### UTDiscovery Weekly Report & Time Log

| **Weekly Report Number** | 11 |
| --- | --- |
| **Reporting Period** | 11/11/23 to 11/17/23 |
| **Group Number** | 2 |
| **Project Name** | xEstimate API and ALgorithm improved |
| **Mentor/Faculty Advisor** | Dr. Noirrit Chandra |
| **Project Team Members** | Marcos Munoz, Mehedi Toufiqe, Yaseen Mohammed, Sayema Rahman |

**Weekly Report**

1. Tasks Outlined in Previous Weekly Progress Report  
     
   In the upcoming analysis, we will rank features within a dataset to ascertain their relative importance and then proceed to evaluate a range of models using PyCaret to identify the most efficient approach. This will include the selection of the most impactful feature subset to enhance model performance. Ultimately, we will fine-tune these models with PyCaret, focusing on optimizing their accuracy and effectiveness for future applications
2. Progress Made in Reporting Week (Limit your write-up to no more than two page)  
     
   This week, we received a new dataset from Andrew and merged it with our existing data. We repeated the analysis from last week to evaluate any improvements in our model. Additionally, we applied an imputation method to our current dataset to assess its impact on our scores. We're experimenting with various approaches to observe changes in the Squared error, including altering variables, identifying outliers, and testing different regression methods to gauge the performance of our model.
3. Difficulties Encountered in Reporting Week (Limit your write-up to no more than one page)  
     
   This week, we faced significant difficulties in enhancing the R-squared value of our current model. Despite employing various regression methods and techniques, our score did not show any improvement. One persistent issue was dealing with outliers in the data and selecting the right imputation method for our analysis. After discussing these challenges with our company sponsor, we received feedback and decided to utilize a new training dataset. This approach will hopefully yield a better understanding of how our R-squared value changes in the upcoming week
4. Tasks to Be Completed in Next Week (Outline the tasks to be completed in the following week)  
     
   For the coming week, our primary task is to analyze the new training dataset to identify outliers in our model and explore potential improvements through the use of standard features and input methods. Our company advisor has provided us with data from a different source. We plan to merge this data with our existing set to better understand the dynamics, particularly focusing on outliers and possible enhancements to our R-squared value. Additionally, we are considering model tuning by comparing different models and regression methods. Furthermore, we intend to utilize an API that retrieves vehicle information. This API will aid in developing a more refined model for vehicle pricing by incorporating these features.

**Time Log**

1. Teams Meeting.

* Description(optional)
  1. We divided up the work for the week so that we each did one part of the project and then met up the next day to see how much progress we made.
* Students: Marcos Munoz, Mehedi Toufiqe, Yaseen Mohammed, Sayema Rahman
* Dates:11/11/2023, 11/13/2023, 11/15/2023
* Hours: 3
* Other: N/A

1. Client Meeting.

* Description(optional): We showed our sponsor the work we had done during this past week based on what they asked us to do and also the new work we had to do for the new datasets they provided us.
* Students: Marcos Munoz, Mehedi Toufiqe, Yaseen Mohammed, Sayema Rahman
* Dates: 11/15/2023
* Hours: 1
* Other: N/A
* Who didn’t attend the meeting with client: N/A

1. Faculty Advisor Meeting.

* Description(optional). Our faculty advisor was not able to meet us this week and he let us know that if we needed to talk to him we could email him or schedule another meeting.
* Students: Marcos Munoz, Mehedi Toufiqe, Yaseen Mohammed, Sayema Rahman
* Dates: 11/14/2023
* Hours: N/A
* Other: N/A
* Who didn’t attend the meeting with FA: N/A

1. Solution Development.

* Description(optional): We worked on the documentation that our sponsor asked us to do, as well as the improvement of the code on the clean data and adding more ordinal categorical variables. We also had to clean and work with the new data sets that our sponsor provided us at the beginning of the week.
* Students: Marcos Munoz, Mehedi Toufiqe, Yaseen Mohammed, Sayema Rahman
* Dates: 11/10 - 15/2023
* Hours: 12
* Any progress?
  1. Yes
* Other: N/A

1. Documentation.

* Description(optional) We all worked separately on the documentation and on fixing/improving our existing code.
* Students: Marcos Munoz, Mehedi Toufiqe, Yaseen Mohammed, Sayema Rahman
* Dates: 11/10 - 15/2023
* Hours: 12
* Other: N/A

1. Preparation Slides., if applicable.

* Description(optional)
* Students: N/A
* Dates: N/A
* Hours: N/A
* Other: N/A