NEXUS MANUFACTURE

In Partial Fulfillment of the Requirements for the Degree Bachelor of Science in Information Technology

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INTRODUCTION

The Nexus Manufacture website provides an extensive platform for people and companies in the automobile sector. The website aims to give consumers a single point of entry to a variety of cars, car parts, and associated services so they can browse, buy, and utilize them. Nexus Manufacture strives to meet the demands of both car lovers and industry experts by putting an emphasis on driving journeys and pioneering quality.

The website's major target audience consists of prospective car purchasers, auto enthusiasts, experts in vehicle maintenance and repair, and people looking for certain vehicle parts. The website also targets companies and establishments in the automotive sector, including manufacturers, repair shops, and dealerships. To meet the needs of a wide spectrum of customers with different automotive requirements, Nexus Manufacturing provides a wide selection of new and used cars, car components, and services.

In terms of scope, the website offers a convenient user experience for browsing and buying cars, components, and services. Along with a comprehensive selection of vehicle parts like batteries, radiators, engines, doors, mirrors, and more, it provides comprehensive information about a number of vehicle categories, including cars, trucks, motorbikes, scooters, and more. To help customers make wise decisions, the website also offers a financing calculator, customer reviews, and news updates. The website's scope includes not only the selling of automobiles and parts but also the providing of useful data and tools for people and companies involved in the automotive sector.

PROJECT OVERVIEW

PROJECT OBJECTIVES

This project aims to establish cross-functional teams that involve engineering, supply chain, and quality control to facilitate agile adaptation to market fluctuations and product innovation. It also aims to develop a real-time data analytics platform to monitor production activity, predict possible delays, and optimize resource allocation. Finally, it will invest in employee training and upskilling programs to ensure a skilled workforce capable of handling advanced technologies and maintaining a competitive edge in the global manufacturing landscape.

KEY FEATURES

- **Navigation:** The website has a clear and organized navigation menu, allowing users to easily access different sections such as news, categories of vehicles, services, and items for sale.

- **User Accounts:** Users can create accounts, log in, and access features such as adding items to their cart, saving favorites, and viewing purchase history.

- **Contact Information:** The website prominently displays contact information, including email and phone number, for users to reach out to the company.

- **Vehicle Listings:** The site features a comprehensive listing of vehicles, including used and new cars, motorcycles, scooters, and trucks, with detailed specifications and pricing information.

- **Finance Calculator:** The website includes a finance calculator to help users estimate costs and payments for vehicles.

- **Professional Profiles:** The site showcases the company's professionals, providing a personal touch to the services offered.

- **Customer Engagement:** Users can leave reviews and schedule appointments, allowing for interaction and feedback.

- **Responsive Design:** The website appears to be responsive, adapting to different screen sizes for a seamless user experience.

TECHNOLOGIES USED

- **Front-end Development:** HTML, CSS, JavaScript for creating the structure, style, and interactivity of the website.
- **Back-end Development**: Server-side scripting languages such as PHP or Python for handling server-side operations and database interactions.
- **Database Management:** MySQL or a similar database management system for storing and managing data related to vehicles, parts, user accounts, and transactions.
- **Responsive Design:** Implementation of responsive design principles using frameworks like Bootstrap or media queries to ensure the website's compatibility across various devices and screen sizes.
- **E-commerce Platform:** Integration of e-commerce platforms or frameworks such as WooCommerce, Magento, or custom-built solutions for managing the online store, cart, and checkout processes.
- **Content Management System (CMS):** Usage of CMS platforms like WordPress, Drupal, or custom-built CMS for managing and updating website content, including news, articles, and product listings.
- **Communication:** Integration of email services for contact forms, notifications, and customer communication.

SYSTEM ARCHITECTURE

ARCHITECTURE OVERVIEW

- **Front-end Development:** The user interface, layout, and interaction of the website are probably made with HTML, CSS, and JavaScript. This covers the search feature, the navigation menu, and the way different areas like news, services, categories, and products for sale are displayed.

- **Back-end Development:** Database interactions, user authentication, and server-side operations are probably handled using server-side programming languages like Python or PHP. This covers the creation of dynamic content, cart functionality, and user account management.

- **Database Management:** A database management system, like MySQL, is probably integrated with the website in order to store and handle information about cars, components, user accounts, transactions, and customer reviews.

- **E-commerce Platform:** The online store, checkout procedures, cart, and financial calculator features may be managed by the website through the integration of e-commerce platforms or custom-built solutions.

- **Responsive Design:** The website is compatible with a wide range of devices and screen sizes thanks to its responsive design, which guarantees a smooth user experience.

- **Content Management System (CMS):** For the purpose of managing and updating website content, such as news, articles, and product listings, the website may be accompanied by a content management system (CMS) like WordPress or a custom-built CMS.

- **Communication and Contact:** For user interaction and communication, the website offers email addresses, social network integration, and contact details.

COMPONENTS AND MODULES

- **Navigation and Header Section:** There are options for Home, News, Categories, Services, Items, About Us, and Search on the navigation menu. It also has the company's contact details and logo.

- **User Account Management:** Users of the website can examine their cart, access their favorites, and log in or sign up. Additionally, it offers ways for users to participate, such scheduling appointments and posting reviews.

- **Vehicle and Parts Listings:** The website has areas where users can choose from a list of vehicle categories, vehicle names, and comprehensive specifications and cost details for different parts and cars.

- **Finance Calculator:** Users can estimate the expenses and payments for cars using a finance calculator module.

- **E-commerce Functionality:** The website has an online store where users may compare products, read item descriptions, and add items to their carts.

- **Content Management:** A content management system is probably used by the website to maintain and update news, category, service, and item-related material.

- **Contact and Communication:** Users can fill out a form on the website to get in touch, and contact details such as phone numbers and email addresses are also provided.

- **Professional Profiles:** The company's professionals are highlighted on the website, giving the services a more individualized feel.

- **Footer Section:** In addition to copyright information, the footer has links to other areas, including About Us, Contact Us, Career, Privacy Policy, and Terms & Conditions.

DATA FLOW DIAGRAM
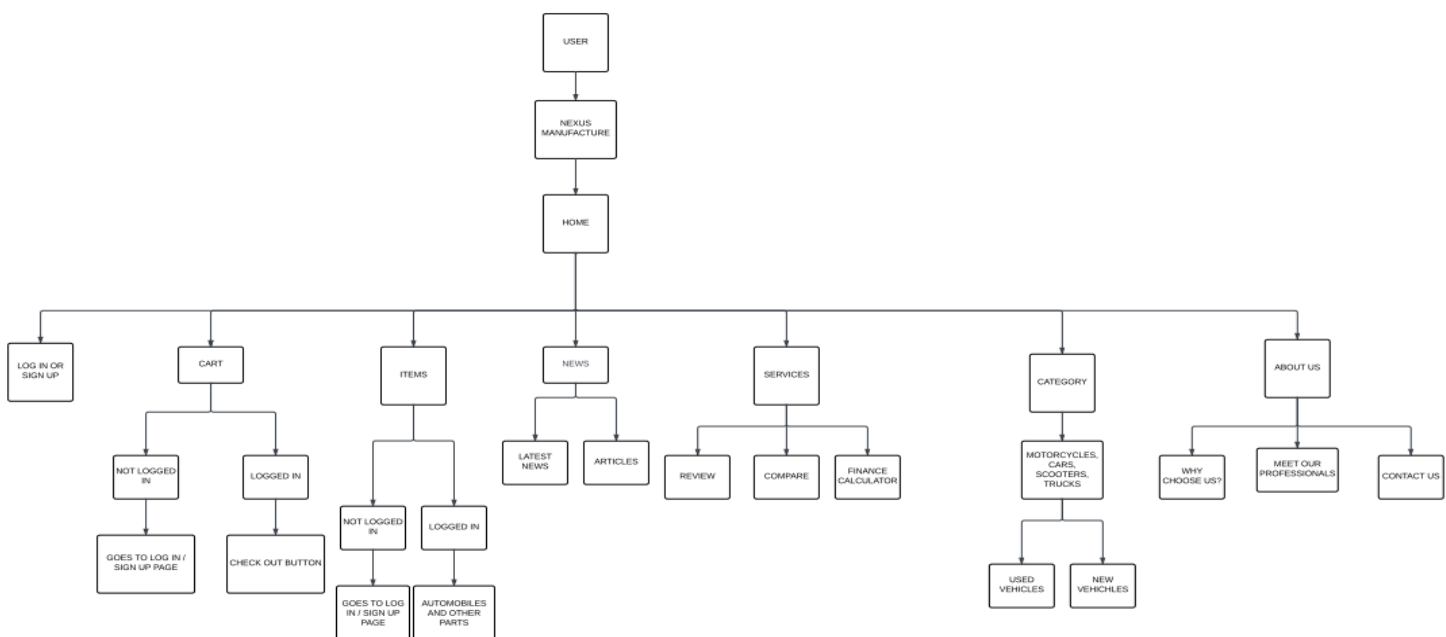
SITE ARCHITECTURE

NAVIGATION MENU

The Nexus Manufacture website's navigation menu is made to help users find their way around the different sections of the site and make searching for cars, car parts, and associated services easier. Below is a thorough explanation of every menu item:

1. **Home:** This website's home page gives users an outline of the products and services the business offers, the most recent information, and exclusive offers. Usually, it has a search option to locate new and used cars by city, brand, and price range.

2. **News:** The most recent information on Nexus Manufacturing and the automotive industry is contained in this section, along with press releases and industry news. It might consist of media coverage, blog entries, and articles.

3. **Categories:** This menu item takes viewers to a page with a variety of vehicle classifications, including trucks, cars, motorcycles, and scooters. Subcategories for both new and secondhand cars may exist inside each main category.

4. **Services:** The services offered by Nexus Manufacture are described in this section. These services may include customization, maintenance, repair, and other vehicle-related services. It gives information about the services provided and might even provide a way to schedule a service.

   1. **Review:** Customers can post reviews of the vehicles they purchased and the services they received in the website's review section. Customers can share their experiences in the comment area and through the rating system.
   2. **Compare:** Users can evaluate several cars according to their features, costs, and reviews by using the comparison feature. This enables prospective purchasers to compare the attributes of several cars side by side and make informed decisions.
   3. **Finance Calculator:** Users can estimate the cost of financing a vehicle with the use of the finance calculator. In order to determine the projected monthly payments and total interest over the loan life, it takes into account the cost of the vehicle, down payment, interest rate, loan duration, and payment frequency.

5. **Items:** This menu item directs users to an online store where they may browse and buy auto accessories and parts. Many other parts, including batteries, radiators, engines, doors, mirrors, headlights, pistons, clutches, and more, may be a part of it.

6. **About Us:** The history, mission, vision, and values of Nexus Manufacture are all covered in this section. It might also contain details about the accomplishments, quality standards, and manufacturing procedures of the business.

7. **Search:** This menu option enables visitors to search the website in-depth for automobiles or parts. Usually, users can refine search results based on price range, make, model, year, and other relevant criteria.

8. **Log In or Sign Up:** The user accounts can be managed using these options. To use account features like wish lists, purchase histories, and saved searches, users must register. To open a new account, users must sign up.

9. **Cart:** The products that users have chosen to buy are displayed on this menu item. Viewing their cart, checking out, and managing their purchases are all possible with it.

Users can easily navigate around the website's sections by using the navigation menu, which gives them access to vehicles, parts, news, and services offered by Nexus Manufacture. Users can also browse and manage their selected items for purchase through the "Cart" and utilize the "Log In" and "Sign Up" options for managing their user accounts.

SITEMAP
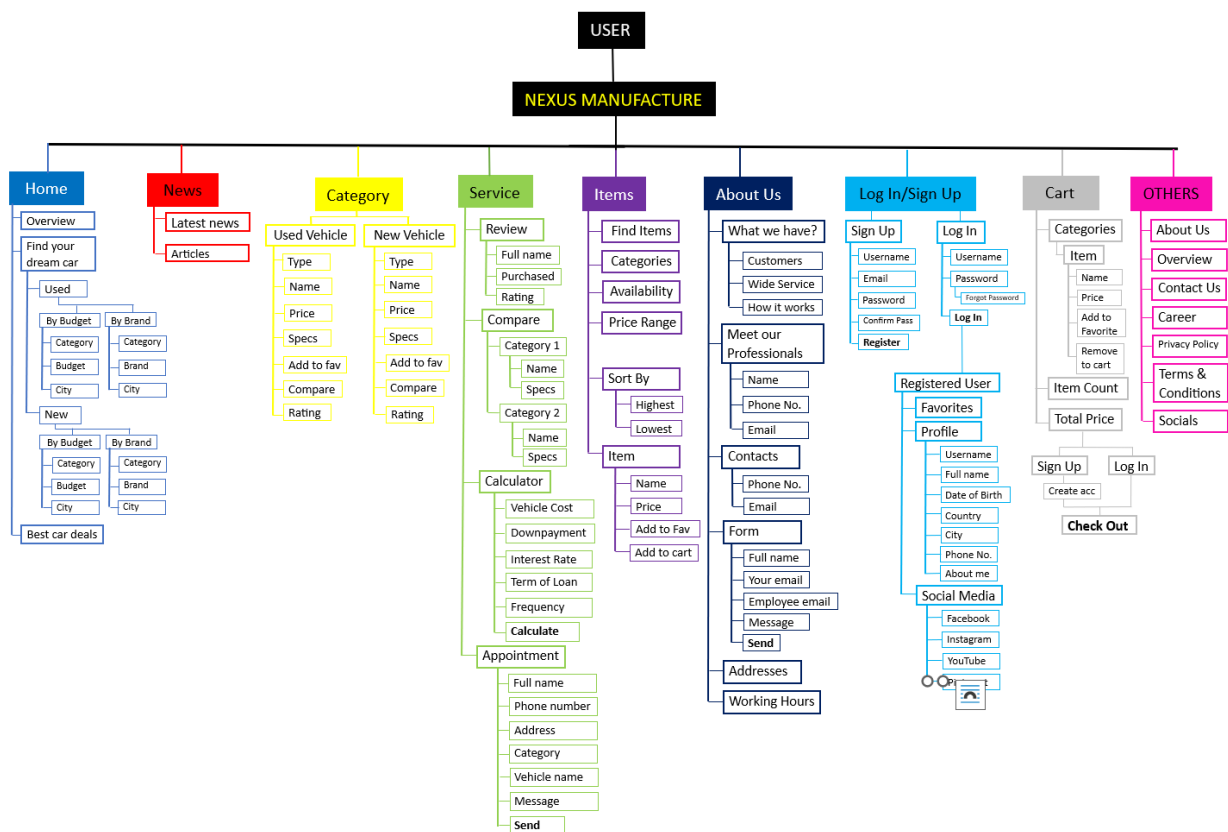
DESIGN AND LAYOUT

A website such as Nexus Manufacture would probably have a color scheme consisting of a range of colors that complement the company's identity and project an impression of professionalism and reliability. Websites selling automobiles frequently employ blue, gray, black, and white colors. The colors are meant to convey a sense of modernism, refinement, and dependability. Accent colors can also be utilized to draw attention to components, like buttons or crucial text.

An easy-to-read font combination that complements the company's branding would be used by Nexus Manufacturing. Sans-serif fonts are frequently used for web material because they are readable on computer screens. In addition, to attract attention, headings and titles could use bold or larger fonts, although body text usually uses a regular font for ease of reading.

The logo, navigation menu, and contact details of the company are all featured in the header part of the Nexus Manufacturing website. Options like Home, News, Category, Service, Items, About Us, and Search is available on the navigation menu. There are also sections dedicated to categories, such Trucks, Motorcycles, Cars, and Scooters, in addition to a section for Services and Items.

The website also has a section dedicated to managing user accounts, where users may view their cart, log in or sign up, and use features that are specific to them. In addition to copyright information, the footer section includes links to other pages, including Overview, Contact Us, Career, Privacy Policy, and Terms & Conditions. The website's content consists of information about the company's contact details, a finance calculator, details on new and used cars, an online store for car parts, and a contact us section.

Overall, customers may easily browse automobiles, parts, services, and corporate information on the Nexus Manufacture website thanks to its architecture. The website appears to be well-structured, with parts that are easy to navigate and features that make it easier to use.

CONTENT

MOTORCYLES PARTS

Frame:

Main structural component that holds the motorcycle together.

Engine:

Internal combustion engine that powers the motorcycle.

Components include cylinders, pistons, crankshaft, camshaft, and the cooling system.

Transmission System:

Gearbox and associated components for transferring power from the engine to the wheels.

Exhaust System:

Pipes and mufflers that guide and quiet the exhaust gases from the engine.

Suspension System:

Front forks and rear suspension components that provide a smooth ride by absorbing shocks.

Wheels and Tires:

Rims, spokes, and tires that support the motorcycle and provide traction.

Braking System:

Disc brakes or drum brakes along with associated components for stopping the motorcycle.

Fuel System:

Fuel tank, fuel pump, and fuel injection system for delivering fuel to the engine.
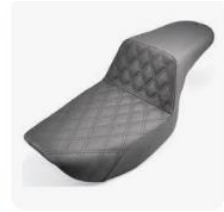

Handlebars and Controls:

Handlebars for steering and control.

Control switches for operating lights, horn, and other features.

Seating:

Saddle or seat for the rider and passenger.

Bodywork and Fairings:

Exterior panels and fairings that provide aerodynamics and aesthetic appeal.

Drive System:

Chain, belt, or shaft drive system for transmitting power from the transmission to the rear wheel.
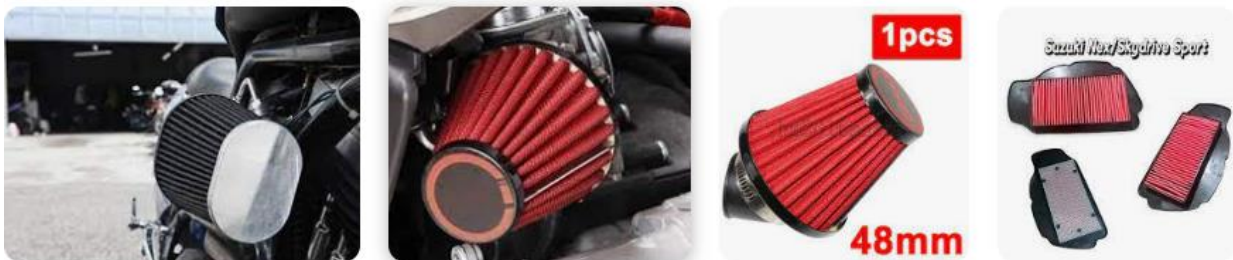
Cooling System:

Radiator and cooling components for regulating engine temperature.

Air Intake System:

Air filter and intake components for supplying clean air to the engine.
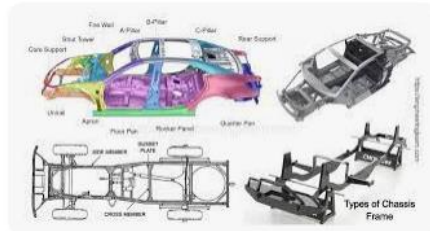

Lubrication System:

Oil pump and lubrication components for maintaining engine health.

CAR PARTS

Chassis and Frame:

The main structural framework that supports the vehicle.

Engine:

Internal combustion engine components, including cylinders, pistons, crankshaft, camshaft, and the cooling system.

Transmission System:

Gearbox, clutch, and associated components for transferring power from the engine to the wheels.

Exhaust System:

Exhaust manifold, catalytic converter, muffler, and tailpipe.

Suspension System:

Front and rear suspension components, including shocks and struts.

Wheels and Tires:

Rims, tires, and associated components.

Braking System:

Disc brakes or drum brakes with components like calipers, rotors, brake pads, and brake lines.

Fuel System:

Fuel tank, fuel pump, fuel lines, and fuel injectors.

Dashboard and Instrumentation:

Gauges and displays, including speedometer, tachometer, fuel gauge, and temperature gauge.

Steering System:

Steering column, power steering pump, and steering linkage.

HVAC System (Heating, Ventilation, and Air Conditioning):

Heater core, air conditioning compressor, and ventilation ducts.

Interior Components:

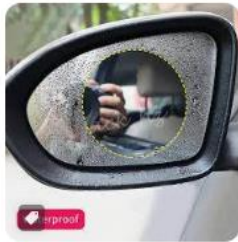Seats, dashboard, center console, door panels, and carpeting.

Body Panels:

Exterior panels, including doors, fenders, hood, and trunk.

Glass:

Windshield, windows, and mirrors.

Safety Features:

Airbags, seat belts, antilock braking system (ABS), traction control, and stability control.

Cooling System:

Radiator, cooling fan, and associated components for regulating engine temperature.

Fluids:

Engine oil, transmission fluid, brake fluid, coolant, and windshield washer fluid.

FUNCTIONAL COMPONENTS

USER REGISTRATION & AUTHENTICATION

User Registration: Creating a form to collect user data like username, email, and password. Using front-end validation to ensure data consistency and accuracy. Implementing email verification or account confirmation to authenticate users before granting access to the website.

The Authentication Process will have different parts such as.

• Login Page, wherein users will input their details or credentials.

• Credential Verification, for authenticating user credentials by checking the username/email and password against stored data in the database.

• Log out Functionality, that will offer users a way to log out, closing their time using the website.

SEARCH FUNCTIONALITY

- It is used to enable users to quickly and efficiently find specific information or products they're looking for within the website's content. Through the search bar, it will enhance user experience by providing a convenient way that will serve as a navigator to find information or products, which can also help by saving time. Effective search functionality improves user engagement, increases user satisfaction, and encourages users to explore and interact more extensively with the website.

SHOPPING CART

This serves as a gateway for users to manage their intended purchases. Users can add items to their cart from product pages by clicking an "Add to Cart" button that is placed alongside each item.

Cart Management - Allows users to view their current cart contents. Where they can also check categories and options. Product is displayed to your cart with details, images, and pricing. It includes an "Add to favorites" and "Remove to cart" button or icon alongside each product for users to select items. Within the cart, Users can adjust the quantities, remove items, or directly proceed to checkout.

USER DASHBOARD

The user dashboard serves as a central page where users can manage their accounts, track their past activities, access relevant information, enhancing usability and engagement. It typically includes user profiles like account settings, activity summaries, customization options, saved items, communication tools, and security features.

CONTACT FORMS

Direct channel for users to reach out to website owners. This contains the details of the owners; Phone number, Email address, Location of store, Working hours, etc. What are the means or ways for the user to communicate, make inquiries, ask questions, and further details.

INTERACTIVE FEATURES

- Visual Elements of the website that showcases visual representations of data or information that users can interact with, providing a more user-friendly learning experience.
- Comparing two products or items to distinguish what is more efficient and budget friendly. Containing its parts, category, specs, and other details of users' choice.
- Finance Calculator, can assist users in making financial decisions, analyzing interest rate, down payment or estimating loan payments, and planning budgets.

DATA MANAGEMENT

DATA STRUCTURE

This involves defining tables, fields, relationships, and constraints to efficiently manage and access information.

- Each table represents a specific entity (for ex: users, products, orders).

- Each column has a specific data type and holds a particular type of data.

- Each row corresponds to a specific entity and holds data in the columns representing various attributes of that entity.

Two different databases will be applied, used by the user accounts and products specifications.

• Table for the car and columns for its specifications.

• Table for the user accounts and columns for their credentials.

DATA FLOW

Allow users to visit the website but limited access. Home page, about us, Compare and Contact us can be seen but to be able for users to interact with the site like set an appointment, review items, enter information, click buttons, submit forms, or make requests, they must log in or make an account first.

DATA BACKUP AND RECOVERY PROCEDURES

-Data back-up procedures tackles about identifying critical data that needs regular backup based on its importance. Determine where the data will be stored: Online or offline.

- Recovery procedures deal to distinguish the cause of data loss or system failures that requires recovery.

Depending on the situation, initiate the restoration process:

- For a full system recovery, restore from the latest full backup.

- For partial data recovery, restore from the relevant or differential backups.

Verify Data Restoration

- After recovery, validate that the restored data is accurate and functional.

- Confirm that the system or data is operational as expected.

USER EXPERIENCE

RESPONSIVENESS

To ensure that users have a seamless experience across various devices, the website should adapt to different screen sizes. This means implementing a responsive design that adjusts elements like images, text, and buttons to fit desktops, tablets, and mobile devices. Navigation menus could transform into collapsible icons on smaller screens, and touch-friendly elements should be prioritized for mobile users. Testing on various devices ensures that all users, regardless of their device, have access to the same functionalities and content without compromise.

CROSS-BROWSER COMPATIBILITY

Given the diverse audience and their varied browsing habits, it's essential to ensure the website works consistently across different browsers such as Chrome, Firefox, Safari, Edge, and Opera. This involves testing the website's layout, functionalities, and performance on each browser to identify and fix any inconsistencies or bugs. Regular updates and checks are crucial, as browser versions evolve, ensuring that the website remains accessible and functional for all users, irrespective of their preferred browser.

PERFORMANCE OPTIMIZATION

Optimizing website performance is vital for user satisfaction and search engine rankings. To achieve this:

1. Loading Speed: Minimize unnecessary scripts, compress images without compromising quality, utilize browser caching, and leverage content delivery networks (CDNs) to ensure swift page loading times.

2. Efficient Code: Ensure clean and optimized code to reduce page load times and improve responsiveness.

3. Mobile Optimization: Prioritize the mobile experience by optimizing images, leveraging AMP (Accelerated Mobile Pages) where applicable, and ensuring touch-friendly navigation.

4. Content Delivery: Utilize lazy loading for images and videos to improve initial page load times and optimize content delivery based on user location through CDNs.

5. Server Performance: Ensure robust hosting solutions, potentially utilizing cloud-based servers, to handle peak traffic efficiently and maintain uptime.

6. Analytics & Monitoring: Implement analytics tools to monitor website performance metrics, identify bottlenecks, and continuously optimize based on user behavior and feedback.

By focusing on these areas—responsiveness, cross-browser compatibility, and performance optimization—you can ensure that the Nexus Manufacture website offers a seamless, efficient, and enjoyable experience for its diverse user base, fostering trust, engagement, and loyalty.