E-Commerce-Price-Comparison-Engine

Process model going to adapt: -

Big-Bang model

Abstract: -

In the recent years e-commerce has bloomed in the Indian market majorly due to faster buying process and product/price comparison. E-commerce giants like Amazon and Flipkart have taken over the market completely. People love to buy products from these sites, but tend to prefer the cheaper alternative. To compare prices and reviews between different products on these sites becomes a hassle. Our product aims to bridge this gap and make the process very easy. Customers will be able to compare prices for different products listed on different sites from a single portal. This portal will smoother the shopping experience of customers and help them get the best deal.

TEAM MEMBERS

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1. Introduction

1.1 Purpose

This E-commerce Price Comparison Engine Software Requirement Specification (SRS) main objective is to provide a base for the foundation of the project. It gives a comprehensive view of how the system is supposed to work and what is to be expected by the end users. This SRS for EPCE can also be used for future as basis for detailed understanding on how Project was started. It provides a blueprint to upcoming new developers and maintenance teams to assist in maintaining and modifying this project as per required changeability.

1.2 Intended Audience and Reading Suggestions

This document is intended for the developers who will work on the this project and it's users. This SRS contains all the details of the project, it's scope and an overview.

1.3 Project Scope

In the recent years e-commerce has bloomed in the Indian market major due to faster buying process and product/price comparison. E-commerce giants like Amazon and Flip kart have taken over the market completely. People love to buy products from these sites, but tend to prefer the cheaper alternative. To compare prices and reviews between different products on these sites becomes a hassle. Our product aims to bridge this gap and make the process very easy. The ECPCE(E-commerce Price Comparison Engine) project is intended for the comparison of prices of products listed on E-commerce websites. It will be able to bridge the gap and make finding the cheapest and best deal an easy task. Our E-commerce Price Comparison Engine will have one end user: Customer. E-commerce Price Comparison Engine will consists of Price Comparison Tools. Customers will be able to check for products listed on various sites(Amazon, Flipkart) and get the best deal. They will be able to compare prices directly from our portal. They will also get the option to jump to the product page of whichever product they want to visit. The software can be scaled to compare prices across different e-commerce websites such as Nykaa, Myntra if the product is available in the respective catalogue.

1.4 References

[1] Software Engineering 9th Edition, Ian Sommerville
[2] Automate The Boring Stuff With Python. 2nd Edition, Al Sweigart

2. Overall Description

2.1 Product Features

Our Product General features are:
• E-commerce Comparison Portal
• Check for Product availability
• Display the Search Results
• Choice for selection of products
• External link for product page

2.2 User Classes and Characteristics

There are 1 user Levels in our E-commerce Price Comparison Engine :
A. Customers Customer are vital part of the system. Customer have access to compare different products online. They should be able to search different products on E-commerce websites. Customers have access to different product pages. Customer should at least be capable to use the Portal UI interface.

2.2 Operating Environment

The software can be used on any device that is connected to the Internet and can be surfed upon both indoors and outdoors.

2.3 Assumptions and Dependencies

• The desired product must be available on catalogues of both the e-commerce websites.
• The servers of both the websites must be up and running.

3. System Features

3.1 System Feature 1

Price comparison tools will be part of the e-commerce price comparison engine. Customers will be able to compare prices for products that are featured on several websites (such as Amazon and Flipkart). From our platform, they will be able to compare prices. Additionally, consumers will be directed to the product page of any item they like.

4. External Interface Requirements

4.1 User Interfaces
The user interface for system shall be compatible to any type of Windows version running device.

4.2 Software Interfaces
Users will have the option to search the product using the search tab. In addition to that, product recommendations will be displayed on the home page based on the search history.

5. Other Non-functional Requirements

5.1 Performance Requirements
The landing page supporting 5,000 users per hour must provide 6 second or less response time in a Chrome desktop browser, including the rendering of text and images and over an LTE connection.

5.2 Safety Requirements
User data such as contact details, email address, names are end-to-end encrypted. Hence ensuring maximum privacy. No consumer data will be stored or sold to any third-party clients.

5.3 Security Requirements
No outside entity can hack into the server in any way possible ensuring data privacy.

5.4 Maintenance
The system will need a routine maintenance check every 6 months to ensure a seamless userexperience. The mean time to restore the system (MTTRS) following a system failure must not be greater than 10 minutes. MTTRS includes all corrective maintenance time and delay time.

5.5 Scalability
The system must be scalable enough to support 1,000,000 visits at the same time while maintaining optimal performance.
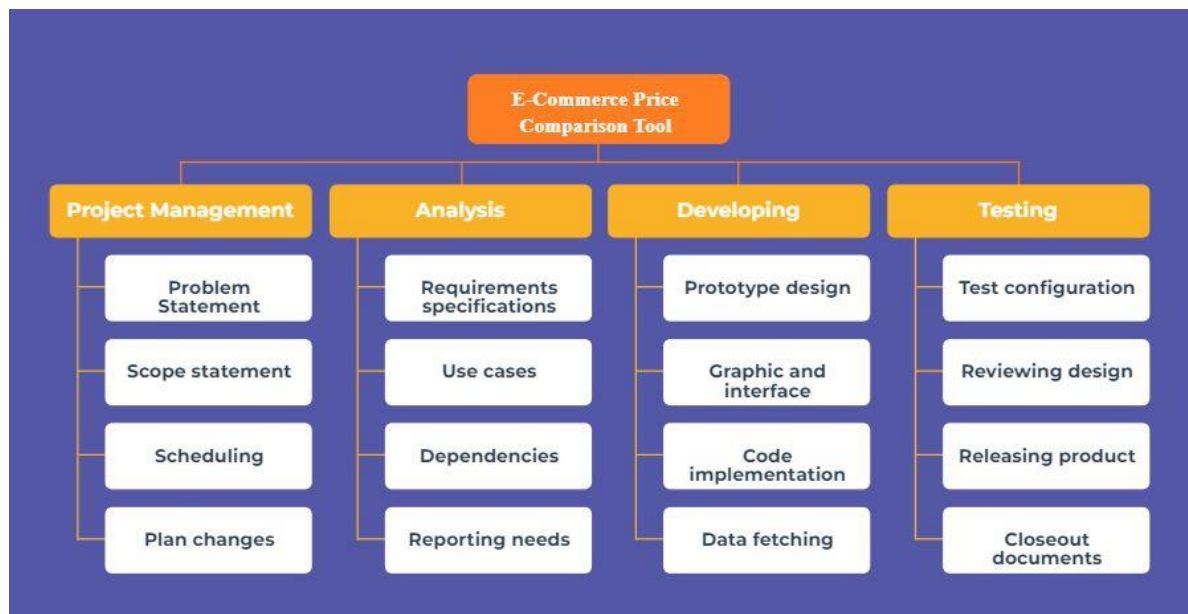
5.6 Compatibility
Users will have a seamless experience on systems running on both Windows 10 and Windows 11. The software is available on latest macOS updates.

5.7 Reliability
The system will perform without failure in 95 percent of use cases in atleast half a year.
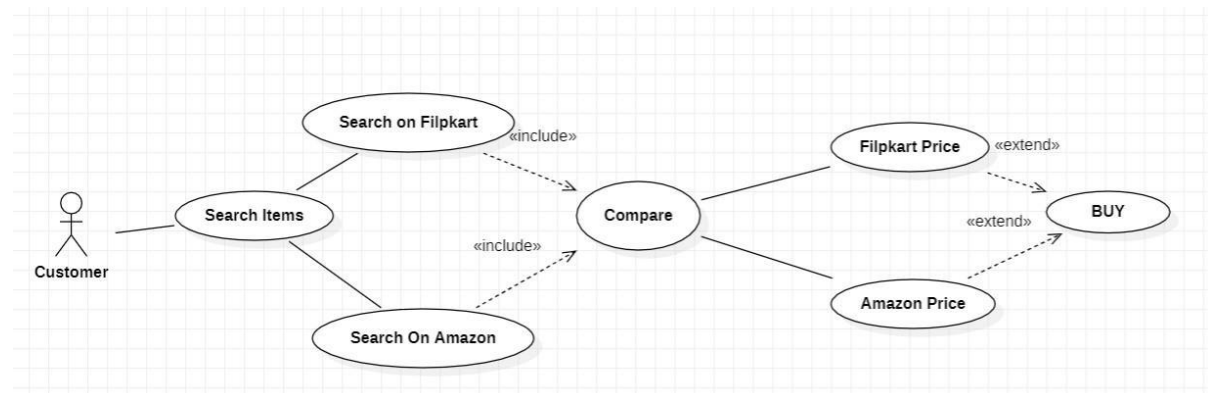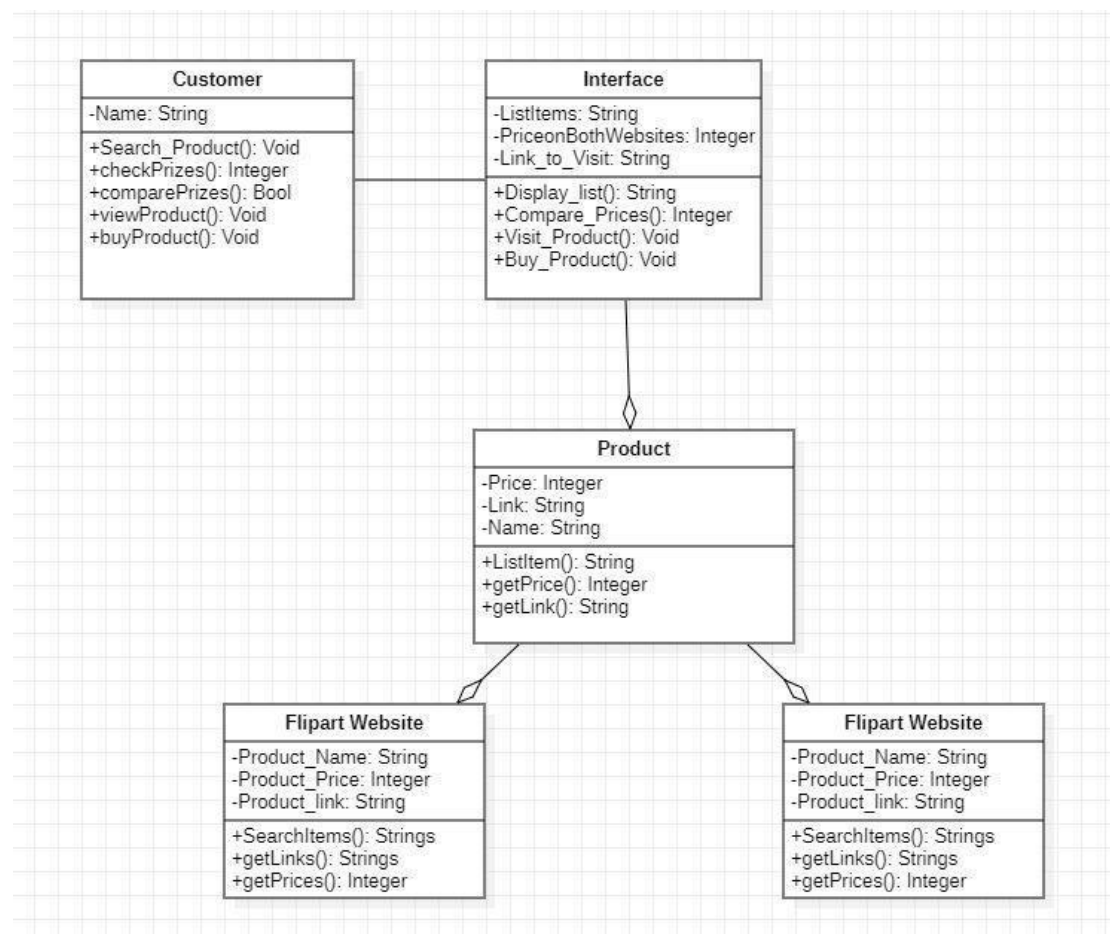
WORK BREAKDOWN STRUCTURE: -

For an E-Commerce Price Comparison Engine, a total of 5 modules can be identified:

- **Product Search Module: This module will allow users to search for products based on various parameters such as product name, category, brand, etc. The results of the search will be displayed in a structured and organized manner to make it easy for users to compare prices and features.**

- **Price Comparison Module: This module will compare prices of the selected product from different e-commerce websites and show the results to the user. It will also display other relevant information such as the availability of the product, delivery time, and shipping costs.**

- **Product Review Module: This module will allow users to view product reviews and ratings from other users, as well as write their own reviews. This will help users make informed decisions when shopping.**

- **Wishlist Module: This module will allow users to create a wishlist of products that they are interested in purchasing. The user will be able to compare prices, add or remove items, and track price changes of items in their wishlist.**

- **User Account Module: This module will allow users to create and manage their accounts, including their personal information, order history, and wishlists. It will also provide features for users to track their orders, update their shipping and billing information, and view past purchases.**

USE CASE DIAGRAM:-

UML CLASS DIAGRAM:-

ACTIVITY DIAGRAM:-

Open Ecommerce Comparison Portal

Search Items

Search on Amazon

Search on Filpkart

Display the Search of products

Display the respective prices of products

Buy

1. Sequence Diagram:
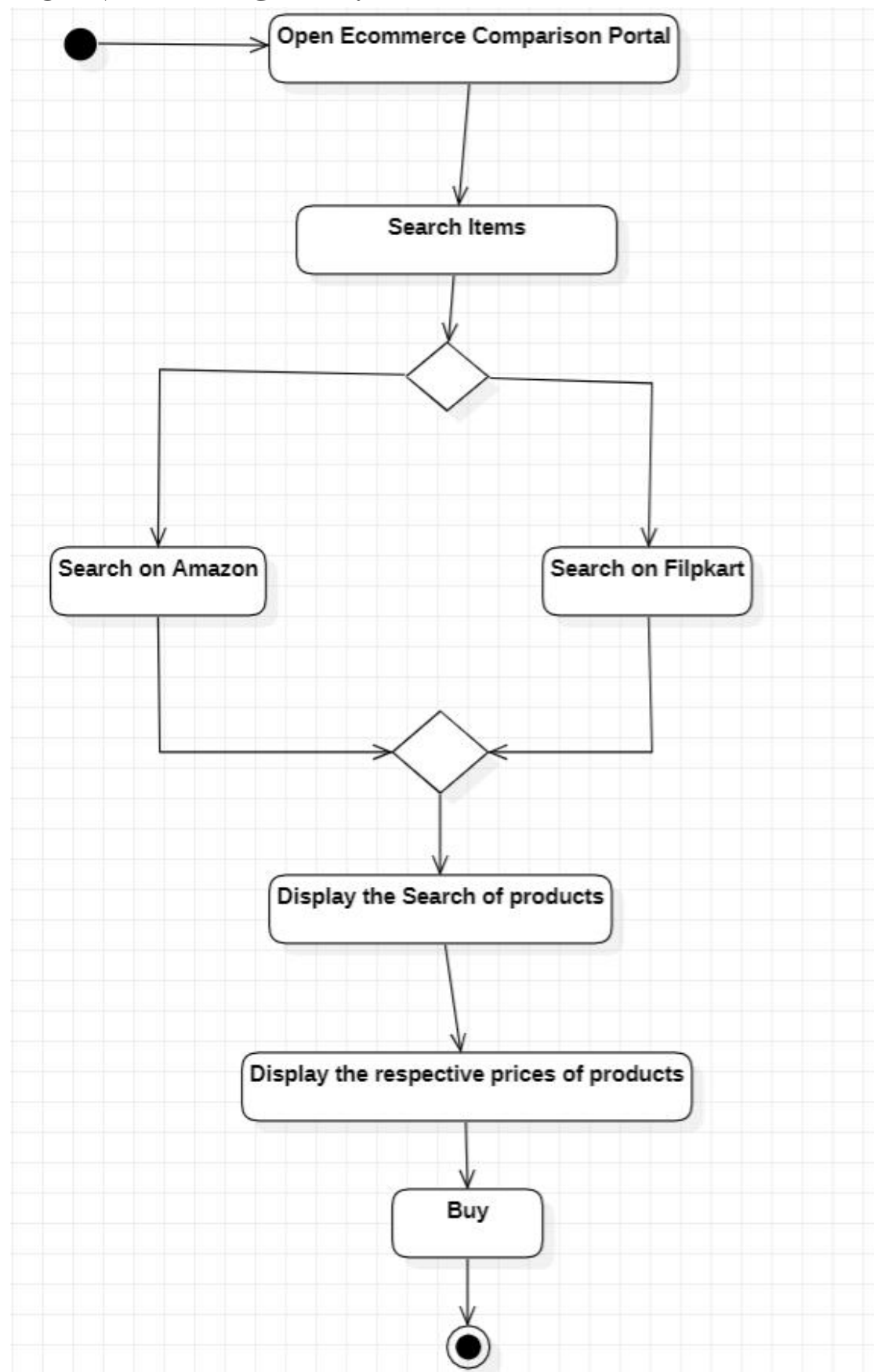
E-Commerce Price Comparison Engine Sequence Diagram
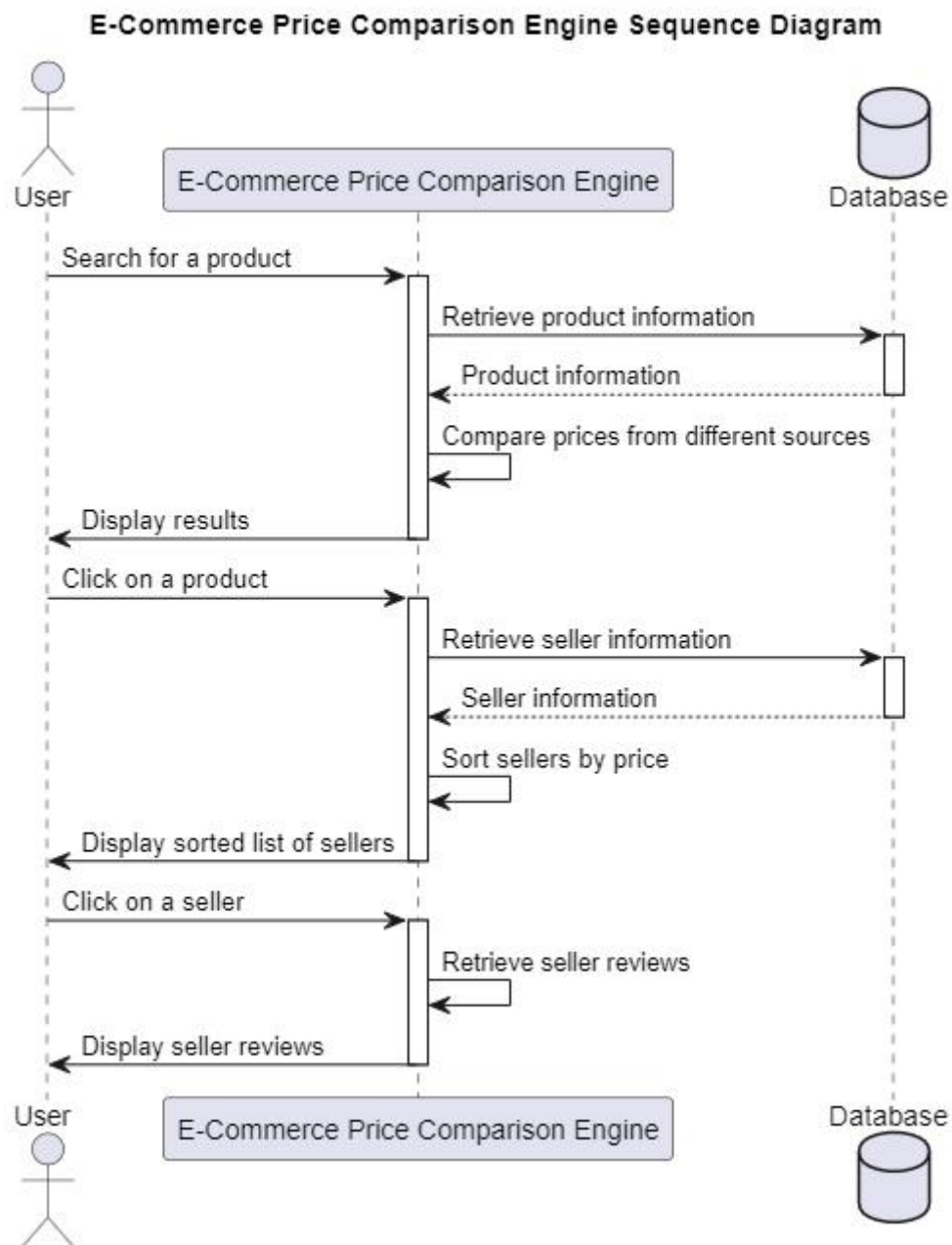
2. Data Flow Diagram
Level 0:-
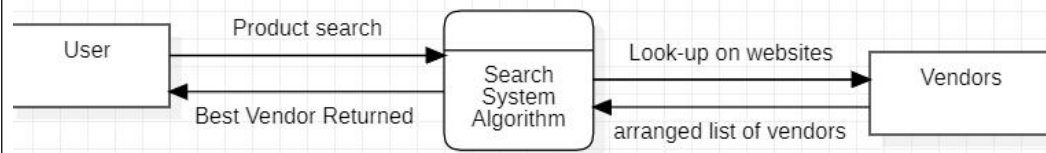
Level 1:-
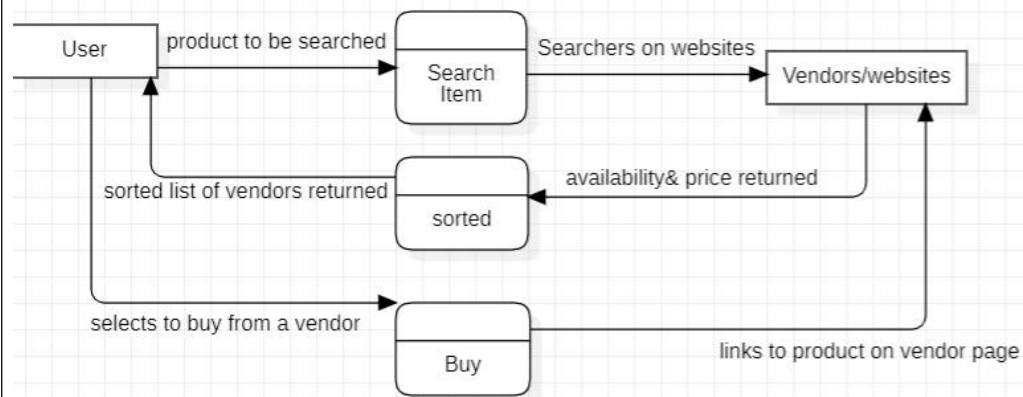
Level 2:-

3. Deployment Diagram

E-Commerce Price Comparison Engine Deployment Diagram

Client Browser	Application Server		Database Server
Web Interface	Price Comparison Service	E-Commerce Price Comparison Engine	Product Database
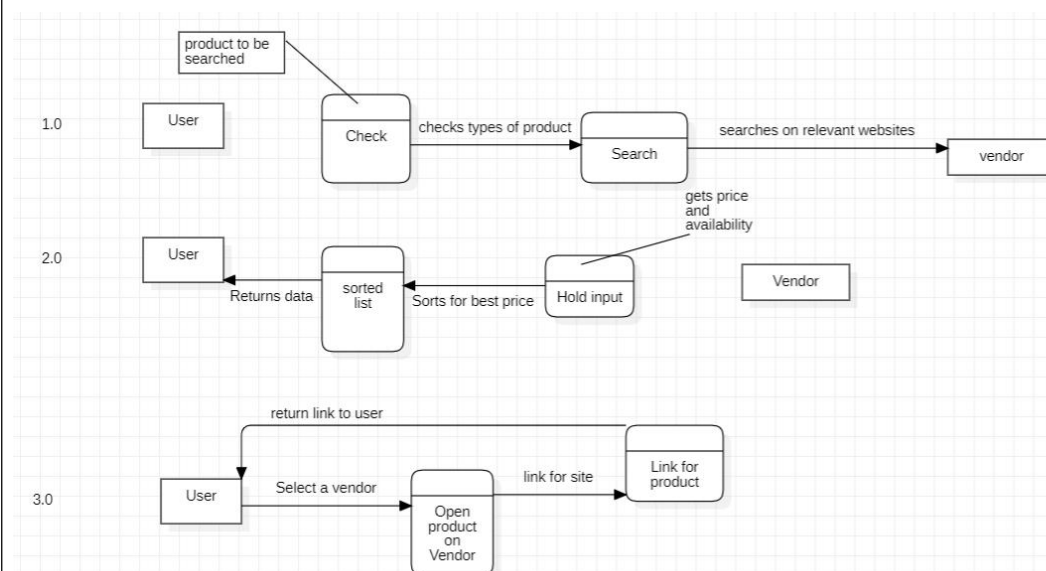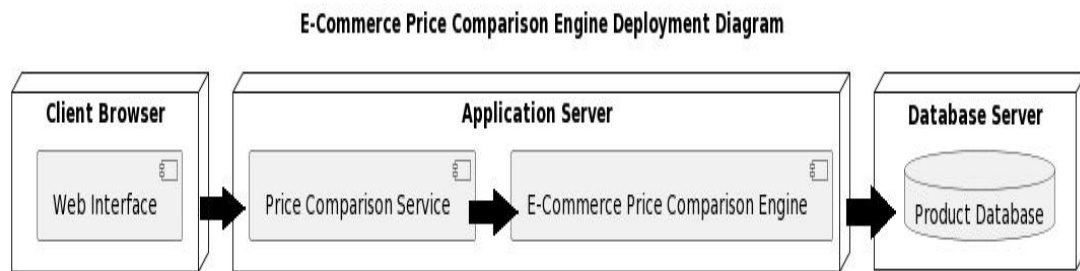
Developing an ecommerce price comparison engine involves several tasks that need to be completed. Here is a set of tasks involved in developing an ecommerce price comparison engine:

Define the scope and requirements of the project: Identify the scope of the project and gather requirements from stakeholders, including users, merchants, and partners. This includes identifying what products and services to compare, what information to display, and what features are required for the website.

Collect data: Collect product and pricing information from various ecommerce sites and online marketplaces. This may involve web scraping, API integrations, or manual data entry.

Build a team: Build a team of developers, designers, and marketing specialists to work on the project and ensure its success.

Data processing and normalization: Clean, process, and normalize the data collected to ensure consistency and accuracy. This includes matching product names, descriptions, and prices, and standardizing unit measurements.

Develop a search algorithm: Develop a search algorithm that allows users to search for products based on various parameters, such as brand, category, price range, and availability.

Build a database: Develop a database to store the collected and processed data. The database should be designed to handle large amounts of data and allow for fast retrieval.

User interface design: Design an intuitive and user-friendly interface for the website that allows users to easily navigate and compare products.

Develop website functionality: Develop website functionality that allows users to filter and sort products based on various criteria, add products to a shopping cart, and make purchases through affiliate links.

Integrate affiliate programs: Integrate affiliate programs with ecommerce websites to generate revenue through affiliate marketing.

Test and deploy: Test the website thoroughly to ensure it is functioning as intended, and deploy it to a production environment.

Monitor and update: Monitor the website regularly for issues and update it to keep up with changes in the ecommerce landscape. This includes updating the data and adding new features to improve the user experience.

Implement security measures: Implement security measures to protect user data and prevent unauthorized access to the website and database. This includes encryption of sensitive information, such as login credentials and payment details.

Optimize website performance: Optimize the website for fast loading times and responsive design to ensure a seamless user experience across different devices.

Conduct market research: Conduct market research to understand user needs and preferences and to identify gaps in the market that the website can address.

Develop a business model: Develop a business model that aligns with the goals of the website and generates revenue through advertising, affiliate marketing, or other means.

Establish partnerships: Establish partnerships with ecommerce websites and online marketplaces to access their product and pricing data and to generate revenue through affiliate marketing.

Monitor competition: Monitor the competition to stay up to date on new products, pricing trends, and other market changes that may affect the website's performance.

Conduct user testing: Conduct user testing to gather feedback on the website's functionality and user experience and to identify areas for improvement.

Develop a marketing strategy: Develop a marketing strategy to promote the website and attract users. This includes search engine optimization, social media marketing, and other digital marketing tactics.

Maintain legal compliance: Ensure the website is compliant with relevant laws and regulations, such as data protection and consumer protection laws, to avoid legal issues and protect user data.

Develop analytics and reporting: Develop analytics and reporting features to track website traffic, user behavior, and other metrics to measure the website's performance and identify areas for improvement.

Implement machine learning algorithms: Implement machine learning algorithms to improve the accuracy and relevance of search results and product recommendations based on user preferences.

Enhance user experience: Continuously improve the user experience by adding new features, improving website navigation, and addressing user feedback.

Implement social sharing and feedback: Implement social sharing and feedback features to encourage users to share products and reviews on social media and leave feedback on the website.

Build mobile apps: Build mobile apps for iOS and Android devices to expand the reach of the website and provide a seamless mobile experience for users.

Develop pricing strategies: Develop pricing strategies that maximize revenue and profitability while remaining competitive in the market.

Establish customer support: Establish a customer support team to handle inquiries, issues, and complaints from users and merchants.

Conduct A/B testing: Conduct A/B testing to test different website designs, features, and pricing strategies and identify the most effective approach.

Build a brand: Build a strong brand identity and reputation through branding and marketing efforts to differentiate the website from competitors and build user trust.

Continuously update and maintain: Continuously update and maintain the website and database to ensure it remains up to date, relevant, and functional. This includes regularly adding new products and updating prices and availability.

Ecommerce Price Comparison Engine

Project Start: Mon, 3/6/2023
Display Week: 1

TASK	ASSIGNED TO	PROGRESS	START	END
Prototype development				
Define the scope and requirements of the project	Name		3/6/23	3/9/23
Collect data			3/9/23	3/11/23
Build a team			3/9/23	3/11/23
Data processing and normalization			3/11/23	3/15/23
Develop a search algorithm			3/15/23	3/20/23
Build a database			3/15/23	3/23/23
User interface design			3/20/23	3/24/23
Develop website functionality			3/24/23	3/27/23
Integrate affiliate programs			3/27/23	3/30/23
Test and deploy			3/30/23	4/3/23
Monitor and update			4/3/23	4/6/23
Business model				
Implement security measures			4/6/23	4/9/23
Optimize website performance			4/6/23	4/8/23
Conduct market research			4/7/23	4/10/23
Develop a business model			4/10/23	4/12/23
Establish partnerships			4/12/23	4/15/23
Monitor competition			4/12/23	4/15/23
Conduct user testing			4/12/23	4/16/23
Develop a marketing strategy			4/15/23	4/18/23
Maintain legal compliance			4/18/23	4/21/23
Advertising and Enhancing				
Develop analytics and reporting			4/21/23	4/26/23
Implement machine learning algorithms			4/27/23	5/1/23
Enhance user experience			5/2/23	5/7/23
Implement social sharing and feedback			5/8/23	5/12/23
Build mobile apps			5/2/23	5/6/23
Develop pricing strategies			5/7/23	5/10/23
Establish customer support			5/11/23	5/14/23
Conduct A/B testing			5/15/23	5/20/23
Build a brand			5/17/23	5/23/23
Continuously update and maintain			5/20/23	5/30/23