Project Design Phase-I
Proposed Solution

Date	24 September 2022
Team ID	PNT2022TMID23258
Project Name	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 objective of this study is to predict used cars prices using machine learning techniques, by scraping datasets from websites that sell used cars, and analysing the different aspects and factors that lead to the actual used car price valuation. To enable consumers to know the actual worth of their car or desired car, by simply providing the program with a set of attributes from the desired car to predict the car price. The purpose of this study is to understand and evaluate used car prices and to develop a strategy that utilizes machine learning techniques to predict used car prices.
2.	Idea / Solution description	This work will focus on answering the research questions. They all entail a comparison of different ML algorithms for price prediction. This will be accomplished by sourcing and preparing a dataset on which all the algorithms can be trained on and compared fairly. The algorithms selected must therefore be similar enough for the same dataset to be used for all of them. This also means that no large optimization efforts on the dataset will be made to boost the performance, if these changes do not benefit the other models. Maximizing price prediction performance of any one algorithm in ways that do not offer better comparisons is outside the scope of this work.
3.	Novelty / Uniqueness	This project aims to deliver price prediction models to the public, to help guide the individuals looking to buy or sell cars and to give them a better insight into the automotive sector. Buying a used car from a dealer can be

		a frustrating and an unsatisfying experience as some dealers are known to deploy deceitful sale tactics to close a deal. Therefore, to help consumers avoid falling victims to such tactics, this study hopes to equip consumers with right tools to guide them in their shopping experience. Another goal of the project is to explore new methods to evaluate used cars prices and to compare their accuracies. Considering this is an interesting research topic in the research community, and in continuing their footsteps, we hope to achieve significant results using more advanced methods of previous work.
4.	Social Impact / Customer Satisfaction	Customer satisfaction is seen as an index to find the emotional state of a customer that defines the positive aspirations to define the joy of a customer. The marketers focus mainly on making their customers happy, however, the marketing or servicing tactics or campaigns cannot do this but a positive experience of a user with emotional bonding can do this. Hence, with such motivation, the present study finds how well the customers are happy post sales of a car or servicing of a car. This study finds the customer experiences on how their vehicles are serviced and this defines the measure of satisfaction and customer loyalty. The study conducts a questionnaire survey on 1000 patients at different service centre executives and car owners. The analysis is conducted using SPSS tool to find the positive experience and its
5.	Business Model (Revenue Model)	We can provide the model for tracking the car price being sold for and we can share the analysed report weekly and monthly through mail.
6.	Scalability of the Solution	Efficient use of deep learning such as LSTM (Long short-term memory) or RNN (Recurrent Neural networks) can be implemented once enough data is collected. This can improve accuracy and decrease RMSE drastically. Currently, only few features are used to predict resale value of the car. This can be extended to more features. One can also implement CNN to determine physical condition of the car from images like identifying dents, scratches etc. and thus predicting more relevant resale value of a car