

Application Developer Interview Exercise

Thank you for applying for a role with ALD Automotive and for offering your time to complete this interview exercise. On the following pages, you will find a description of the technical exercise that accompanies this document and a few pointers of where to look.

The content of the exercise is aligned with the technologies and concepts we employ at ALD. The exercise helps us to understand your areas of familiarity, and helps stimulate technical discussions that will allow you to demonstrate your knowledge to us in a natural way.

To promote consistency, we use the same technical exercise for all developers, and adjust our expectations in line with your experience. The exercise forms only a part of our decision during the recruitment process.

When you arrive for your interview, you will be asked to carry out a sequence of tasks within the solution. We will provide you with a computer, and you do not need to bring with you any code that you have written during preparation. However, you are welcome to bring any written notes which you think may help.

The technical part of the interview takes part with a Senior Developer present. It will not be a test of your ability to remember syntax or specific abilities! You will be encouraged to use Google or any other online tools you would typically use during development and your interviewer will discuss changes with you as you progress.

Enjoy your coding and we look forward to meeting you in person! 😊

ALD Quote Service

ALD Quote Service is a Web API 2 web service for calculating finance quotes for prospective customers, under two different contract types: **Hire Purchase (HP)** and **Personal Contract Purchase (PCP)**.

You do not need to understand the intricate details of these types of finance products to complete this exercise, however the basic differences are as follows:

Hire Purchase

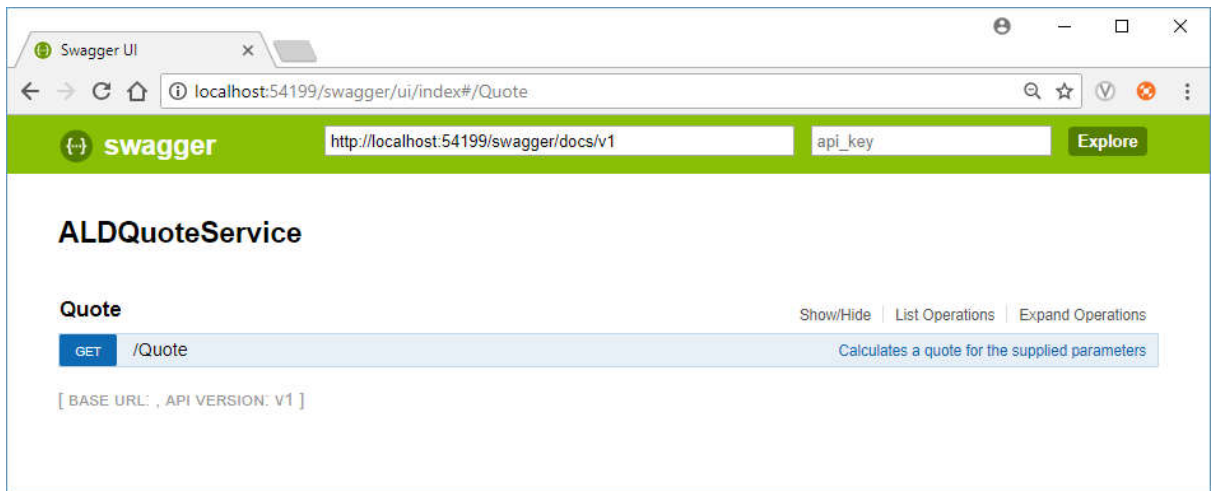
The **total price** of the vehicle, less any deposit paid, is divided into equal monthly payments over the contract term. At the end of the contract the customer will have paid the full value of the vehicle, including any applicable interest.

Personal Contract Purchase

At the start of the contract, the future value of the vehicle at the **end** of the contract term is pre-calculated, based on its projected age and mileage. This future value is deducted from the total price of the vehicle and the difference is what the customer will pay monthly over the contract term. At the end of the contract, the customer may either return the vehicle, or make a final payment (equal to the pre-calculated future value) to take ownership of the vehicle.

Running the Project

- You will require an installation of **Microsoft Visual Studio 2015** (or later) to open the project. You can download the free community editions at <https://www.visualstudio.com/>
- You will require an internet connection to allow Visual Studio to download the necessary NuGet packages for the solution – approximately 50MB. (We haven't included them to keep the size of the zip file down, but we can provide a version with all packages included if you prefer to work offline).
- Unzip the supplied *ALDQuoteService.zip*
- In the resulting directory, open *ALDQuoteService.sln*
- You should be able to **Run** (F5) the solution immediately after opening, which will launch a browser showing the *Swagger* service test interface:



- Expand the `/Quote` endpoint and you will be able to try out creating a finance quote:

Quote [Show/Hide](#) [List Operations](#) [Expand Operations](#)

GET `/Quote` [Calculates a quote for the supplied parameters](#)

[Response Class \(Status 200\)](#)
Calculated Quote

[Model](#) [Example Value](#)

```
{
  "QuoteId": "string",
  "VehicleRetailPrice": 0,
  "DepositAmount": 0,
  "MonthlyPayment": 0,
  "TotalAmountPayable": 0,
  "TotalInterestPayable": 0,
  "Apr": 0,
  "FinalPayment": 0
}
```

Response Content Type [application/json](#)

[Parameters](#)

Parameter	Value	Description	Parameter Type	Data Type
quoteType	HirePurchase	The type of finance requested	query	string
vehicleRegistration	(required)	The VRM of the vehicle on which to quote	query	string
termMonths	(required)	The term (in months) over which the vehicle will be financed	query	integer
deposit	(required)	The deposit amount to be paid at contract start	query	double

[Response Messages](#)

HTTP Status Code	Reason	Response Model	Headers
500	Quote Calculation Error		

[Try it out!](#)

- For the purposes of the exercise, a HTML User Interface is included in the project under the */MyALD* directory. This user interface calls the *ALDQuoteService*. When the project is running, you can visit the user interface at: <http://localhost:54199/ui>

Interview Preparation

- Take a thorough look around the *ALDQuoteService* and its associated Test project.
- Note the structure of quoting engine and how it calculates for different finance contract types.
- You may wish to add a breakpoint in *QuoteController.cs* and step through the code to see how a Quote is created.
- Inspect the HTML User Interface and its associated JavaScript and CSS style sheet