Team 2 (Project AutoWise)

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Preface

Version	Date	Changes
1.0	3/15/24	Initial Version
1.1	3/15/24	Added Purpose, Introduction, Overview, Goals, User Stories, Use Cases, Architecture
2.0	3/15/24	Final Version

Purpose

This document serves as a comprehensive guide for the development and understanding of the software project titled "AutoWise (Car Price Checker)"

Audience

The intended audience of this document includes project stakeholders, developers, testers, and anyone involved in the project lifecycle.

Introduction

AutoWise emerges as a comprehensive Car Price Tracker application, designed to address the complexities and volatility of the automotive market. Its inception stems from the critical need for accurate, real-time pricing information, aiding a spectrum of users from potential car buyers and sellers to dealerships and market analysts. By offering up-to-date price tracking, market trends analysis, and historical data insights, AutoWise aims to demystify car pricing, promote transparency, and support informed decision-making. Whether it's enabling buyers to purchase at optimal times, assisting sellers in competitive pricing, or providing analysts with valuable data for forecasting. AutoWise is dedicated to becoming an indispensable tool in navigating the intricate dynamics of car pricing and market trends, making it a cornerstone for all stakeholders in the automotive sector.

Project Overview

AutoWise is a versatile Car Price Tracker application available on mobile platforms, designed to cater to a wide audience including individual consumers, automotive professionals, and market analysts. It provides comprehensive, real-time tracking of car prices, detailed analysis of market trends, and access to historical price data for a vast array of vehicles. By bridging the gap between complex market data and user-friendly accessibility, AutoWise empowers users to make informed decisions on purchasing, selling, and investing in cars with confidence. Whether at home on a web browser or on the go with a mobile device, AutoWise ensures that valuable car pricing information is always at your fingertips, streamlining the process of navigating the automotive market's dynamic landscape.

Project Goals

- Enhance Real-time Price Tracking Accuracy
- Expand Market Trends Analysis and Insights
- Promote Transparency in the Automotive Market
- Improve User Decision-making Efficiency

Glossary

- **AutoWise: The name of the Car Price Tracker application that provides real-time pricing data, market trend analysis, and historical price information for vehicles.**
- **Real-time Data: Information that is delivered immediately after collection, with no delay in the timeliness of the information provided.**
- **Market Trends: Patterns and tendencies in the automotive market that indicate the general direction of price movements over time.**
- **API (Application Programming Interface): A set of protocols and tools for building application software and enabling communication between different software components or applications.**
- **Cloud Platform: A suite of cloud computing services that provides a range of computing resources over the Internet, such as data storage, servers, databases, networking, and software.**
- **UX (User Experience): The overall experience of a person using a product such as a website or a computer application, especially in terms of how easy or pleasing it is to use.**

User Requirements and Use Cases

User Stories

1. As a potential car buyer, I want to receive notifications on price drops for specific car models so that I can make a purchase decision at the most opportune time.
2. As a budget-conscious student, I need to find the most affordable cars within my set budget so that I can manage my finances effectively.
3. As a car enthusiast, I want to search for a specific car model located in a certain area so that I don't need to check other car dealerships.
4. As a busy person, I want to be able to conveniently look for car models on one website so that I do not waste time looking at different websites with car models out of my price range and locations out of my area.
5. As a user, I want to be able to register and login to my account so that I can save cars I am interested in and preferences so that they do not reset when I leave the website.
6. As someone looking to purchase a car for personal use, I need to regularly check car prices to ensure I'm getting the best deal possible and that my investment aligns with financial goals.
7. As a user, I want to view detailed information about each car listing, including specifications, mileage, and price, so that I can make an informed decision about potential purchases.
8. As a potential car buyer, I want to be able to set up alerts for price drops on specific car listings that I am interested in, so that I can take advantage of potential savings and oppurtunities.
9. As a user, I want to have access to customer reviews and ratings of sellers on the platform, so that I can gauge their reliability and trustworthiness before engaging in transactions.
10. As a user, I want an app to regularly scrape websites off car dealerships within the specified area, to ensure that I have access to the latest and most up-to-date listings.

Use Case: Adding a New Product

Identifier	UC-1 Receiving notifications on price drops
Purpose	Notify user when prices reaches specified budget to allow for a right time to purchase

Requirements	User Story #1
Development Risks	None
Pre-conditions	User is logged into account and on car list page
Post-conditions	User receives the notification

Table 1: Typical Course of Action

Seq#	Actor's Action	System's Response
1	User selects notification bell button	
2	Enters preferred price to purchase	
3	Clicks "save"	Gathers user's preference and posts the data associated with the account to database
		server checks current price
		User receives notification when current price matches preferred price

Table 2: Alternate Course of Action

Seq#	Actor's Action	System's Response
1	User selects notification bell button	
2	Enters preferred price to purchase	
3	Clicks "save"	Gathers user's preference and posts the data associated with the account to database
		Servers checks current price
		Compares current price with users preferred price
		If current price matches preferred price, system triggers notification process
		User receives notification when current price matches preferred price

Table 3: Exceptional Course of Action

Seq#	Actor's Action	System's Response
1	User selects notification bell button	
2	Enters preferred price to purchase	
3	Clicks "save"	Gathers user's preference and posts the data associated with the account to database
		Server encounters an error while processing the request
		System displays an error message indicating the inability to save preferences at the moment
		User is prompted to try again later or contact support for assistance

System Architecture

Components

1. **Frontend**: Mobile-based (or maybe both web and mobile) user interface (built with React and Flutter). / UX
2. **Backend**: RESTful APIs or GraphQL (built with Python). + **Database**: SQL for database (storage)

3. **Cloud**: Hosting with AWS

Deployment Diagram