CS 413

Software Engineering Project Management

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CAR MARKET

PROJECT CHARTER

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Table of Contents

Preliminary Scope Statement and Product Definition

There is an online market at the moment for selling/buying/dealing autos and with the online services becoming more popular each day, the market started to shift from real auto showrooms to E-commerce Portals. Customers seek for most profitable and easy ways to sell their cars or to be able to buy the cars they have been searching for.

Car Market is a candidate to become the ideal portal for this kind of businesses. There are rivals in the market that provides this marketing/dealing platform at the moment, but with the Car Market website, it is planned to add some more important features to make the best impression on customers experiences. Car Market allows users to create their own profiles in order to do some advertisements with the purpose of selling their own cars. Without a profile a user will not be able to make biddings or directly contact post's owner for their questions of the posted car. Users will be able to follow some posts and get notifications in case of a price decrease. Searching through posts can be done easily with the use of tags, filtering and sorting. Like mentioned before, a car can be bought directly with the price fixed by the owner or an online auction can be held. User would have three options if he/she decided on a car; they could directly accept the price fixed by the owner, they could try to make some deals through direct messaging or the last option is by giving a bid and wait to be the highest bidder and win the auction. After the buying/selling process finishes, users will be able to rate and comment on other user they did the dealing with. This will be helpful for further trading by the same users since this will be counted as the "reliability rate" of the seller. Alongside with the "bidding" feature of the systems, users can also offer car exchange. If both users have at least one car in their account, they might consider exchanging, if there is an extra cost to one of the cars that extra will be offered as well as the trade procedure.

Users can be categorized as "buyers" and "sellers" by the system. Buyers can create a "wish list" so that Car Market can make some suggestions to the user according to their needs. Also, depending on their search history and the cars they are generally interested in, the system might also put up some recommendations to have a better user experience. Sellers can put up posts of the autos they are planning to sell, they also need to provide some contact information, or they might choose the option to only make direct-messaging available.

As Car Market, we will also offer some professional drivers to deliver the purchased car to the new owner. With the notary work, the seller can give authority to the drivers and trading businesses can be done very easily.

Project Purpose

With Car Market, we tried the analyze other rival products in the market and came up with some features that we thought would create a more trustworthy and better trading environment for regular users and we will try to make it as user friendly as possible to make every person be able to use the product without any background experience.

Project Shareholders

The shareholders' list is as given below:

- Development Team
- Potential sellers who want to sell their car
- Customer Services
- Project manager
- Sales Directors
- Solutions Consultant

Project Organization

In this project, the project team will adapt the projectized organization type after comparison with a strong matrix organization. Since there are no functional managers in our company, the characteristics of our organization are closer to projectized organization. By this way, Sponsor of our E-commerce system will have a communication channel to the project. The project manager can also keep in touch with Sponsor more efficiently. In other words, The Project Manager will be responsible to the investor company.

The team will have a faster response mechanism and decision-making processes. Also, the team will be focused only on one project at a time, the concentration will be higher. During the flow of the project, team members periodically will give reports directly to the manager. He/she will be responsible for the performance and progression of team members.

Roles and Responsibilities

Responsibility	Roles	Participant
• Communicate team members and Sponsor about the project all the time • Make necessary decisions and changes on the project • Set up teams • Receive reports • Enable the information and share among member and customer	Project Manager	Kübra Nur Güzel
• Design the overall system architecture • Divide the project into smaller parts with respect to reusability and sustainability • Check the code to ensure the quality of the design	Software Architect and Back-end developer	Arif Can Terzioğlu
• Writing well prepared, testable, efficient code by using best software development practices • Integrating data from various back-end services and databases • Integration of UI elements developed by front-end developers with server-side	Web Application and Back-end Developer	Ömer Berk Uçar

• Responsible for user friendly website with regarding to the system • Developing wireframes and task flows based on user needs • Conducting user research and testing	Front End Developer and UX Specialist	Pınar Bayata
• Create test scenarios • Apply tests and report the results to manager	Software Tester	Staff (2 people)
• Tackle user acceptance testing in a timely and organized fashion	User Acceptance Tester	Staff (2 people)
• Creates a database system and ensure the safety of data • Guarantee the continuity and accessibility of the database • Responsible for the performance and capacity of the database	Database Analyst	Staff (1 People)

Milestones and Deliverables

In this project, the incremental process model also known as successive version model will be used. Many successive iterations will be implemented and delivered to our sponsor until the desired system is realized. By using this divide and conquer principle we aim to get the best quality. That approach requires well-defined planning and design; therefore, the project is divided into stages below.

Project Charter

The scope and aims of our project are mentioned with related topics. Roles and function of each team member are determined. In addition, success criteria, initial risks, constraints and stakeholders are identified in this documentation.

Scope Planning & Software Requirements Report

In this report, definition of all the work needed to successfully meet the objectives will be defined. Report also includes requirements, project time schedule by using Gantt Charts

and Work Breakdown Structure. Report will be supported with functional and non-functional requirements and use case diagrams.

Software Project Management Plan

The budget and schedule of the project is provided in this document. It is very crucial to determine project phases, schedule of activities, dependencies and resources since timing or budgeting wrongly leads to delay the deadline.

Low-Level Design Report

Component and connections between the classes are included in order to identify which software packages are necessary.

High Level Design Report

Decomposition of the system are detailed with respect to requirements by using layered architecture. High level design is essential since it affects the how system is going to be implemented and determined the capabilities of system.

Software Implementation

This phase includes the implementation part of the software after identifying the requirements and creating the overall architecture of the software.

Software Functional Tests

Test staff will apply unit/integration/smoke tests to check whether software is functional or not. If program cannot pass the test, software goes back to required phase. In the case of new changes (CR), we will also apply some regression tests.

User Acceptance Tests

If software passes the functional tests, UX test staffs will apply the acceptance test with real users.

Pilot Usage (Project Demo)

If the software can pass all the test criteria, the software will be released as a pilot version. The application will be monitored.

Final Report

Final version of the project with design and architecture will be included in this report. All the features, new technologies which are used and the problems are mentioned.

Effects of the Project

There are so many e-commerce sites available on the market. Yet these sites do not have a user-friendly interface and advanced search-filter property sometimes do not work

properly. Our aim is to decrease the amount of time wasted when a seller wants to post his/her car's photo and its properties. Using Project Management, if we use our resources wisely, according to the article "Project management and its effects on project success:", there is a high chance that we will be successful [1].

Assumptions and Constraints

Assumptions

- Sellers will not struggle when using the advanced search, the system with all of its components will work perfectly.
- The system will be trustworthy when counting the honesty scores of the sellers.
- There will improvements according to the given feedback of the system.
- A seller who is in trouble can reach Call Center members without any problem.

Legal Constraints

- There will be a legal constraint about prices of cars. For example, only Turkish lira can be used in order to sell and buy a car, if the car belongs to Turkey.
- A user cannot buy a car from another country.

Sustainability Constraints

- The system will be adaptable for future updates on different platforms.

Security Constraints

- Users of client software can define and change the password in order to prevent another users' access.
- Users of server software can define and change the password in order to prevent other any outside access.
- There will be some security constraints in order to prevent customers' data when they type their card number and password.

Reliability Constraints

- For getting more accurate data, the photos of the cars will be checked.
- Tested and trusted software will be used.
- The drivers to deliver the car will be hired professionals in order to create a trustworthy purchasing environment.

Implementation Constraints

- For a collaborative contribution, GitHub platform will be used.
- The software will have server-client architecture.

Technical Constraints

- Response time will be less than five seconds.
- The software will support all browsers including mobile and mini browsers.

Success Criteria

Success criteria is the final goals of the project team. The list was determined by the project team in the leadership of the project manager. Each criterion on the list is the intersection of stakeholder interest, constraints, requirements as much as possible. As the project developed some requirements and expectations may be changed but items in the success criteria are basic expectations and there will be no changes on them. Success criteria of the project is the following:

- The final product works without any bug and error, and it is stable
- Milestones of the project are completed at the corresponding deadline.
- The system meets the basic requirements and constraints
- The final product gets more than 70% positive feedback from the customers
- The stakeholders come to a consensus that the final product is satisfactory

Initial Risks

During the development process of the project, some problems might occur. These problems are potential risks of the project. Even though most of the possible threats can be solved without any problems, it will take more time and energy and increase the risk. To prevent any setback and failure during the project development and decrease the risks we identified the initial risks of the project. We determined possible outcomes of the risks and came up with feasible strategies to overcome the risk.

The risk table shows risks, possible outcomes and solutions are the following:

Risk	**Possible outcome**	**Possible solution**
Time is not enough to complete all requirements	The final product will be postponed	New developers can be hired into the team
Some requirements and constraints are ahead of the technology	Futuristic requirements and constraints will not be in the final product	Requirements and constraints that are ahead of the technology will be implemented

		when technology is enough
Team members may leave	The development process will be slower	Hire new people with enough qualification into the team
Resources may become insufficient later on the process	The process will until new resources are given	New resources will be requested
Wrong technology or tool may be chosen	The time spent on the wrong technology or tool will be wasted	The wrong technology or tool will be replaced with a new one
Design and architecture of the project may be not suitable for the expected product	The project is not developed any further with the current design and architecture	Suitable design and architecture for the project will be formed
Technologies used in the system may not be scalable	With the current technologies, the system will not meet the performance constraints	Problematical technologies can be replaced, or the project will be completed without offering the corresponding performance constraint

References

[1] De Carvalho, Marly Monteiro, Leandro Alves Patah, and Diógenes de Souza Bido. "Project management and its effects on project success: Cross-country and cross-industry comparisons." *International Journal of Project Management* 33.7 (2015): 1509-1522.