SOFTWARE DEVELOPMENT FOR THE USED CAR DEALERS INDUSTRY

PROJECT PROPOSAL

Project Area: Management Reporting and Business Intelligence

Team Members: Cuong Hoang, Chanhyo Kim, Yong Seung Rho

Project Sponsor: Street Paul

Document History

Date	Document Version	Revision Description	Author
Jan 27th, 2022	0.1	Initial	Cuong Hoang

Approvals

Approval Date	Approved Version	Approver Role	Approver

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1. EXECUTIVE SUMMARY*

"The Used Car Dealers industry in Canada sells used passenger vehicles, which includes cars, light trucks, sport utility vehicles and vans. Used car dealers also provide parts and repair services and financing and insurance." (IBISWorld, (November 10, 2021), page 1)

The used car market in Canada has experienced rapidly growth over the decades. The fact that most consumers with average income are still cautious when it comes to purchasing new car. The relatively affordable used cars are seen as the most economically purchases rather than new vehicles. Considering some positive factors, we believe the industry revenue is projected to increase over the year.
This project uses the MarketCheck's automotive data from 1981 to 2022 that depict the inventory from over 65,000 dealer websites in Canada and the US.
The deliverable will be an interactive website with dynamic visualizations, dashboards and analysis that has a commercial potential. The website could be a research channel for buyers to see the most popular branches or dealers based on their location. The dealer could use it like a connecting flatform to transfer inventory for better fulfilment customer needs. Even some entrepreneurs who interested in opening a used car dealership, the website will be a reliable source of information in the decision-making process.

2. BACKGROUND*

2.1. Current Situation & Problem Statement

The obstacle of this project could be the crawling data being not up to date in real-time or the risk associated with scaping. But it could be improved buy the real connection or API between the project itself and all the dealerships in both countries. But in this project scope, we will not be covering that part, and we will save it for the process improvement when it got funded.
There are a ton of dealerships located everywhere in Canada and the US, and if a buyer looking for a used car in his/her location, visiting all the dealerships website to check on inventory is inconvenient.

2.2. Effects of Not Doing This Project

This project has a potential of being commercialize. We identify it as the-vehicle-version of StockX. Completing the project is an initiate to a bigger project. The deliverable will give users visual information and suggestion, but a certain decision should be made by users.

3. GOALS AND OBJECTIVES*

The goals of this project are as follows. Managers, users, or faculties can get analyzed information with interactive charts, visualization, dashboards for obtaining some insights and facts in the used car industry. Reporters or students can practice what they studied last semester and get their hands in real work with data. Each goal is below.

For users,

- Experiencing the best UI with the website.
- Find inventory trends by branch, color, location, and a ton of car features
- Find types of cars that are listing the most
- Find the proper location for opening a new dealership in the most vibrant market.

For team members,
- Learn about how to use chart libs for python.
- Practicing EDA (Exploratory Data Analysis) with Python to gain insight to build function for the website
- Practicing building dashboard with BI tools like PowerBI or Tableau
- Learn about using a web framework for python.
- Practice HTML that we have learnt with JavaScript in this semester.
- Time and project management.
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4. APPROACH*

4.1. Solution Overview

Through this project, users can easily understand information that they want to see, use this to quickly locate the local inventory. Dealers can easily connect with other dealers, and researcher can have a comprehensive source of information to work with.

4.2. Impacts on users and members

Users can obtain relevant information from raw data to make decisions. Members who join this project can get more confidence to coding and analyzing skills.

5. SCOPE & DELIVERABLES*

5.1. Scope

The scope of this project is as follows.
- Displaying report of inventory based on car features, branches, and locations
- Analyzing the used car price listed
- Give mobility that users can see on the web.

5.2. Deliverables

| #	Project Phase	Milestones, Planning Deliverables	Target Completion Date	Approver
	Initiation	Discovery Project Charter	Jan 28th	
	Planning	Project Plan Communication Strategy/Plan	Jan 29th	
	Requirements	Business Requirements ay also include Service or Product Requirements	Feb 5th	
	Analysis & Design	Functional Designs May also include Service, Product and Technical Designs Test Plan	Feb 12th	
	Development	Tech Designs & Development May also include System or Service Network, Server, 3rd Party Service Integration, Service Page	Mar 19th	
	Testing	Test Plans / Test Cases	Mar 25th	
	Project Close	Project Close Docs Lessons Learned	Apr 18th	

5.3. Estimated Timeline*

	ⓘ	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names	Add New Column
1	✓	📌	▲ Project Proposal	5 days	Tue 22-01-25	Mon 22-01-31		Cuong	
2	✓	📌	Team meeting and discussion	3 days	Tue 22-01-25	Thu 22-01-27		Chanhyo Kim, Cuong, Young Seung Yho	
3	👤	📌	▲ Reanalyze Project Scope and Requirement	25 days?	Tue 22-02-01	Mon 22-03-07	1	Chanhyo Kim	
4		📌	▲ UI Research and Design	12 days	Tue 22-02-01	Wed 22-02-16		Young Seung Yho	
5	📅👤	🗨	Homepage Design	6 days	Mon 22-01-24	Mon 22-01-31		Chanhyo Kim, Cuong, Young Seung Yho	
6	👤	🗨	Subpage Design	6 days	Tue 22-02-01	Tue 22-02-08	5	Chanhyo Kim, Young Seung Yho	
7		📌	▲ BI Tools, Frontend Teachnologies Research and Training	13 days	Tue 22-02-01	Thu 22-02-17	4		
8	👤	📌	Python	3 days	Tue 22-02-01	Thu 22-02-03		Chanhyo Kim, Young Seung Yho	
9	👤	🗨	Power BI	2 days	Tue 22-02-01	Wed 22-02-02		Chanhyo Kim, Young Seung Yho	
10	👤	🗨	Tableau	2 days	Tue 22-02-01	Wed 22-02-02		Cuong, Young Seung Yho	
11	👤	🗨	CSS	3 days	Tue 22-02-01	Thu 22-02-03		Chanhyo Kim, Cuong, Young Seung Yho	
12	👤	🗨	JavaScript	3 days	Fri 22-02-04	Tue 22-02-08	9,10,11	Chanhyo Kim, Cuong, Young Seung Yho	
13		📌	▲ Data Preparation	20 days?	Thu 22-02-17	Wed 22-03-16	1,3		
14	👤	🗨	Feature Enginering	7 days	Fri 22-02-18	Mon 22-02-28	7	Chanhyo Kim, Cuong	
15	📅	🗨	Handling Missing Data	7 days	Tue 22-03-01	Wed 22-03-09	14	Young Seung Yho	
16	📅👤	🗨	Creating Subset or Merging data	6 days	Thu 22-03-10	Thu 22-03-17		Young Seung Yho	
17		📌	▲ Data Analyze and Visualization	5 days	Wed 22-03-16	Tue 22-03-22	13		
18		🗨	Dashboard on car features	1 day	Wed 22-03-16	Wed 22-03-16		Chanhyo Kim, Cuong	
19	👤	🗨	Inventory by location	1 day	Thu 22-03-17	Thu 22-03-17	18	Young Seung Yho	
20		🗨	Top inventory by branches	1 day	Fri 22-03-18	Fri 22-03-18	19	Cuong, Young Seung Yho	
21		🗨	Used car price timeline by branches	2 days	Mon 22-03-21	Tue 22-03-22	20	Chanhyo Kim, Young Seung Yho	
22		📌	▲ Webdesign	11 days	Wed 22-03-23	Wed 22-04-06	13		
23		🗨	Homepage design	4 days	Wed 22-03-23	Mon 22-03-28	13	Chanhyo Kim, Young Seung Yho	
24		🗨	Subpages design	4 days	Tue 22-03-29	Fri 22-04-01	13,23	Chanhyo Kim, Young Seung Yho	
25	👤	🗨	Public project to Github	3 days	Mon 22-04-04	Wed 22-04-06	24	Cuong	
26	📅👤	🗨	User Testing	1 day?	Wed 22-04-06	Wed 22-04-06		Chanhyo Kim, Cuong, Young Seung Yho	
27	📅	🗨	Modification	8 days?	Thu 22-04-07	Mon 22-04-18	26	Chanhyo Kim, Young Seung Yho	

Project Tasks
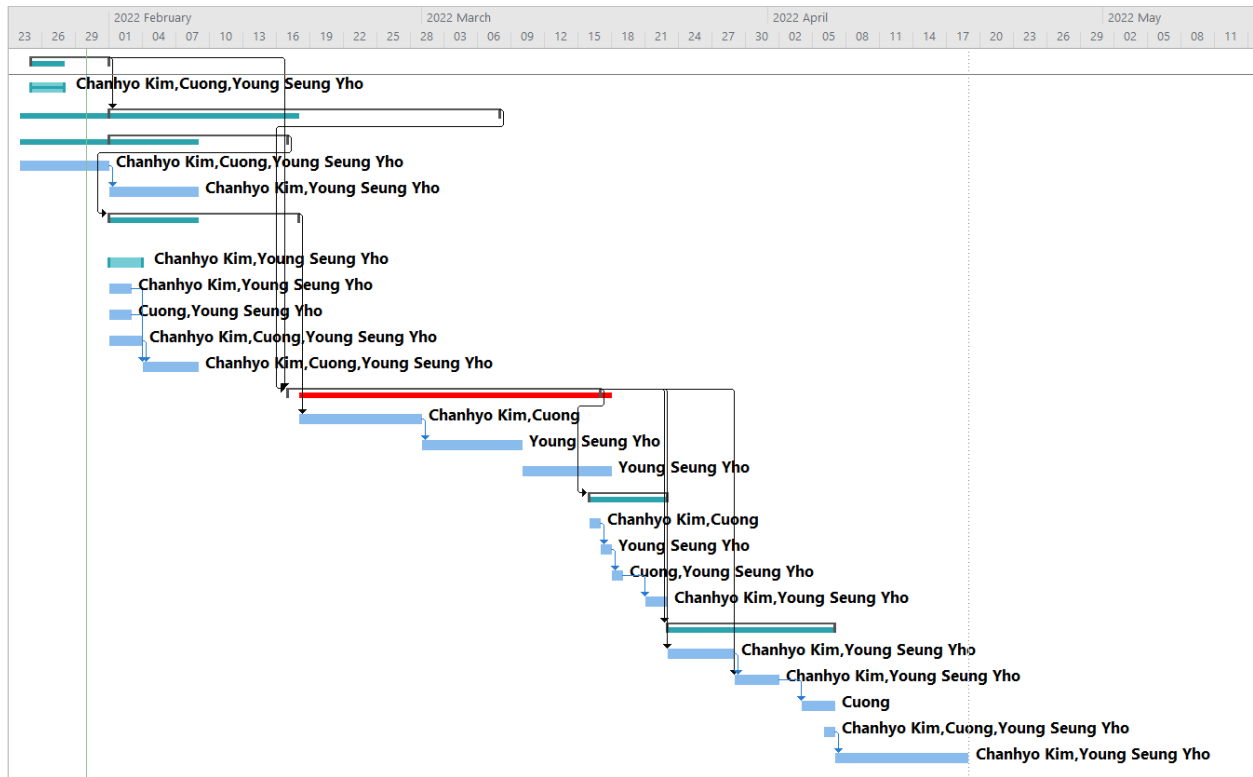
Project Timeline

6. PROJECT TEAM ORGANIZATION*

Project Team Members
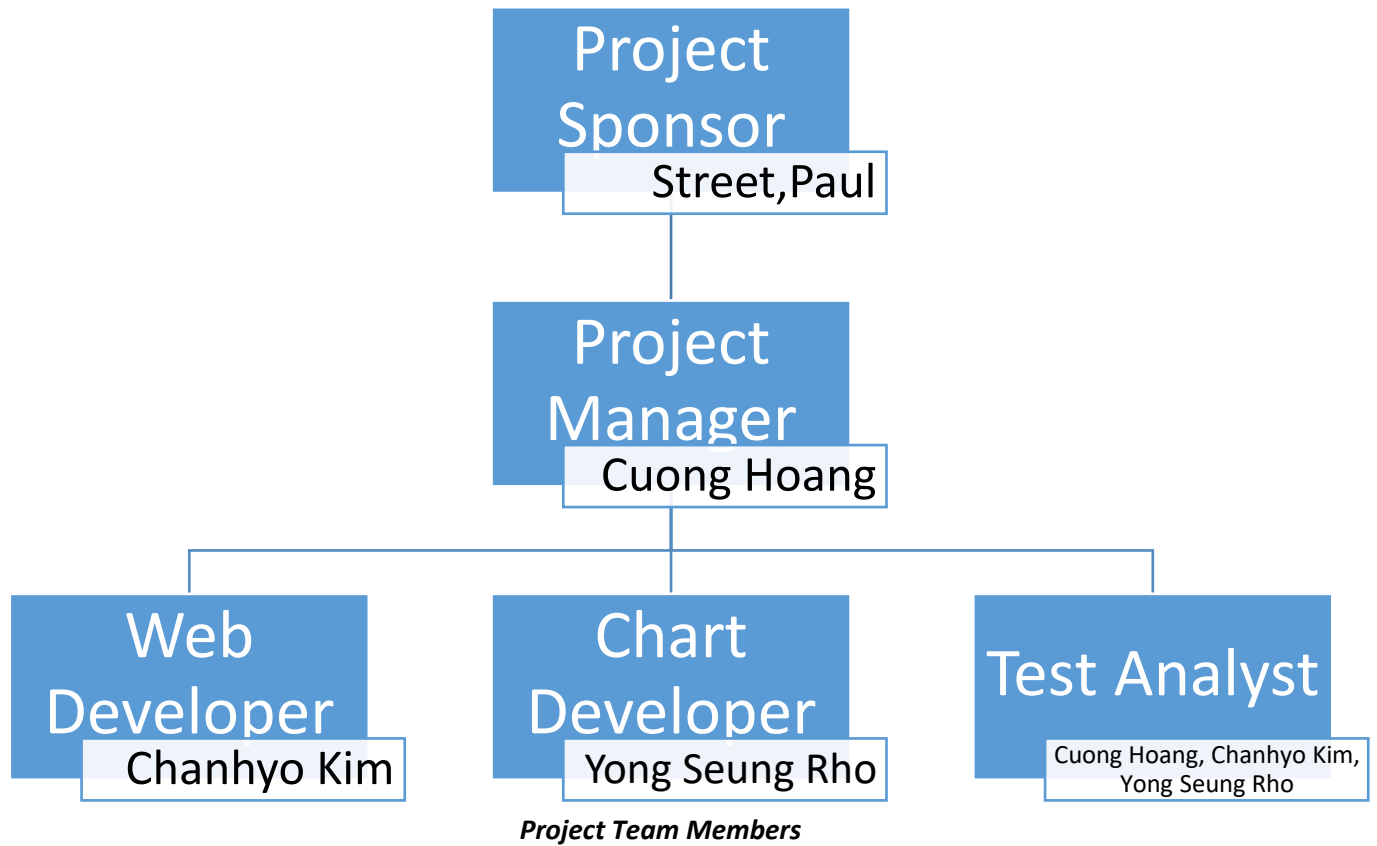
Roles & Responsibilities

Role Name	Name	General Responsibilities
Project Manager	Cuong Hoang	Schedule Management, Requirement, Deliverables, Documentation
Web Developer	Chanhyo Kim	Building a web server, Making web pages
Chart Developer	Yong Seung Rho	Choosing a chart solution, Implementing charts
Test Analyst	Cuong Hoang, Chanhyo Kim, Yong Seung Rho	Testing web site, reporting errors and exceptions, giving recommendation.

7. PROJECT RISKS & ASSUMPTIONS*

#	Risk Description	Severity	Mitigation Plan
1	Project unapproved	High	Redesign and repropose a better plan
2	Choose a chart solution to meet the requirement	Medium	Research and compare solutions before Analysis & Design phrase
3	Unfamiliar with web and Python programming	High	Study and practice Individually.
4	Unfamiliar with BI Tools	High	Pick up some tutorial from YouTube individually.

8. APPENDIX

9. REFERENCES

IBISWorld, (November 10, 2021). Used Car Dealers in Canada - Market Research Report
https://www.ibisworld.com/canada/market-research-reports/used-car-dealers-industry/