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ENGINEAR PLATFORM PROJECT

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Abstract

In Kenya, according to trading economics, there has been an average of 17,000 car registrations every month in the year 2020. The number has only been increasing compared to the previous years. These cars however, wear out, forcing the car owners to have them serviced. Cars are also prone to accidents due to various reasons which bring unnecessary confusion to the car owners most of whom don't know a professional mechanic to repair their car.

Enginear tries to solves this problem by providing a platform where mechanics and car owners can meet based on their location and based on the needs of the car owners. Car owners are able to leave a review on a mechanic on how well they have done and this is used by other car owners to determine whether to give a specific mechanic a job.

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Chapter 1: Introduction

1.1. Background

Online car repair and mechanical services has been around for quiet some time now. This has shown a great improvement in the way the process of car repairs is being carried out. However, more needs to be done to ensure every car owner has a smooth time in the maintenance and repair of a car. Some of the things that have to be done are; to provide an online platform with nice user interaction, easy registration of both mechanics and car owners, and a rating system to rate mechanics upon completion

of a job. Enginear, my project, ensures that.

1.2. Objectives

Enginear is aimed to: improve the quality of car repair services by making sure the best mechanics stand out, reduce the time between car damage and car repair, providing a platform where both mechanics and car owners can communicate and create meaningful connections through a chatting platform.

1.3. Purpose, Scope and Applicability

1.3.1. Purpose

The purpose of the project is to make sure that car owners get the best services by getting to see the best rated mechanics and their reviews. This is possible because all jobs and reviews are present in the profile of both the car owners and the mechanic. This allows other car owners to see how previous jobs have been done and reviewed by car owners.

1.3.2. Scope

The main problems the project is trying to solve are:

- To connect car owners and the best mechanics from the same location
- To connect car owners with mechanics who can repair their type of cars
- To provide a platform where car owners and mechanics can communicate and build meaningful connections.

1.3.3. Applicability

The project will be used by car owners when looking for mechanics who can suit their needs and by mechanics looking for clients in need of mechanical assistance through the online platform that can be accessed through computers.

Chapter 2: Survey of Technologies

This project is a web based project that relies on the following technologies:

- EJS ("Embedded JavaScript Templating") - A template engine that generates HTML markup.
- CSS("Cascading Style Sheets") - Cascading Style Sheets (CSS) is a simple mechanism for adding style (e.g., fonts, colors, spacing) to Web documents.
- JS("JavaScript) - JavaScript is a scripting or programming language that allows you to implement

complex features on web pages.

- Nodejs – Nodejs is an asynchronous event-driven JavaScript runtime designed to build scalable applications.

- Express web framework – Express is a minimal and flexible Nodejs web application framework that provides a robust set of features for web and mobile applications.

- PostgreSQL – PostgreSQL is a powerful, open source object-relational database system

- Heroku – Heroku is a platform as a service that enables developers to build, run, and operate applications entirely in the cloud.

- Visual Paradigm Online Diagrams – Visual Paradigm Online (VP Online) features an easy-to-use, online drawing tool with many helpful features and applications.

I chose to program the project using the following technologies because:

- Enginear being a platform that connects people from different parts of the world, needed to be online. A website application, though not the only solution, would be a good option to go with because most people are conversant with interacting with It and websites can be accessed from not only personal computers but also from smart phones and tablets. This makes the website application easily accessible and reliable when needed.

- EJS, CSS and JS have been used together to give users a nice experience. EJS lets you generate HTML markup which in turn offers a wide variety of elements for users to use and interact with. EJS also lets us embed JavaScript within it which allows easy data flow from the database to our server and finally our client side. CSS provides a wide range of methods which allow us to style our HTML document. JS lets us provide better user interaction with our application.

- I used Nodejs to create the server (back end) of the project because of its asynchronous nature whereby many connections can be handled concurrently using callbacks. Callbacks are fired upon each connection and Nodejs sleeps when there are no connections. This is contrary to today's most common concurrency model, in which OS threads are deployed. Nodejs also allows It's users to be worry free from dead-locking since there are no locks. Since nothing blocks, scalable systems are very reasonable to develop in Nodejs.

- I used Express, Nodejs' web application framework, because It reduces the work load in many areas like in management of sessions, routing and cookies. Other frameworks were available but I
  chose Express because it supports EJS templating engine, its fast input output system, robust API making routing faster and easier.

- I used PostgreSQL for my project because of various reasons: It uses SQL language which is easy to grasp. It is open source hence free to use. It has over 30 years of active development and has earned a strong reputation for its proven architecture, reliability, data integrity, robust feature set, extensibility and the dedication of the open source community to consistently deliver well performing and innovative solutions.

- Heroku provides a simple yet efficient way of uploading the project and importing the database to it's platform. It also offers a free option for developers and an easy way to integrate the database.
- Visual Paradigm Online Diagrams provides a free platform to use which is simple and easy to use for creation of diagrams like Entity relationship diagrams.

Chapter 3: Requirements and Analysis

3.1. Requirement Specification

For efficiency and best experiences, all software is built to meet certain requirements, from the platform to the specifics of each platform. Enginear is a web application created to be used in PCs, smart-phones and tablets because of its responsive nature. It works best when the device being used has access to good Internet connection.

3.1.1. Hardware Specification

PC specifications

The application can be used in PCs that meet the following minimum requirements: