Tricentis, Vehicle Insurance Application

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Introduction

This report describes the application details, the testing process, and the test results of the
[Vehicle Insurance Application by Tricentis](#) found during the test process.
The test process does not include the analysis of the accuracy of the generated quotes for the
various vehicle types. I don't have access to the code or a developer who could provide insights
about the algorithm responsible for generating these quotes.

This report was made in response to a testing learning challenge given to me by James Bach.

Product Description

The Tricentis Application is a vehicle insurance calculator and can be used to create quotes for
various vehicle types such as Automobiles, Trucks, Motorcycles, and Campers.

Product Observations

When opening the application, the initial interaction of the users is by an image carousel. Each
image displayed is directly associated with the specific type of vehicle insurance chosen by the
user. By selecting the desired image, the user can click on the "Get a quote" button, which will
redirect him to the interface where the user can input the vehicle details. The user can also
select the type of vehicle from the tabs displayed above the image carousel and is redirected to
the same interface. Alternatively, the user can scroll down the page where images of each
vehicle type are displayed. Clicking on any of these images also redirects the user to the same
interface for inputting vehicle details.

When selecting the Automobile tab, there are displayed five tabs such as Enter Vehicle Data,
Enter Insurant Data, Enter Product Data, Select Price Option, and Send Quote. Navigation
through these tabs can be done by clicking on each one of them or by using the "Prev" and
"Next" buttons. The first three tabs have various fields for input or selection related to the
vehicle, insurant, and product data. Even though some of the fields are mandatory, the user can
proceed to the next step. However, on the Select Price Option tab, the price is not displayed
until all mandatory fields are filled in. Each mandatory field is indicated with a star symbol, and
once filled, the star transforms into a checkmark. Next to each tab, a number is displayed,
indicating the count of mandatory fields within that specific tab. As each mandatory field is
filled in, the number decreases accordingly, and as each input from the mandatory field is
deleted, the number increases providing a visual indicator of the remaining inputs for
completion.

Once all mandatory fields are completed, the system displays four quote options, each one of them being highlighted in a different color. After selecting a quote, users can choose to view, download the quote in a PDF file, or send it by email.

At the last step, down on the page, there are icons representing the main page and each vehicle type section. By clicking on any of these icons, the user is redirected to the corresponding interface for the selected icon.

The sections for Truck, Motorcycle, and Camper share similar option fields and input requirements as the Automobile section, along with additional fields specific to each category.

When the window is resized to a narrower width, the sidebar becomes visible and functional. Zoom-in and zoom-out are also functional.

Test Process

I started with survey testing which is a process of highly exploratory testing. While testing the application, I did not talk to any developer and I did not read the code. I did not have access to any pre-existing test cases or test ideas. I did not have any documentation or requirements. I didn't talk to James about the application.

I visually inspected the user interface, including the appearance of the fields and the screens. I checked that the limits of the fields made sense (in some cases they did not).

As I explored the application, I walked through each section, tabs, and fields. I check the consistency of the application; and the interaction between features. I tested the limits of the fields with good dates and bad dates, and I assessed the functionality of the drop-down lists, check boxes, and calendar selections.

Investigation of Pricing Algorithm

While performing the survey testing, I observed that insurance quotes varied based on the input selection and data chosen. I started to investigate which inputs and data affected the insurance price. For a better record I created a spreadsheet containing selected fields I considered that would affect the insurance quote and initiated an analysis. I used the One Factor at a Time technique. I did this analysis for the Automobile Insurance section only, due to time constraints.

The following fields will remain consistent for each case performed:
- First Name: John
- Last Name: Smith

- Country: Austria
- Zip Code: 123456
- Start Date: 05/05/2024

I created an Excel file that contains the exact cases. The data highlighted in red within the Excel file indicates the variables that are expected to impact the insurance quote. All other data remains consistent for each case. The spreadsheet can be accessed here.

Upon completing the analysis, I identified the following variables that influence the insurance quote:
- Engine Performance [kW]
- Date of Manufacture
- Number of Seats
- Fuel Type
- List Price
- Annual Mileage
- Occupation
- Insurance Sum
- Merit Rating
- Damage Insurance
- Optional Products
- Courtesy Car

The following variables don't influence the insurance quote:
- Make
- Date of Birth
- Hobbies

Initially, I presumed that Country selection would not impact the insurance price. However, I opted to test various scenarios to validate this presumption. I selected 5 countries from different continents (ex: Australia, Austria, Brazil, UAE, USA) and it revealed that Country selection has an impact on the insurance price.

For each case, I downloaded the quote file and compared the data displayed on the pdf file with the inputs and selections made to obtain the price option. The following inputs are not showing up on the pdf file:
- Vehicle Type
- Engine Performance [kW]

I performed the testing manually at first, then worked with James to create automation.

In addition to OFAT, I used the Pairwise technique to generate all possible pairings of designated inputs. Here you can find the spreadsheet with pairs. I imported the generated data, the OFAT, and ALLPAIRS, into Visual Studio and wrote code to automate all the checks. The script, and the test results have been uploaded to the GitHub.

Test Results

The application appears to be stable and functional, with a user-friendly and intuitive interface. The visual design of the application looks good and makes sense.

Below you can find a list of discoveries, bugs, and curios found while testing the application.

Bugs:

- The option to select the Date of Manufacture is available even before the existence of the first car (before 1900).
- The Engine Performance, List Price, Annual Mileage, Total Weight, Payload, and Total Weights fields accept numbers with huge decimals.
- Double first and last names are not accepted in the fields.
- Unlimited characters are accepted for the Password field.
- The PDF quote does not include information regarding the Number of Seats, Fuel Type, Engine Performance (kW), and Vehicle Type.
- The photo field does not specify which file extensions are accepted. It can be added as pdf, xlsx, doc, etc.
- City field accepts all types of unlimited characters.
- The quote didn't appear in the inbox/spam folder, although the email address used was valid.
- There is no icon available to click on to reveal the password.
- The start date and Date of Birth fields allow multiple 0s before the day and month (ex: 000004/000023/2024. 0000007/0000000012/1954).
- Multiple 0s can be added before a whole number in fields such as Engine Performance, Payload, Total Weight, List Price, etc.
- The insurance start date can be selected too far in the future (ex: 07/05/2028).
- A PDF quote file was generated, even though no price option was selected (no quotation is displayed on the PDF).
- License Plate Number accepts all types of characters.
- If the License Plate Number field contains more than 10 characters, it becomes mandatory, accompanied by a message indicating that the input should be limited to 10 characters. However, if the input is fewer than 10 characters, the mandatory status-associated message is removed.

- The Fuel Type field is not visible on Motorcycle sections.
- Euro Protection is displayed as selected on the PDF quote, but it is not marked as selected in the Product Data field.
- The Merit Rating field is not visible in the Truck, Motorcycle, and Camper sections.
- The Cylinder Capacity and Model fields are visible only for the Motorcycle section.
- When Legal Defense Insurance is selected, this is not printed on the PDF quote, instead is printed on the Euro Protection.
- There is no login section, although the application requests a username, a password, and a confirmed password.
- When entering spaces, the Street Address field is highlighted in blue and the checked mark is visible.
- The Zip Code field does not accept special characters and the maximum number of accepted digits is 8 (for example, the USA zip code has the following format 20521-9000, or some of the countries have no zip code, such as Belize, Qatar, United Arabs).
- The Engine Performance, List price, and Annual Mileage fields allow inputs to begin from either the middle of the field or the end of the field. If the cursor is placed at the front of the input and the space key is pressed, the input disappears. However, when selecting the entire field or pressing the backspace key the input is visible again.
- Some details on the pdf quote are not accurate (ex: The Price Option is displayed as Ultimate, but the price displayed is from the Silver option).
- The Price Option data is listed in the Product Data category on the pdf. It should be listed in the Pricing category.
- Email fields accept invalid email format (ex: james@satisfice.roooo, cristina@y.com, cristina@yahoo.commm).
- There are no GDPR regulations.

Curios (discoveries of things that might be bugs):
- The option of right/left drive is available only for the Camper option.
- While selecting "Motorcycle," the number of seats is restricted to three. However, this limitation does not apply when choosing the "Truck" option.
- First and last name fields don't accept diacritics characters.
- The page must be refreshed to have an accurate price displayed on the PDF quote. It is not sufficient to change the inputs.
- Shouldn't be limited the number of seats for the truck section?
- Why is it necessary to add a website and a photo of the driver?
- Which list price should be considered?
- What are the Other types of authorized fuel?
- What classification of truck is it about? Is it a light, medium, or heavy truck? Judging by the image in the carousel as a heuristic, it seems to be a medium/heavy truck.

Considering this, is a maximum payload of 1000 kg not too low for a medium/heavy truck? What about the boundaries for the total weight?

- Does the company offer insurance coverage for vintage or classic automobiles?
- A phone field should exist.

References:

https://en.wikipedia.org/wiki/Benz_Patent-Motorwagen
https://en.wikipedia.org/wiki/Truck_classification
https://en.wikipedia.org/wiki/List_of_postal_codes