

**Project Design Phase-I**  
**Proposed Solution Template**

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|---------------|---------------------------------------|
| Date          | 23 September 2022                     |
| Team ID       | PNT2022TMID02157                      |
| Project Name  | Project – Car resale value prediction |
| Maximum Marks | 2 Marks                               |

**Proposed Solution Template:**

Project team shall fill the following information in proposed solution template.

| S.No. | Parameter                                | Description  |
|-------|--|--|
| 1.    | Problem Statement (Problem to be solved) | The sale of second-hand imported cars is being increasing as the usage also increases. In many developed countries, it is common to lease a car rather than buying it outright. After the lease period is over, the buyer has the possibility to buy the car at its residual value, i.e., its expected resale value. Thus, it is of commercial interest to sellers/financers to be able to predict the salvage value (residual value) of cars with accuracy.   |
| 2.    | Idea / Solution description              | The data is collected from various sources. After finalizing the dataset, the pre-processing step is being carried out. It includes <b>handling null values, normalization, aggregation, feature selection, attribute selection, one hot encoding and outlier analysis</b> . Then pre-processed dataset is trained and tested using several regression models like <b>multiple linear regression, decision tree, support vector regression, lasso regression, random forest, ridge regression, neural network regression, KNN, gaussian and gradient descent</b> . After testing is being performed, the model is evaluated with metrics such as <b>Mean Absolute Error (MAE), Root Mean Squared Error (RMSE), R squared, Max error</b> , etc., Based on these values, the best model is chosen and used for implementation. As the final step, the web application is created using flask for launching to the users. |
| 3.    | Novelty / Uniqueness                     | The solution includes several models. As many models are used for evaluation, the better performance would be achieved. Further several pre-processing steps are being carried out to improve the performance. The model is being finalized by allowing the dataset to train and test through at most all the regression models.   |

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|----|---------------------------------------|---|
|    |                                       | <p>Launching as the website allows every user to correctly analyse their resale value of the car. The accuracy helps the seller to resale their car at a valid price. It also helps customer in buying the car with appropriate price.</p>  |
| 4. | Social Impact / Customer Satisfaction | <p>This act as the solution for seller and for buyer. The seller no need to get worried about the price that is required to resale. The customer could also accept the resale price of the car as algorithms considers even minute factors. It doesn't need anyone to reach out a particular person regarding this. This also helps in identifying buyers, who resale the car fault price. Apart from this, one could also get to know about the features or attributes which are involved in detecting the resale value. It is feasible and could be efficiently used by anyone from anywhere. It decreases the workload of both customer and buyer.</p> |
| 5. | Business Model (Revenue Model)        | <p>It could be visualized as the business model as it sounds as the efficient application in predicting the price of the car. One could tie with the buyer and sale the application to him. This could also be used in the separate analysing department. The analyser would receive a greater profit over this.</p>  |
| 6. | Scalability of the Solution           | <p>With the same model that is being built, the application could be used anywhere and at any time. Depending on the countries it is being implemented, the number of features could be added. It helps in accessing this application across several countries. It reduces the workload of individual, in identifying seller and knowing the resale value. The user just needs to fill all known details on the website, which provides the resale value.</p>   |