

# Advanced Software Engineering

CSE870, Spring 2025

## Homework 4

Due: February 17, 2025

### **The Problem (repeated from previous HW for convenience):**

Pedestrian deaths caused by "collisions" or "Back-overs" often occur while drivers are backing up their vehicles. Most often these accidents occur when passenger cars and trucks are backing out of residential driveways. Many of the pedestrian victims are between 1 and 3 years old (there is another rise as pedestrian ages approach senior level). The distribution of events show that the pedestrians may be motionless or moving, and in various starting locations as the vehicle is backing up. In all cases, the driver is unaware or is unable to react in time once they become aware of the pedestrian obstacle. The injuries are primarily caused by running over the body with the tire(s) or the body of the vehicle (not the impact).

### **Desire:**

Primary requirement: Prevent injuries

Secondary requirement: Do not irritate the driver with false alarms

Based on information from David Agnew, Continental Automotive

### **Assignment:**

1. Work with a partner to create a single list of cohesive and consistent requirements of the system based on the list of requirements from each team member. Also, indicate if new requirements were introduced during the course of the integration process.
2. Use an existing UML modeling tool VisualParadigm to create a use case diagram for the above requirements. Look on the class website for a link to VisualParadigm.
3. Start by specifying the system boundary. Then proceed to add use cases, external actors, links between actors and use cases, and relationships between use cases.
4. Document each use case by instantiating the use case template (below).

5. Be sure that all the enumerated requirements have been cross-referenced in at least one use case. Include the newly developed enumerated requirements as part of the current assignment.
6. Include the individual requirements lists, explicitly indicating which requirements from each list were included in the final requirements list.
7. Include an explanation for the process that was used to determine which requirements from the lists were included or omitted for the final list of requirements.

**Use Case Template:**

<b>Use Case:</b>	<b><i>Name</i></b>
<b>Actors:</b>	<b><i>Name of actors interacting with current use case</i></b>
<b>Description:</b>	<b><i>Description of the goals, objective, services provided by use case</i></b>
<b>Type:</b>	<b><i>Primary (essential) or secondary</i></b>
<b>Includes:</b>	<b><i>Name of use cases that the current use case includes (common goal shared by 2 or more use cases)</i></b>
<b>Extends:</b>	<b><i>Name of use cases that the current use case extends (the name of the normal scenario use case that the current use case extends)</i></b>
<b>Cross-refs:</b>	<b><i>Number of requirement that the current use case addresses</i></b>
<b>Use cases:</b>	<b><i>Enumerate use cases that are dependent upon the current one.</i></b>