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A1: Description of Scenario

The scenario is that the service technicians in the field at Rivian need anonymised data about cars about faults to help them troubleshoot issues with the vehicle. Design Studio Engineers also need access to this data to understand the reason behind the changes they are told to make, and also to understand the behaviour of the systems in the field. The client for this product will be my father, and he has been working around this field for a little while, so he would know exactly what he wants. As discussed with the client in interview 1, there will be no need for an UI, as there is already a user interface team for that, and we also don't need to worry about collecting the data using any sampling methods, as the scale of data can be assumed to be a representative sampling of the full data set. All we will need is a way to take the data provided, organise in such a way that we can efficiently report on it, and provide a programmatic interface to report on it.

A2: Rationale for proposed product.

For the IA, I will be developing a system that can store and archive data about Rivian cars, organise data structures suitable for efficient reporting, and the machinery to report on them. There will also be functions to help correlate attributes of the vehicle, for example the year of manufacture, on the fault information such as most common

faults or fault density. This product will be made primarily for the Service Technician's troubleshooting problems with the vehicles in the field (i.e. with no guarantee of access to backend systems). It will also be used by the Design Studio Engineers who wish to understand the impact of changes they may have made for the car. Initially, the project was going to print out the data, but then the client said that the project wouldn't need to do that in interview 2. The project will hold the library functions used by the UI/UX team building the User Interface. The product is thus a library which will be integrated into different applications (Service Technician/Design Studio Engineer tools) and which will be written in Java. The choice is constrained by the needs of the application developers using the library (as reported by the interviewee).

A3: Success Criteria

Security (S)

- S1 Must protect against data loss. The client said in the survey that this will be done via offsite/online storage. This way, the data will be independent and any data lost can be repopulated from the original.

Change Management (CM)

- CM1 Data storage will be suitable for existing workflows by snapshots being distributed to systems that need to operate while disconnected. Service Technicians and Design Studio Engineers agree that this is a good idea.

Technical (T)

- T1 Technically, the product must run without bugs (Black Box Testing, White Box Testing, User Acceptance Testing, Beta Testing).
- T2 The algorithms must be efficient.
- T3 System loading times are within acceptable limits.

Aesthetics (A)

- A1 As the client has stated, Aesthetics are not an important part of the deliverable because all the product needs to do is programmatically return the data, the files are to help with testing.

Legalities (L)

- L1 The only information that will be collected from the user will be useful information. The client agrees that this is all action required since we are not planning on saving PII data.

Economics (E)

- E1 Product must fulfil the basic requirements of the client first and foremost before adding anything extra as to keep the costs of development as low as possible while the product will still be satisfactory.
- E2 If there are time and resources, might add methods that, rather than just displaying aspect vs fault data, actually print out some statistics calculations such as the correlation, the linear regression equation, skew, etc. Client agrees in the survey that the library should be extendable.

Functionality (F)

- F1 System must fulfil its requirements and do tasks with as little processing power as possible to ensure efficiency of the system.
- F2 Will be tested thoroughly in the style of James Webb, where every part individually will be tested to make sure it works properly.
- F3 Client said in a survey that data will be updated through an automatic pipeline, so the product won't need any methods to do that.

Operation (O)

- O1 The library must be written in Java, as Java written libraries will be sure to be compatible and integrate well with other systems in the field.
- O2 The client said in the survey that every system that will use the library is written in Java and the language works cross OS.

Implementation Approaches (IA)

- IA1 To use an efficient and well-tested design approach with close collaboration with the client.
- IA2 To keep the client informed and considered at all times in design and implementation.
- IA3 To ensure close communication with the client.
- IA4 The client decided that the best implementation approach is pilot implementation, as this way the first solution can be checked and edited as needed during the project's development time.
- IA5 The client will be involved in beta and prototyped testing so that their feedback and approval can be received before implementing the next stages of development.

