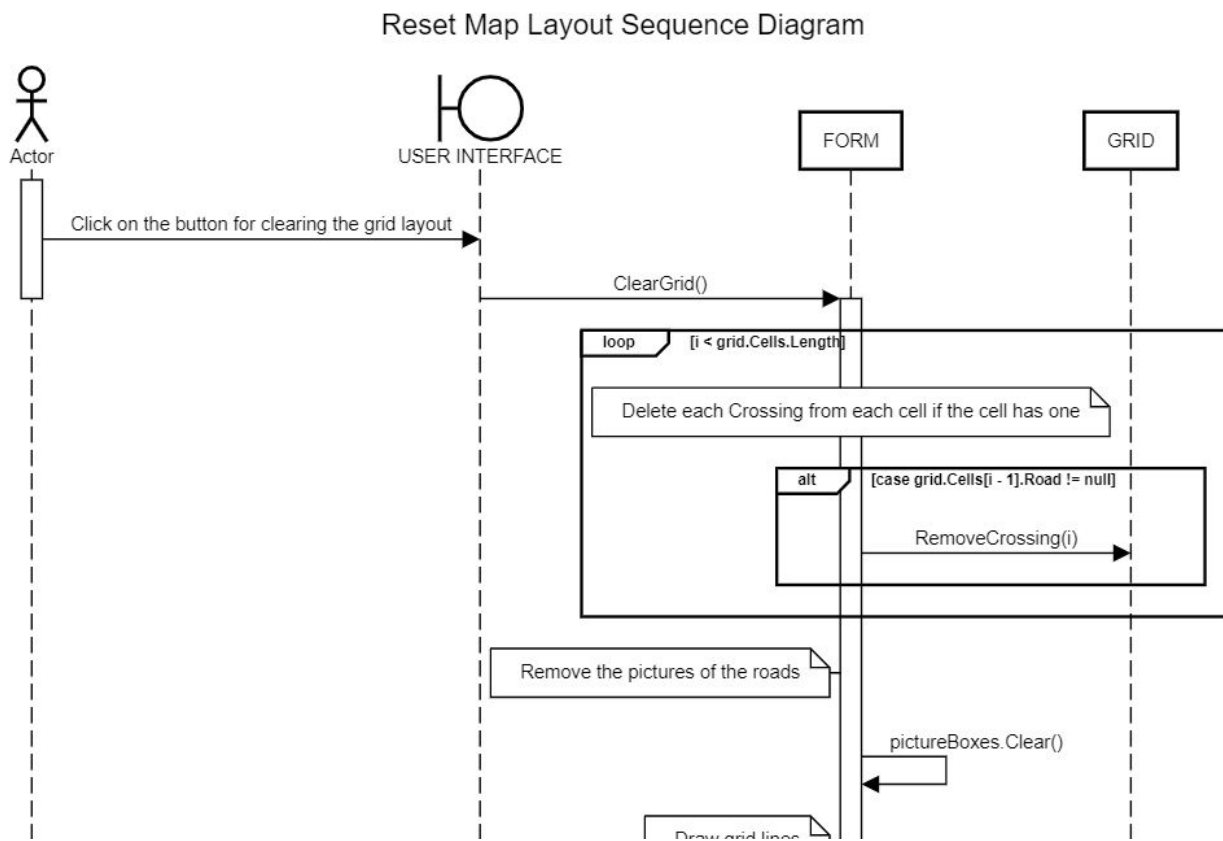
● **Generate a report:** The following diagram describes the class interactions needed to generate a report after a simulation is over (whether completed or stopped):

Generate a report

Form2 is where the report is shown
Before it gets displayed, it needs to collect the following info:

1- Simulation planned runtime
2- Simulation actual runtime
3- How many cars have entered the lanes initially (cars per lane * count of spawning lanes aka lanes on the edge of the grid)
4- How many cars are on the grid still
5- How many pedastrians entered
6- How many pedastrians on the grid still
7- Were there any surprise elements?
8- Were there any crashes?

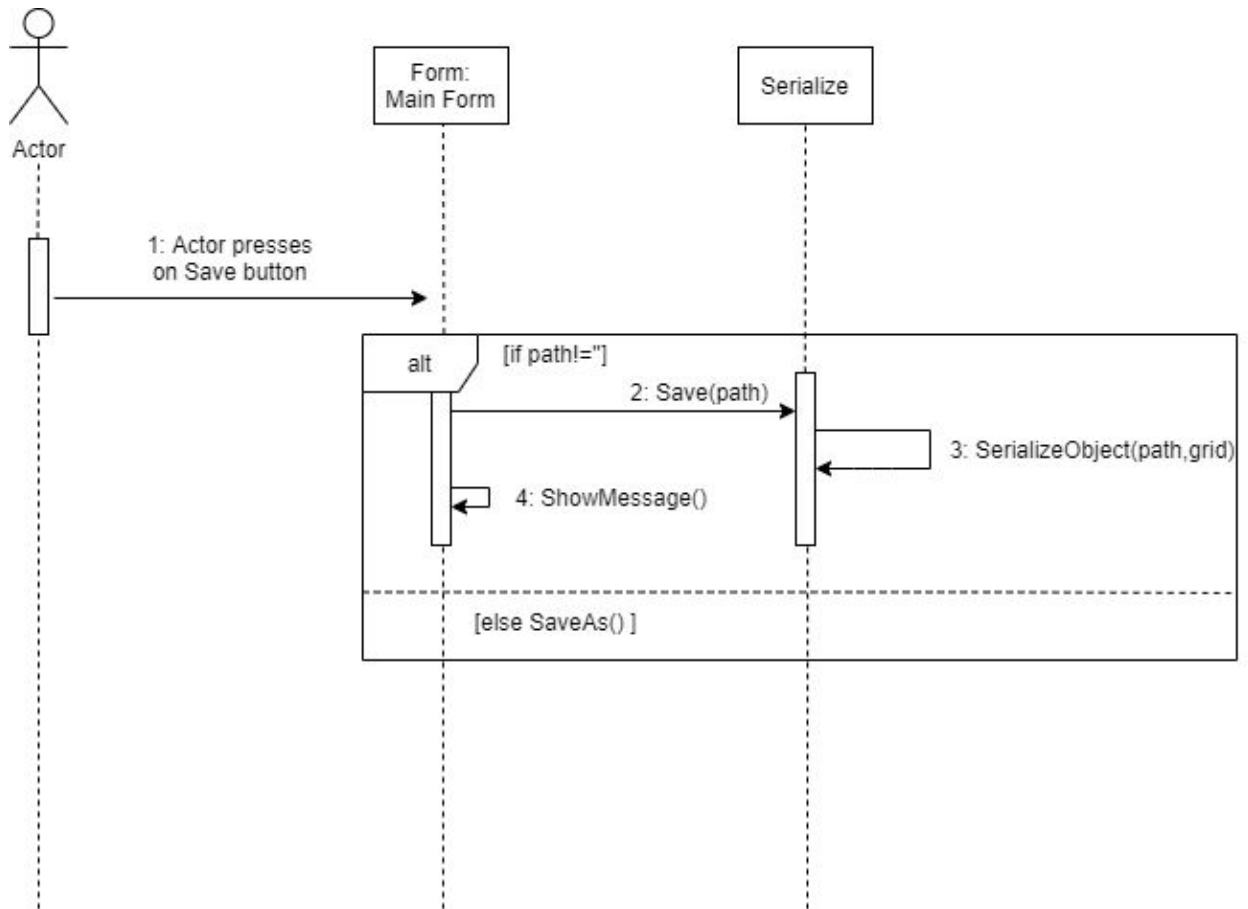Form2 will collect all of these information in this order

- **Save as:** The following diagram displays class interaction whenever a user clicks on "Save as" while the simulation is not running:
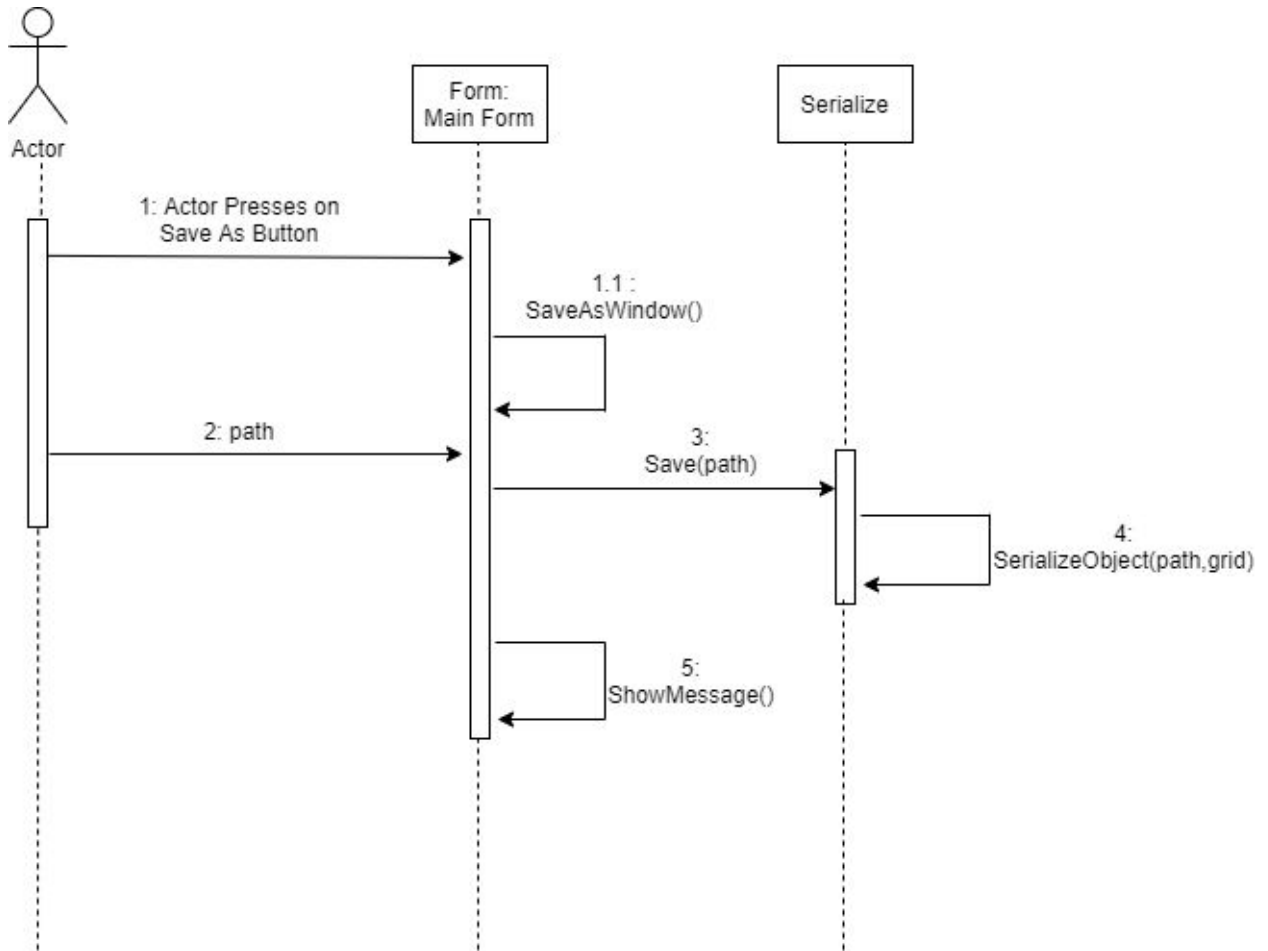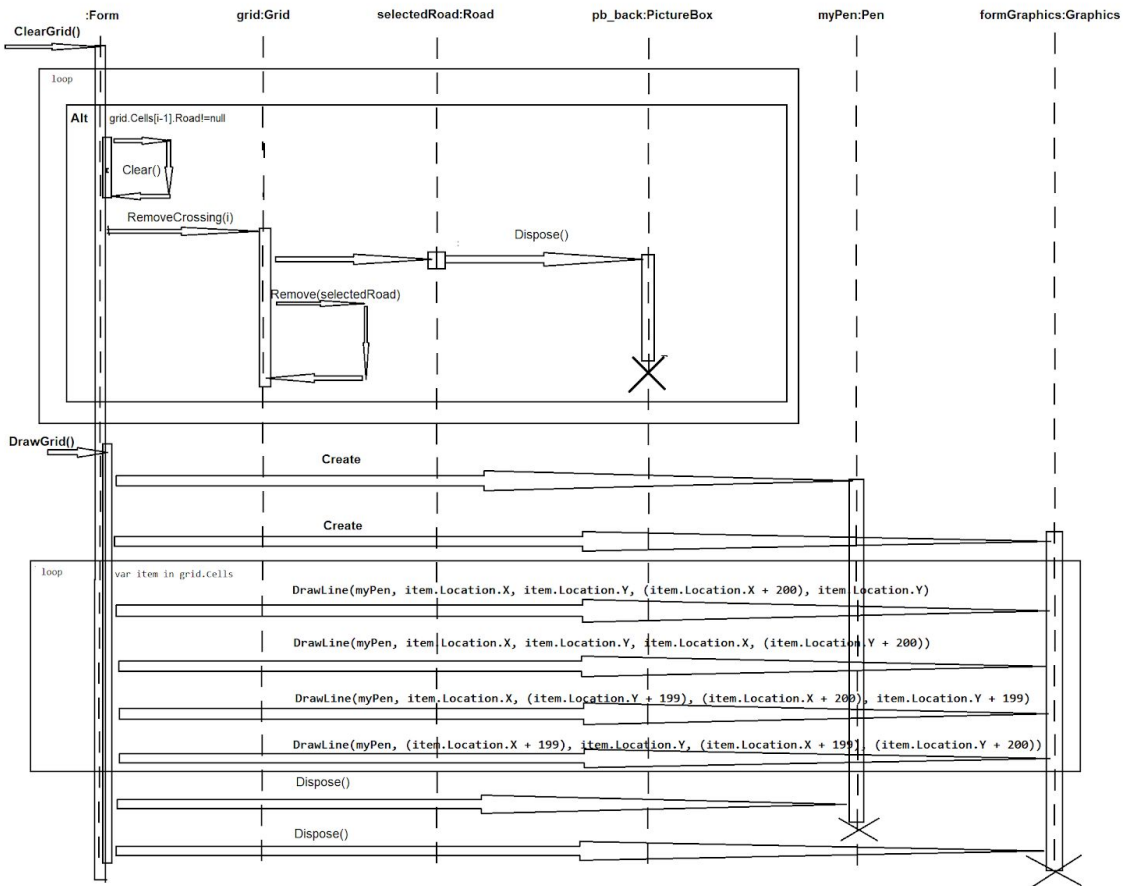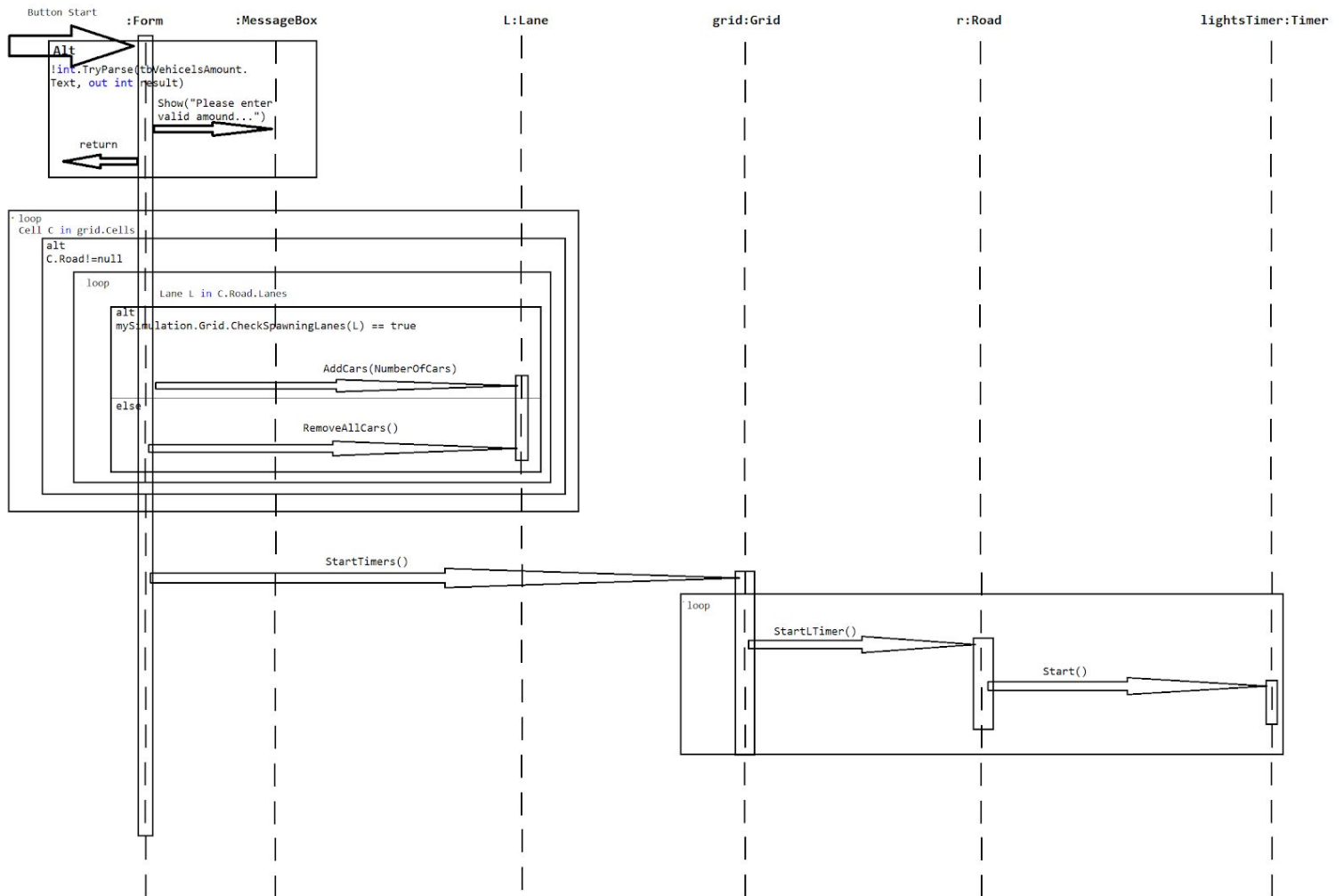
● **Save Simulation:** This diagram displays the class interaction whenever a user hit the "Save" button while the simulation is paused/stopped/completed:

- **Stop Simulation:** The following diagram displays the class interaction needed to stop a running simulation:

- **Start Simulation:** The next diagram is what occurs when the user clicks on the "Start simulation" button while the simulation is not running:

Button Start   :Form   :MessageBox   L:Lane   grid:Grid   r:Road   lightsTimer:Timer

Alt

!int.TryParse(toVehicelsAmount.
Text, out int result)

Show("Please enter
valid amound...")

return

loop
Cell C in grid.Cells

alt
C.Road!=null

loop
Lane L in C.Road.Lanes

alt
mySimulation.Grid.CheckSpawningLanes(L) == true

AddCars(NumberOfCars)

else

RemoveAllCars()

StartTimers()

loop

StartLTimer()

Start()

● **Specify numbers of cars generated:** Finally, this diagram displays the class interaction when a user changes the amount of cars generated before the simulation starts:

Specify Number Of Cars Generated