

Case Study: Building an E-commerce Website

Business Requirements:

The first step is to gather the business requirements, which define the overall goals and objectives of the project from a business perspective. In this case, the goal is to build an e-commerce website. The requirements may include:

- The website should support multiple product categories and allow customers to browse and purchase items.
- The website should have a secure payment gateway to process transactions.
- The website should provide an easy-to-use interface for both customers and administrators.

To gather these requirements, you would typically conduct meetings or interviews with key stakeholders, such as the business owners or managers, to understand their vision and expectations for the website.

Stakeholder Requirements:

Stakeholder requirements involve identifying the needs and expectations of specific stakeholders who will be directly impacted by the project. In the case of an e-commerce website, stakeholders may include customers, administrators, and suppliers. For example:

- Customers may require features like user-friendly navigation, search functionality, and secure transactions.
- Administrators may require features like inventory management, order tracking, and sales analytics.
- Suppliers may require features like product catalog management and order fulfillment integration.

To gather stakeholder requirements, you can conduct surveys, interviews, or workshops with representatives from each stakeholder group to understand their specific needs and priorities.

Functional Requirements:

Functional requirements describe the specific functionalities and features that the system should provide to meet the business and stakeholder requirements. For an e-commerce website, examples of functional requirements might include:

- User registration and login functionality
- Product catalog with search and filtering options
- Shopping cart and checkout process
- Order management system
- Payment gateway integration
- Inventory management system

To gather functional requirements, you can employ techniques such as brainstorming sessions, use case modeling, or storyboarding to identify and document the specific functionalities required by the different stakeholders.

Non-Functional Requirements:

Non-functional requirements define the quality attributes of the system, such as performance, security, reliability, and usability. Examples of non-functional requirements for the e-commerce website might include:

- **Performance:** The website should load within 3 seconds to ensure a good user experience.
- **Security:** The website should use SSL encryption to secure user data and transactions.
- **Scalability:** The system should be able to handle a large number of concurrent users during peak times.
- **Accessibility:** The website should comply with accessibility guidelines to cater to users with disabilities.

To gather non-functional requirements, you can conduct discussions with stakeholders, perform research on industry standards and best practices, and consult with technical experts to identify the specific quality attributes that should be addressed by the system.

Transition Requirements:

Transition requirements are related to the process of migrating from the current state to the desired future state. In the case of the e-commerce website, transition requirements might include:

- **Data migration:** The existing product catalog and customer data should be migrated to the new system.
- **User training:** Administrators and customer support staff may require training on how to use the new system.
- **Deployment plan:** A plan should be defined for the deployment and launch of the new website.

To gather transition requirements, you can work closely with stakeholders, project managers, and technical teams to understand the existing systems and processes and determine the necessary steps for a smooth transition to the new system.

Overall, the process of gathering requirements involves active communication, collaboration, and analysis to ensure that the final solution meets the needs and expectations of the business and stakeholders involved in the project.

Analysis:

1. Existing System Analysis (if applicable):

- **Review existing e-commerce platform (if any):** Analyze the strengths, weaknesses, limitations, and user pain points of the existing system to identify areas for improvement.

2. Technical Feasibility Assessment:

- **Technology Stack:** Evaluate the feasibility of using specific technologies (e.g., programming languages, frameworks, databases) to meet the system requirements and business goals.

3. System Analysis Deliverables:

- **Requirements Document:** A comprehensive document outlining the functional and non-functional requirements, user stories, and use case diagrams.

- **Feasibility Report:** A report summarizing the technical feasibility of the project based on the chosen technology stack.

4. Additional Considerations for E-commerce System Analysis:

- **Security:** Prioritize robust security measures to protect customer data and financial information.
- **Payment Gateway Integration:** Analyze and integrate secure payment gateway options for smooth transaction processing.
- **Third-Party Integrations:** Identify any necessary integrations with third-party logistics, marketing automation, or analytics tools.
- **Mobile Responsiveness:** Ensure the e-commerce system is optimized for mobile devices to cater to the growing trend of mobile shopping.

Design:

Admin view:

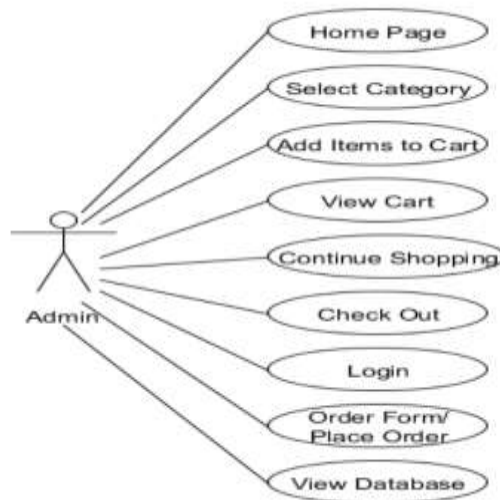


Fig: Use-case Diagram: Admin

User view:

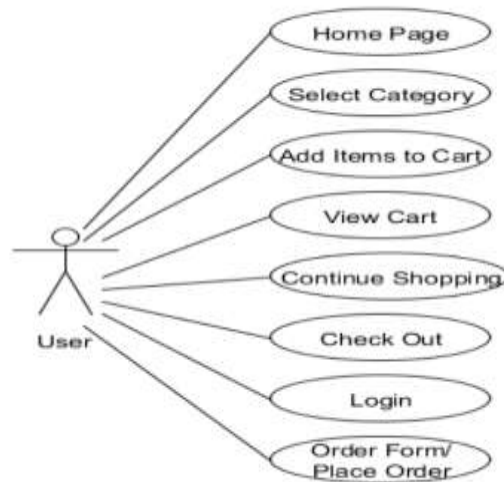


Fig: Use-case Diagram: User

Documentation:

Payment methods:

It is important to record exactly what payment methods you allow on your e-Commerce website in order to ensure that customers do not try to negotiate alternative payment methods which might be risky or simply not accepted by you. Furthermore, if you accept payment by credit card and the name of the payment processor is mentioned, it should be recorded that the customer acknowledges that it is subject to the terms and conditions of the payment processor rather than just being subject to your own terms and conditions.

Warranties by a customer:

The customer needs to warrant that any information that they provide to you is accurate and true, that they are not impersonating any other person, not violating any laws in making the purchase, such as a person being over the age of 18 should you operate an e-Commerce website which deals in liquor deliveries, for example.

Unauthorised use of the e-Commerce website:

Users should undertake that they will not post anything to your website which is objectionable or is unlawful, spam the website, make use of unsolicited mass emailing techniques, introduce a virus, worm, Trojan horse or malicious code, redistribute or use your information for commercial purposes and the like.

Limitation of liability:

It is very important that you record that a customer is required to use your e-Commerce website at their own risk. Further, that you will not be liable for any use or conduct in the connection with their use of the website at all.

Copyright:

It should be recorded that the contents of the website are the subject of your copyright. A copyright is essentially a protection that is afforded to a piece of creative work. This might include pictures, logos, the

general look and feel of the website, audio files and the like. Generally, copyrights do not need to be registered and are created automatically.

How returns are initiated:

It should clearly be recorded what the procedure is to return a product. This might include, for example, that an email is sent to a specific email address or that there is a page on your website with a form devoted specifically to returns.

Furthermore, it should set out the contents of what might need to be included in the return request. For example, this might include the reason for the return, the choice as to what they would like to occur upon the return, such as their account being credited, and the like.

Condition of the product returned:

It is very important to stipulate the circumstances in which you will permit a product to be returned. For example, this might include that the product needs to be undamaged, unused and in original packaging. It goes without saying that products which have been extensively used should not be permitted to be returned to you.

Manner of return:

Should you have the ability to collect the product to be returned from the client, it should be mentioned that the customer has the choice of the product being collected from them or that they may deliver the product to you for the return.

Product inspection:

We suggest that it is very important to include a clause in your e-Commerce website terms of service that permits you to inspect the product which is being returned prior to you validating its return.

What personal information is collected:

In operating an e-Commerce website, generally speaking, you will collect the following personal information from a customer which needs to be recorded in your Website Privacy Policy:

- name of the customer;
- email address;
- physical address for delivery;
- payment and/or credit card information.

To the extent that you collect any further personal information from a customer in the process of their ordering through your e-Commerce website, please note that this needs to be recorded in the Website Privacy Policy as it is required by law.

The reason for collecting personal information:

Your Website Privacy Policy should clearly set out the reason for which the personal information is collected. For example, this most likely will include the fact that the information has been collected in order that you as

the e-Commerce website owner, have enough information in order to accurately and timeously deliver the product to the correct customer.

Further to the above, it also might include the fact that you might in future market to the customer of certain of your other products and/or services.

All reasons for which you collect personal information need to be clearly recorded in your Website Privacy Policy.

Sharing of personal information:

It needs to be recorded the categories and types of persons and/or entities to which any personal information is shared with.

For example, and in the circumstances of an e-Commerce website, you would need to share address information with any couriers which will deliver the products. In addition, payment information will be shared with the necessary payment processors of your website.