Week 6 Class Diagrams

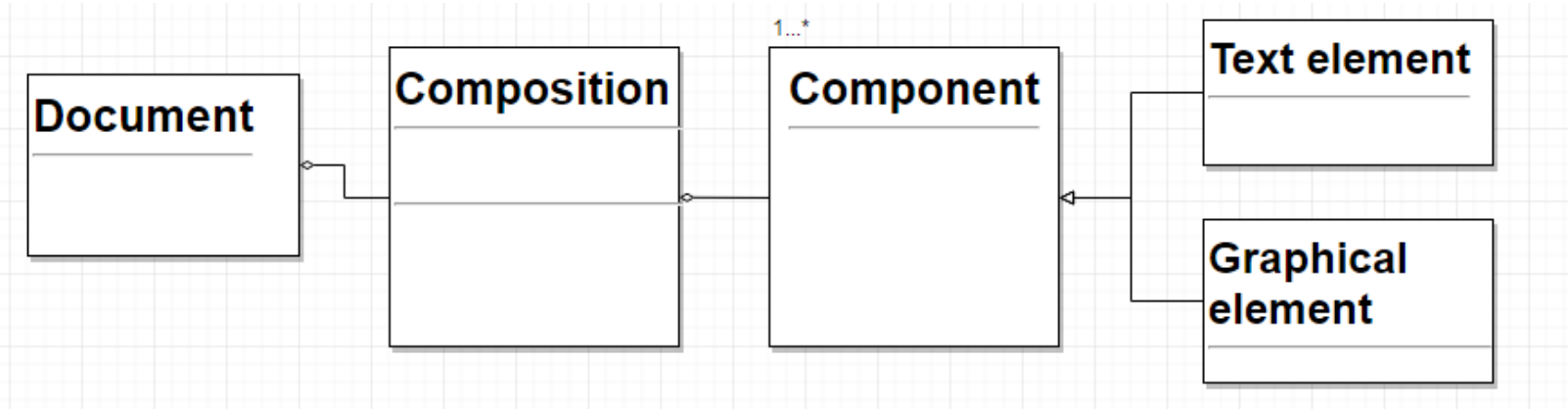
Group 5

Composition Statements

* The Composition class maintains a collection of Component instances, which represent text and graphical elements in a document.
* A composition arranges component objects into lines using a line-breaking strategy.
* Each component has an associated natural size, stretchability, and shrinkability.
* The stretchability defines how much the component can grow beyond its natural size; shrinkability is how much it can shrink.
* When a new layout is required, the composition calls its compose method to determine where to place line-breaks.
* There are 3 different algorithms for breaking lines:
  * Simple Composition: A simple strategy that determines line breaks one at a time.
  * Tex Composition: This strategy tries to optimize line breaks globally, that is, one paragraph at a time.
  * Array Composition: A strategy that selects breaks so that each row has a fixed number of items. It's useful for breaking a collection of icons into rows, for example.

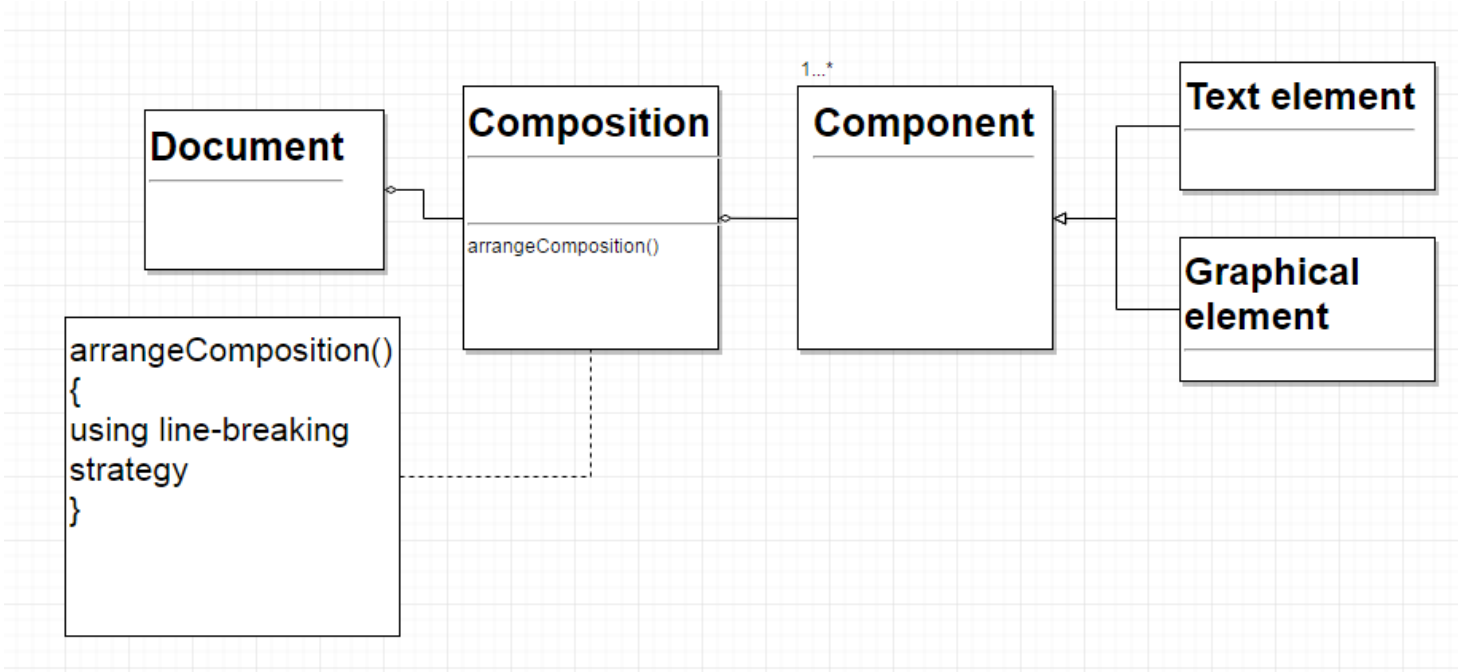
Composition$_1$

The Composition class maintains a collection of Component instances, which represent text and graphical elements in a document.



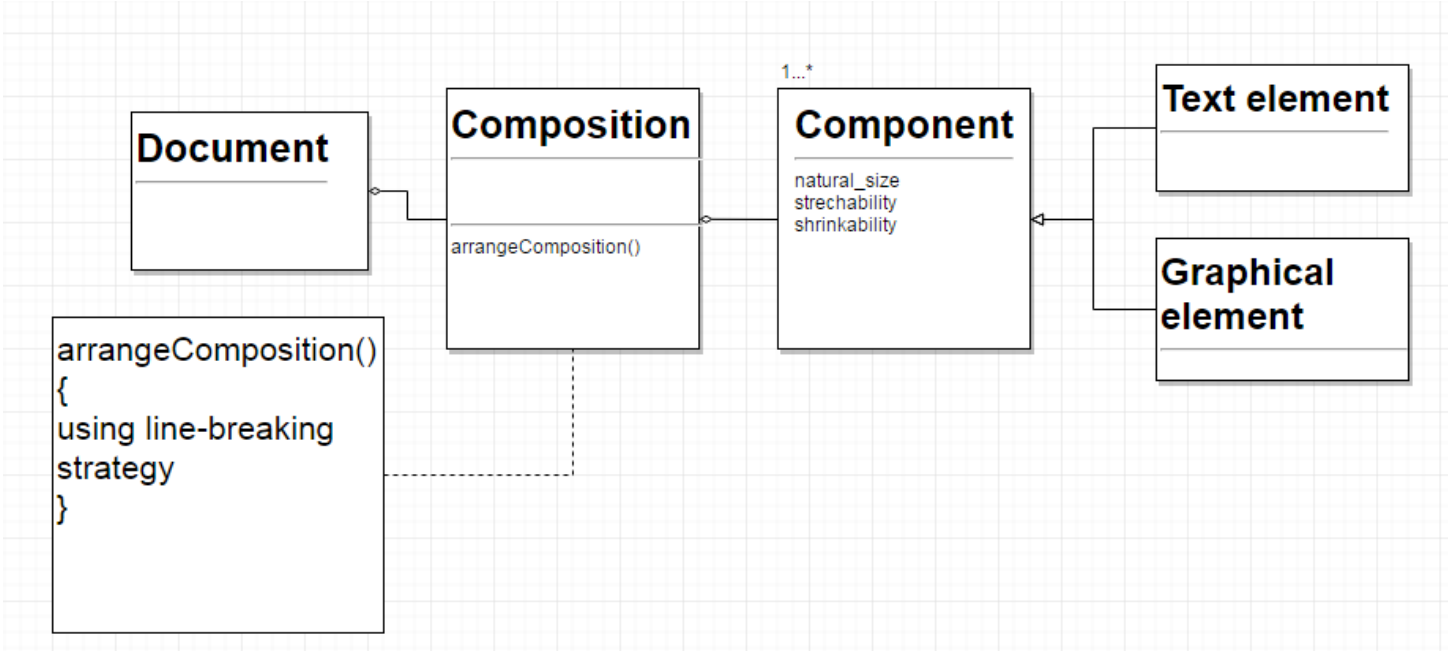
Composition$_2$

A composition arranges component objects into lines using a line-breaking strategy.



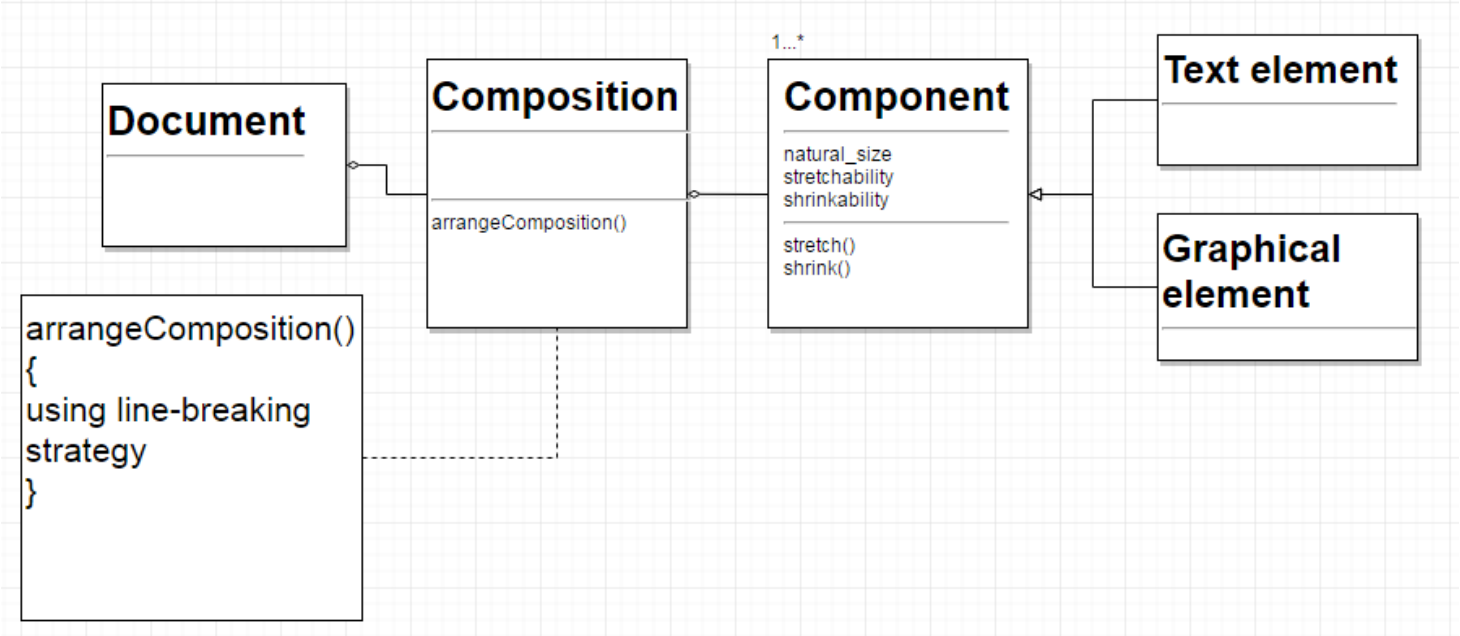
Composition$_3$

Each component has an associated natural size, stretchability, and shrinkability.



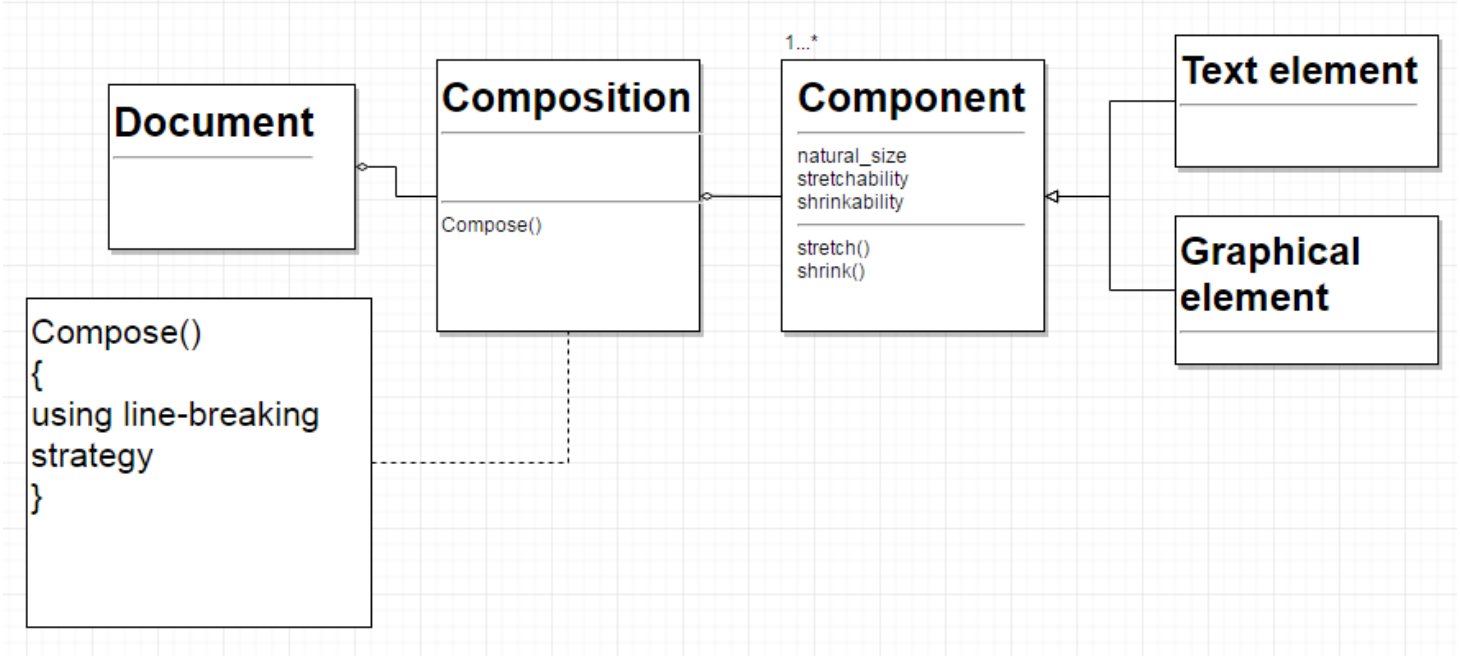
Composition$_4$

The stretchability defines how much the component can grow beyond its natural size; shrinkability is how much it can shrink.



Composition$_5$

When a new layout is required, the composition calls its compose method to determine where to place line-breaks.

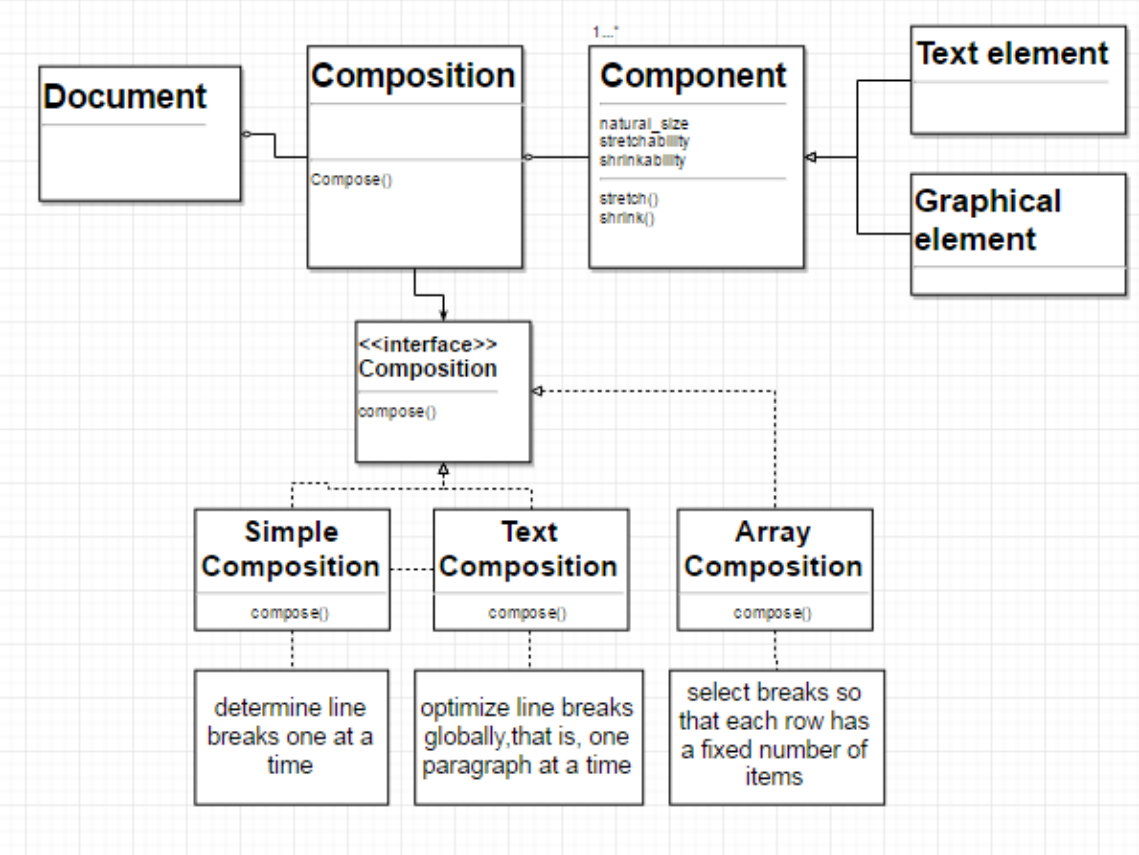


Composition$_6$

There are 3 different algorithms for breaking lines:

* Simple Composition: A simple strategy that determines line breaks one at a time.
* Tex Composition: This strategy tries to optimize line breaks globally, that is, one paragraph at a time.
* Array Composition: A strategy that selects breaks so that each row has a fixed number of items. It's useful for breaking a collection of icons into rows, for example.

Composition Final Diagram



Composition Issue

1. Whether ‘Document’ class aggregates ‘Composition’ class or text and graphical elements have direct association with document class

Holiday Travel Vehicles Statements$_1$

In the new system for Holiday Travel Vehicles, the system users follow a two-stage process to record complete information on all of the vehicles sold.

When an RV or a trailer first arrives at the company from the manufacturer, a clerk from the inventory department creates a new vehicle record for it in the computer system.

The data entered at this time include basic descriptive information on the vehicle such as manufacturer, name, model, year, base cost, and freight charges.

When the vehicle is sold, the new vehicle record is updated to reflect the final terms of the sale and the dealer-installed options added to the vehicle. This information is entered into the system at the time of sale when the salesperson completes the sales invoice.

Holiday Travel Vehicles Statements$_2$

When it is time for the clerk to finalize the new vehicle record, the clerk will select a menu option from the system, which is called Finalize New Vehicle Record.

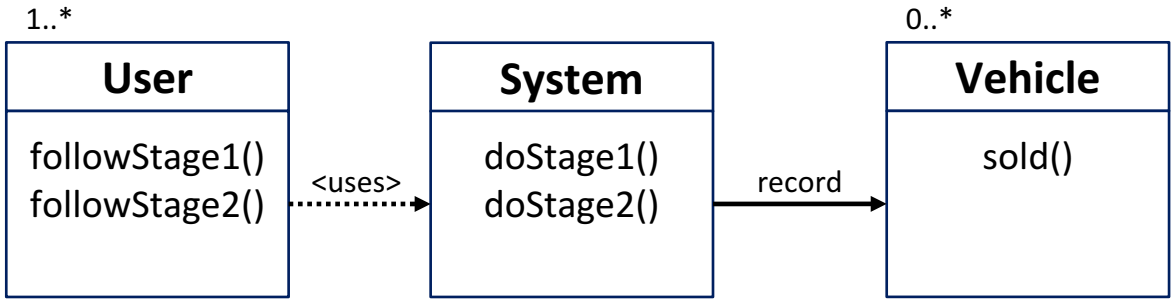
The tasks involved in this process are described next. When the user selects the Finalize New Vehicle Record from the system menu, the user is immediately prompted for the serial number of the new vehicle. This serial number is used to retrieve the new vehicle record for the vehicle from system storage.

If a record cannot be found, the serial number is probably invalid. The vehicle serial number is then used to retrieve the option records that describe the dealer-installed options that were added to the vehicle at the customer's request. There may be zero or more options.

The cost of the option specified on the option record(s) is totaled. Then, the dealer cost is calculated, using the vehicle's base cost, freight charge, and total option cost. The completed new vehicle record is passed back to the calling module.

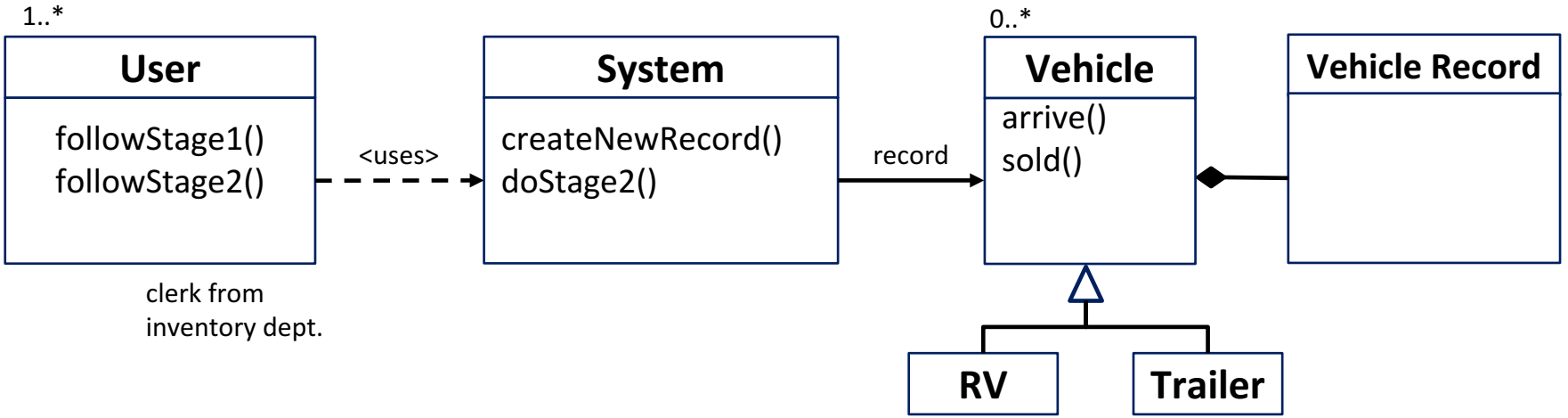
Holiday Travel Vehicles$_1$

In the new system for Holiday Travel Vehicles, the system users follow a two-stage process to record complete information on all of the vehicles sold.



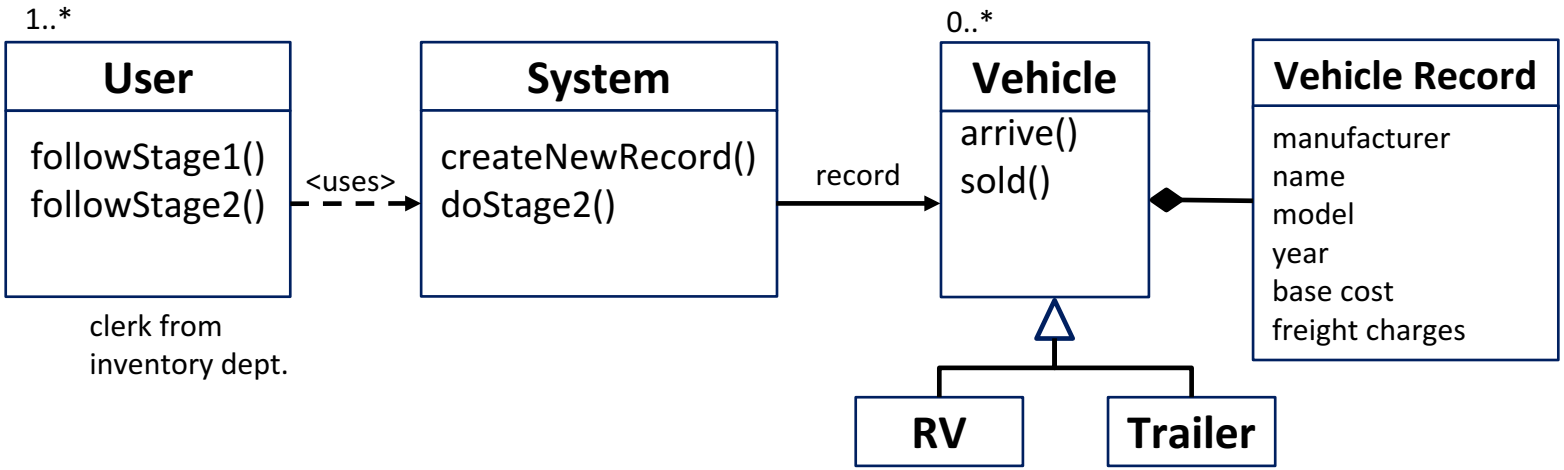
Holiday Travel Vehicles$_2$

When an RV or a trailer first arrives at the company from the manufacturer, a clerk from the inventory department creates a new vehicle record for it in the computer system.



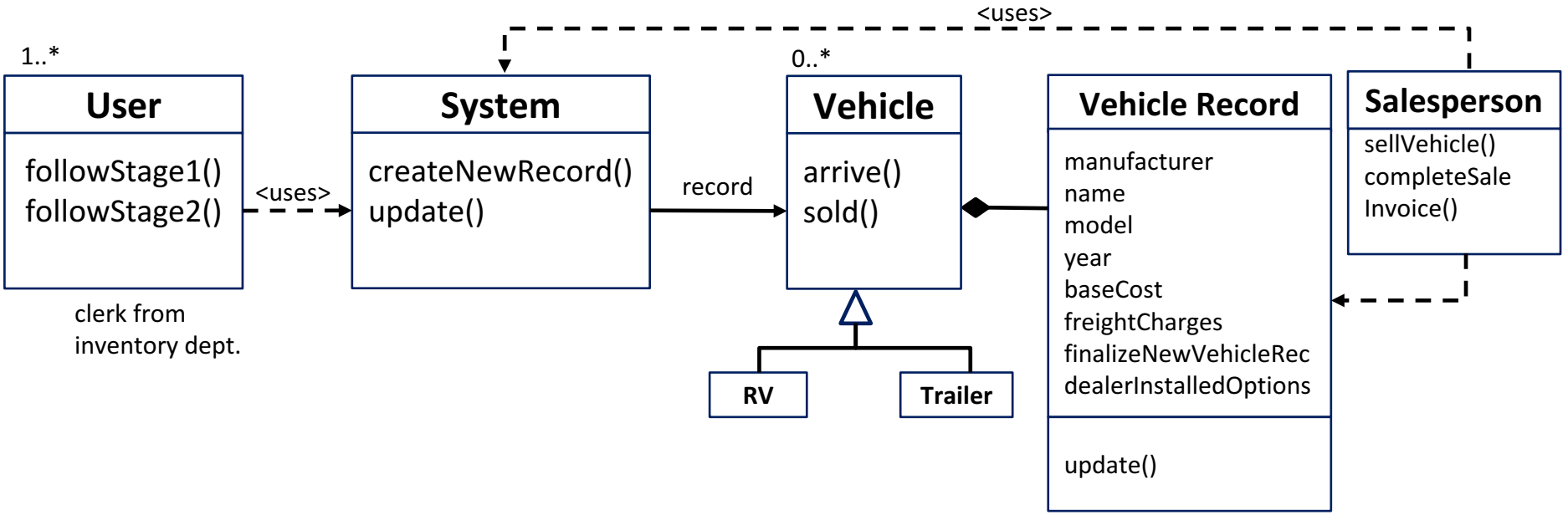
Holiday Travel Vehicles$_3$

The data entered at this time include basic descriptive information on the vehicle such as manufacturer, name, model, year, base cost, and freight charges.



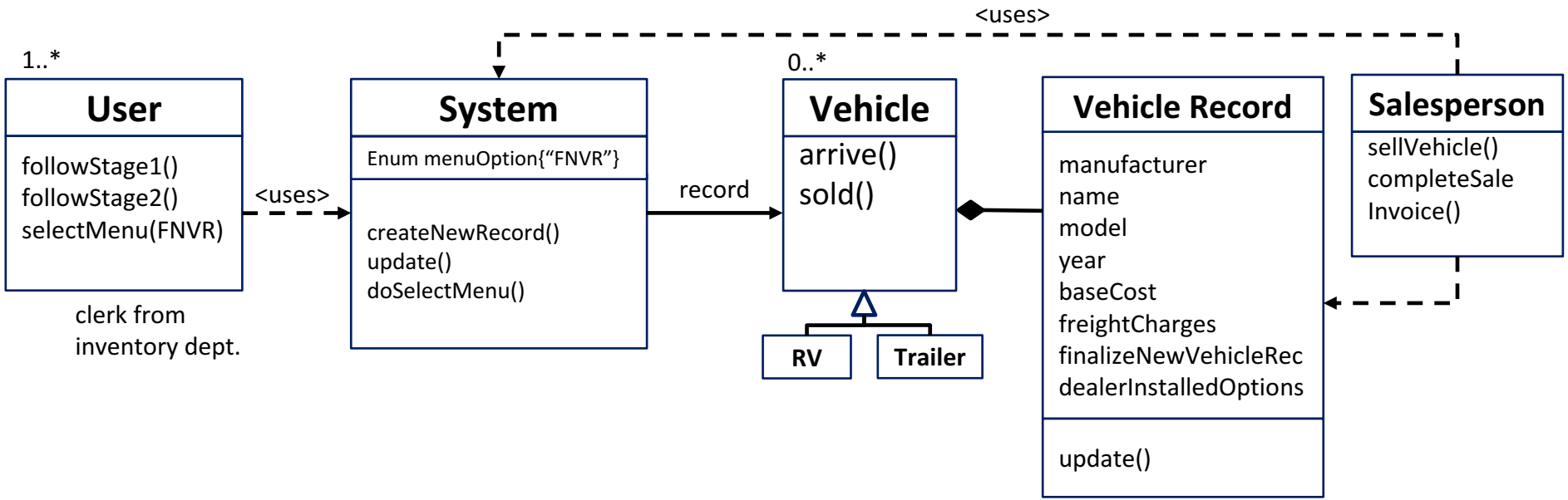
Holiday Travel Vehicles$_4$

When the vehicle is sold, the new vehicle record is updated to reflect the final terms of the sale and the dealer-installed options added to the vehicle. This information is entered into the system at the time of sale when the salesperson completes the sales invoice.



Holiday Travel Vehicles$_5$

When it is time for the clerk to finalize the new vehicle record, the clerk will select a menu option from the system, which is called Finalize New Vehicle Record.



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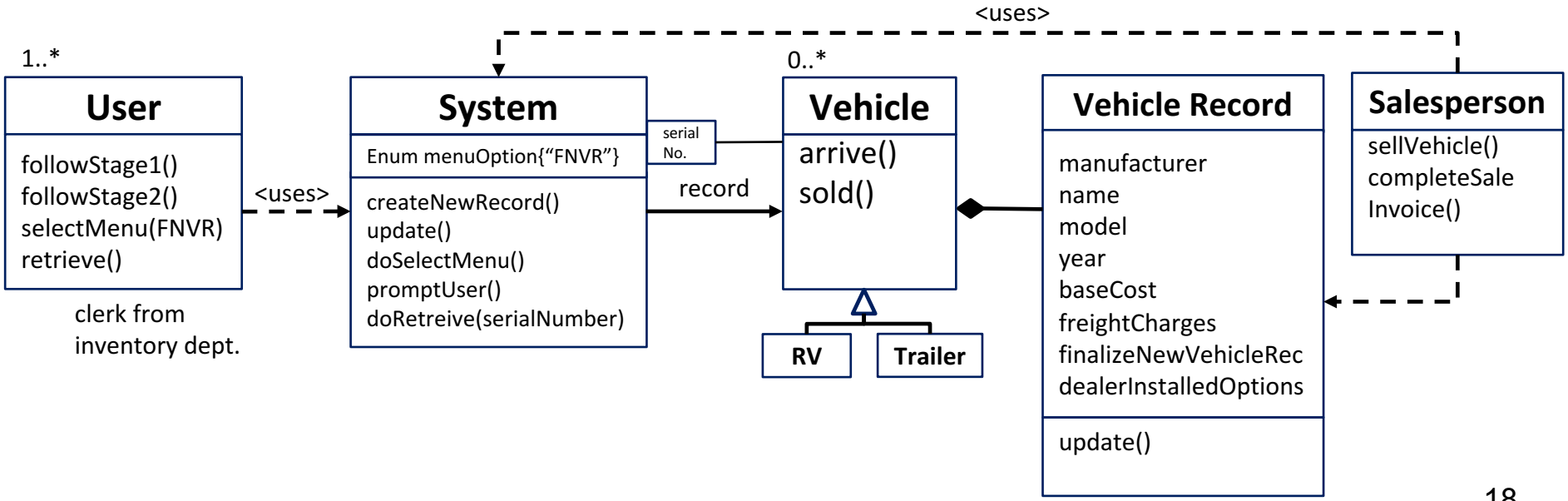

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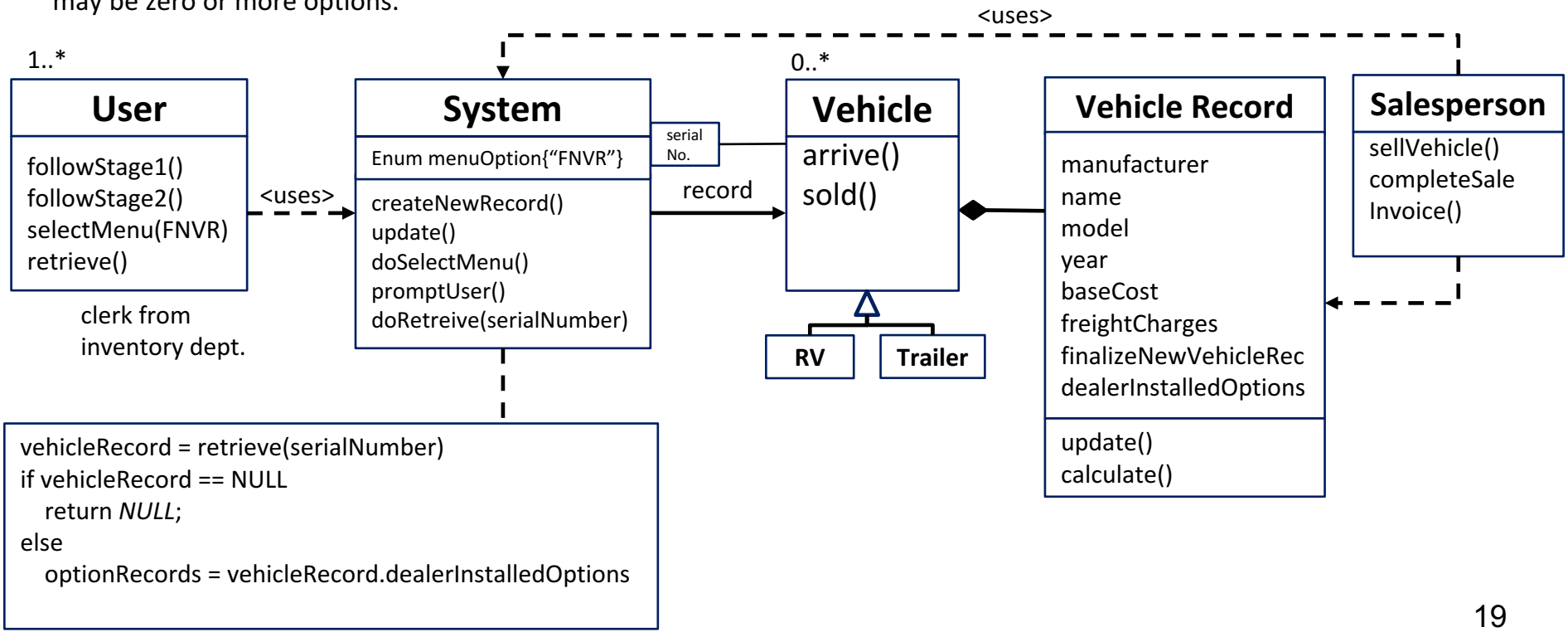
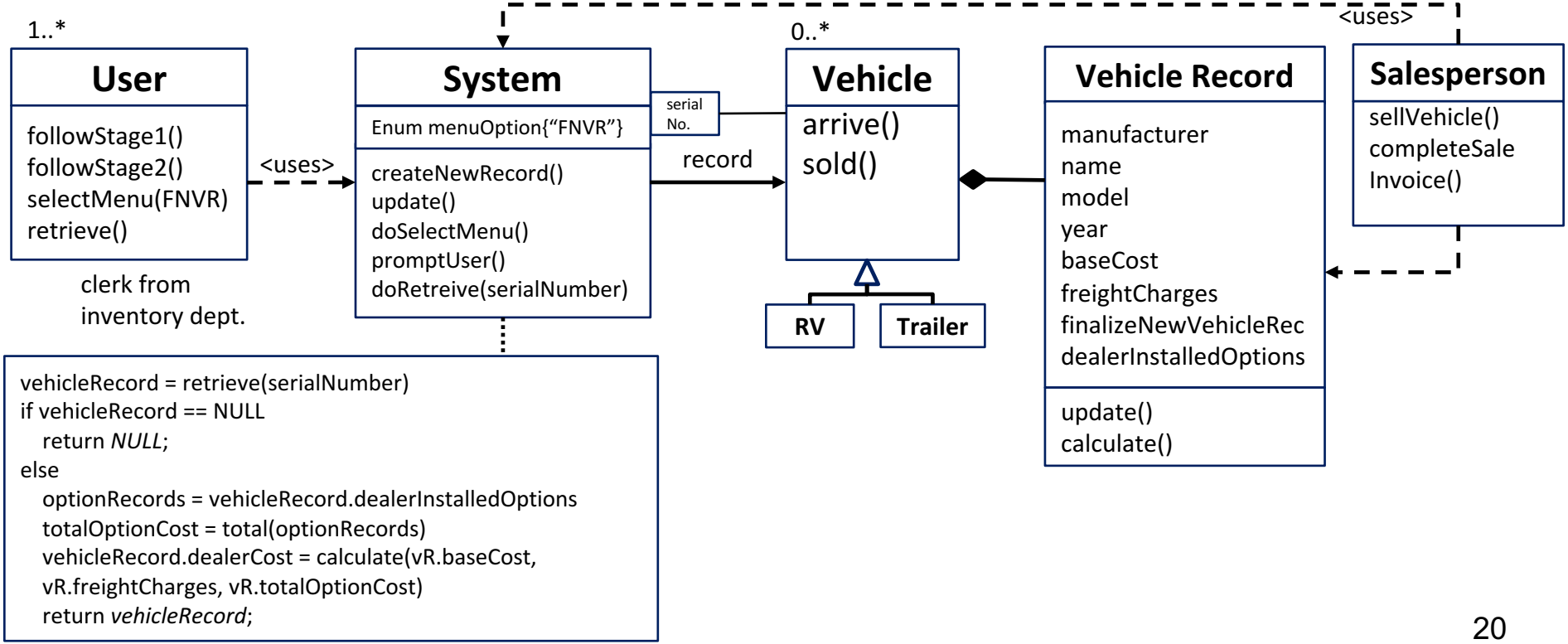
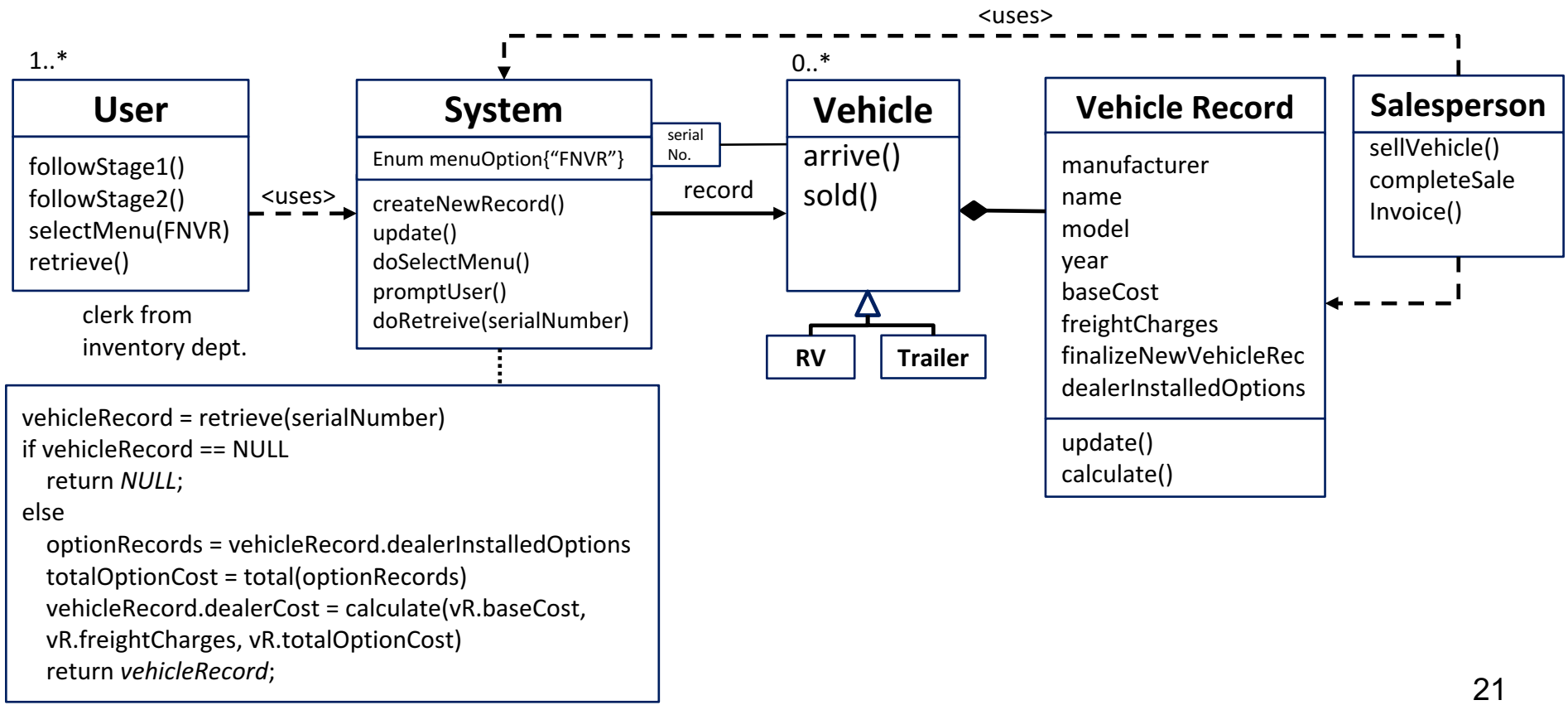


Holiday Travel Vehicles$_8$

The cost of the option specified on the option record(s) is totaled. Then, the dealer cost is calculated, using the vehicle's base cost, freight charge, and total option cost. The completed new vehicle record is passed back to the calling module.



Holiday Travel Vehicles Final Diagram



Chemistry Laboratory Statements

A laboratory has several chemists who work on one or more projects.

Chemists also may use certain kinds of equipment on each project.

The organization wishes to record assignDate – that is, the date when a given equipment item was assigned to a particular chemist working on a specified project – as well as total Hours, that is, the total number of hours the chemist has used the equipment for the project.

The organization also wants to track the usage of each type of equipment by a chemist. It does so by computing the average number of hours the chemist has used that equipment on all assigned projects.

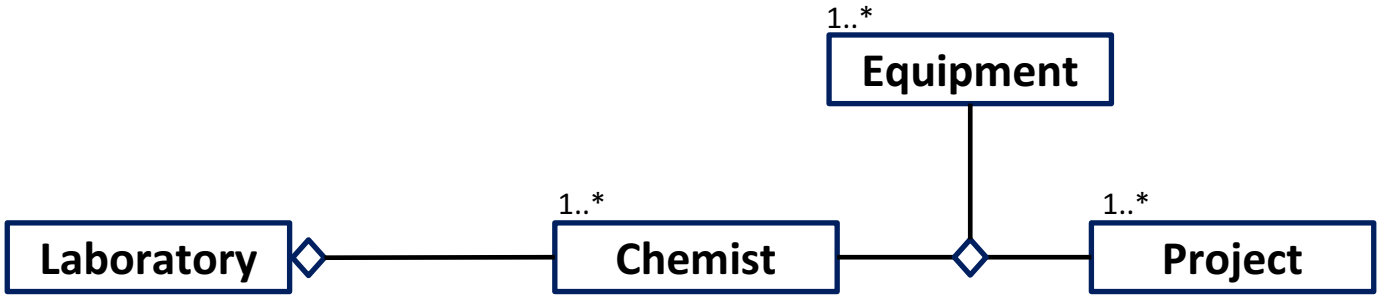
A chemist must be assigned to at least one project and one equipment item. A given equipment item need not be assigned, and a given project need not be assigned to either a chemist or an equipment item.

Chemistry Laboratory$_1$

A laboratory has several chemists who work on one or more projects.

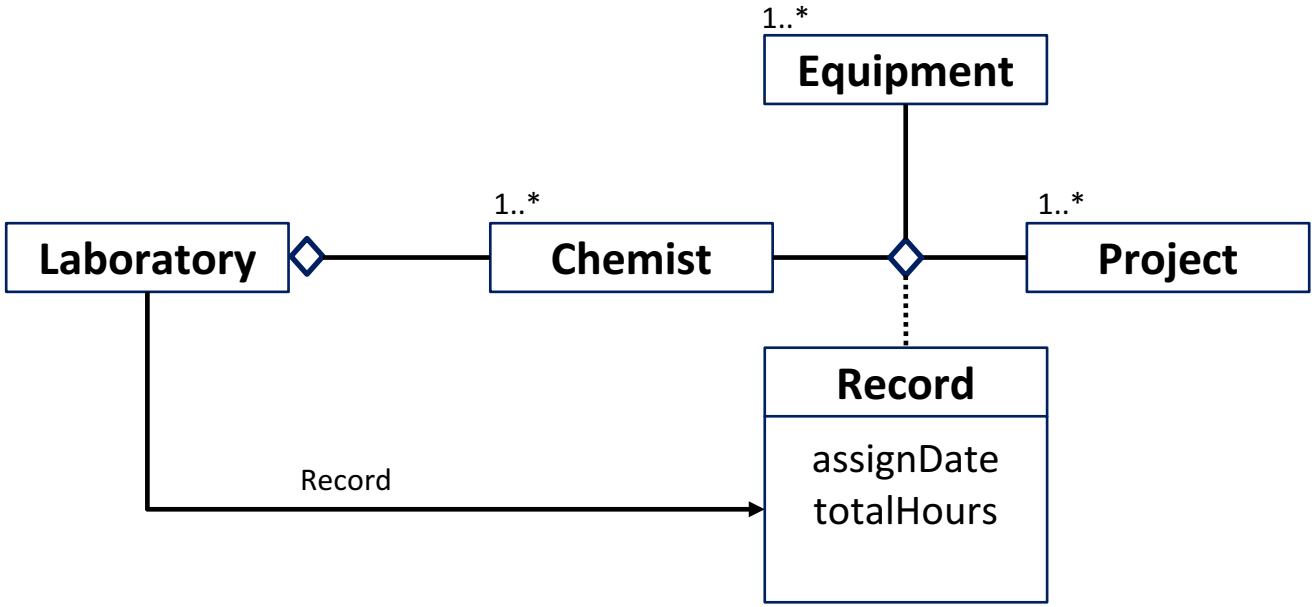
Chemistry Laboratory$_2$

Chemists also may use certain kinds of equipment on each project.



Chemistry Laboratory$_3$

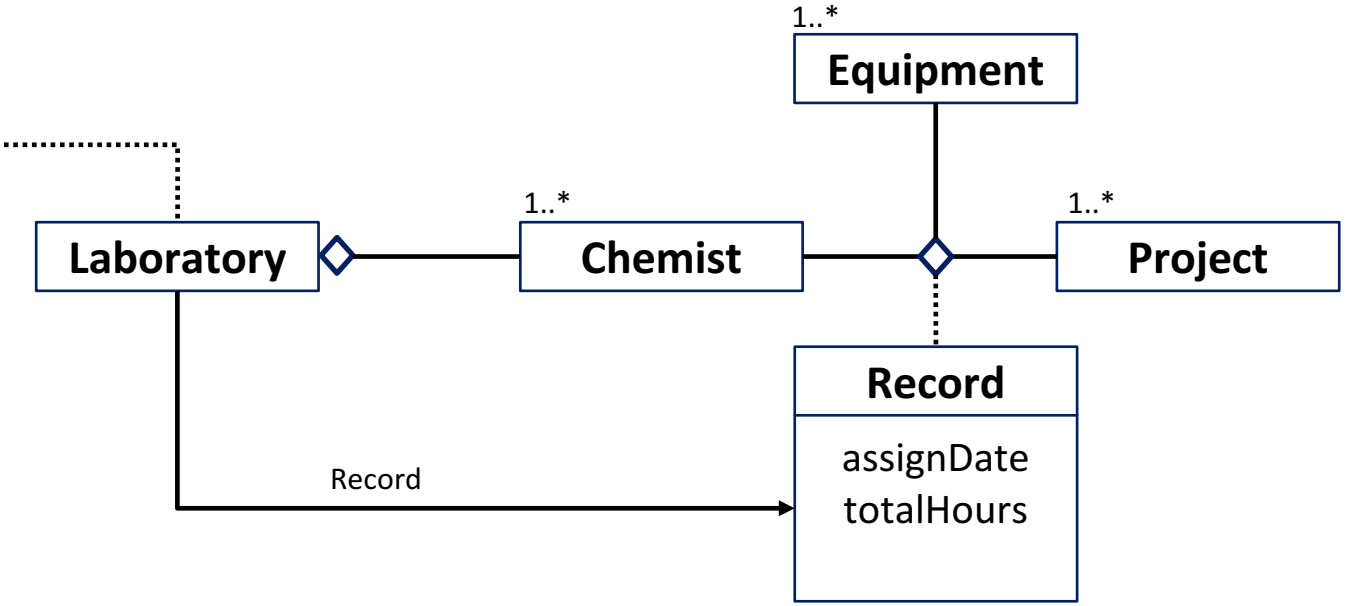
The organization wishes to record assignDate – that is, the date when a given equipment item was assigned to a particular chemist working on a specified project – as well as total Hours, that is, the total number of hours the chemist has used the equipment for the project.



Chemistry Laboratory$_4$

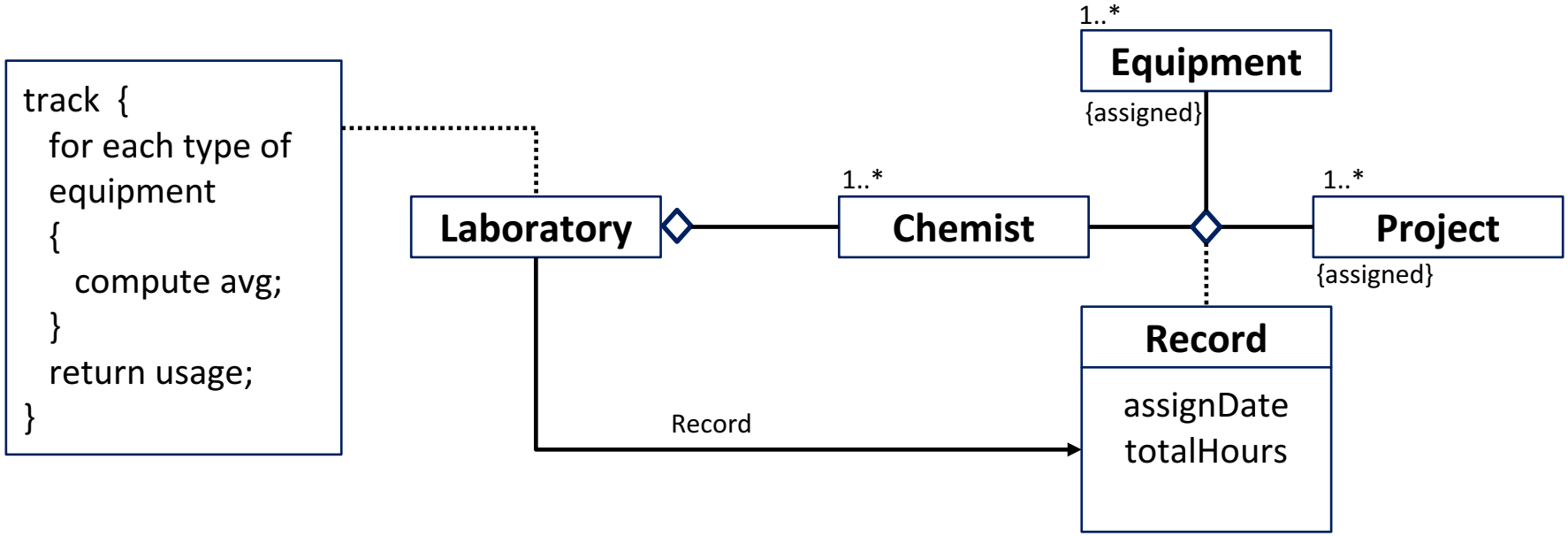
The organization also wants to track the usage of each type of equipment by a chemist. It does so by computing the average number of hours the chemist has used that equipment on all assigned projects.

```
track  {
  for each type of
  equipment
  {
    compute avg;
  }
  return usage;
}
```



Chemistry Laboratory$_5$

A chemist must be assigned to at least one project and one equipment item. A given equipment item need not be assigned, and a given project need not be assigned to either a chemist or an equipment item.



Chemistry Laboratory Final Diagram

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