

General description of the project

The goal of this project is to practice software engineering skills by applying them to a create a small application. During the design process you will get requests for feature modification and extension.

You will then be able to study the impact of the requested changes on the quality of your architecture, thereby estimating its reusability level.

The application you have to develop is a car configurator, named CarTailor. This is a standalone Java application, with a simple graphical interface. Using this interface, the user can select several main parts of a car to build a specific vehicle. The category of parts that can be configured are:

- The type of engine;
- The type of transmission;
- The exterior style;
- The interior style.

Several possibilities exist for each category. However, there exist technical and commercial constraints that bind some choices together. For instance, a hybrid engine (petrol/batteries) requires a converter gearbox system for the transmission part.

The application will have to manage these constraints, by displaying incompatibilities to the user and forbidding final configuration validation.

Catalog of possibilities

Category	Part Name	Part Description	Incompatibilities	Requirements
Engine	EG100	Gasoline, 100 kW		
	EG133	Gasoline, 133 kW		
	EG210	Gasoline, 210 kW		
	ED110	Diesel, 110 kW		

	ED180	Diesel, 180 kW		
	EH120	Gasoline/electric hybrid, 120 kW		TC120
Transmission	TM5	Manual, 5 gears		
	TM6	Manual, 6 gears		
	TA5	Automatic, 5 gears	EG100	
	TS6	Sequential, 6 gears		
	TSF7	Sequential, 7 gears, 4 wheels drive	EG100, EG133, ED110	
	TC120	Converter, 120 kW max		EH120
Exterior	XC	Classic paint	EG210	
	XM	Metallic paint	EG100	
	XS	Red paint and sport decoration	EG100	IS
Interior	IN	Standard interior		
	IH	High-end interior		
	IS	Sport finish	EG100, TM5	XS

User stories set #1

1. As a user I can get the list of part categories (see table above) to select a category.
2. As a user I can select a part variant for a given part category to put that part in the configuration.
3. As a user I can see if my current configuration is valid or not, i.e. a configuration is invalid if and only it contains incompatible parts or does not contain all the parts required by part included in the configuration.
4. As a user I can remove any part from the current configuration.
5. As an application admin I can edit the set of incompatible parts and required part stored in the application.