E-commerce Website Development 4 Lecture Topics o E-commerce website development is a critical area of study that focuses on building and deploying an online platform that facilitates the buying and selling of goods and services. 1- SaaS platform o SaaS stands for "software as a service" and with this option, company rent software. o The software remains the exclusive property of the company that develops it (the SaaS provider) and company can make use of it for a certain price, usually paid monthly. Shopify o Shopify powers over 2,921,565 websites around the globe. o Shopify has 21% of the ecommerce market share. A popular choice among many SMBs, Shopify allows clients to build effective online stores and scale their business. Created with a user- friendly and intuitive interface, as well as tons of templates, this platform offers flexible shipping rates, automatic taxes, and over 100 payment gateways. Shopify enables social media integrations, is packed with built-in SEO features, and is fully hosted. Best for: Small businesses looking for an all-in-one ecommerce solution E-commerce Website Development What is ecommerce software ? 1- SaaS platform Magento o To date, Magento has powered over 772,000 websites around the world. o There are over 5,900 extensions that integrate with Magento. Magento is a highly flexible ecommerce solution used by medium sized businesses ready to scale. This platform offers robust features which allow retailers to customize all aspects of their online store including custom templates, extensions, and modules. If clients need to further extend the functionality of their Magento store, they can always use add-ons to turn the vision of their online store into a reality. Considered by many a complex ecommerce platform, Magento supports clients by maintaining an operative community of developers and experts on the Magento ecosystem who are ready to help newbies with the maintenance of their online store. Best for: Brands looking for a highly customizable ecommerce solution E-commerce Website Development What is ecommerce software ? 2- Open source software o These platforms let you design unique and beautiful websites with all core eCommerce functionalities already pre-set in them. Uses a source code that is freely available to everyone. o Some well-known open source platforms are WordPress, osCommerce, WooCommerce. WooCommerce o WooCommerce powers over 3,876,748 live websites. o WooCommerce is one of the biggest open-source ecommerce platforms. Specifically designed to integrate with WordPress, WooCommerce has plenty of templates that can help you build a unique online store. You'll get all essential features including unlimited products, unrestricted customization, order management, and free shipping. Best for: Small businesses that have a website powered by WordPress. E-commerce Website Development What is ecommerce software ? 3- Custom Solutions o With a custom solution, an online store is specifically developed by a web design company, freelancers, or your own developers. You fully control the features and the appearance of the online store, at the front-end and the admin panel (where you manage your online store). Consequently, there are few limitations with custom solutions. o The disadvantage to custom solutions is the price tag: they are very expensive. o Development can cost tens of thousands of $ and an hourly rate is charged for future developments and extensions. Usually clients that choose custom-made solutions are large online stores like Zalando and Amazon. E-commerce Website Development o The process of creating an e-commerce presence, by developing an idea, understanding how the idea can potentially make money, defining the target audience and the marketplace and determining what the content looks like. o An important part of this effort involves

performing a SWOT analysis, developing a presence map, and creating a timeline. Understanding the Development Process for E-commerce Websites Five major steps: o Systems analysis/planning o Systems design o Building the system o Testing o Implementation E-commerce Website Development The Systems Development Life Cycle 1-System Analysis/Planning Planning and Requirement Analysis: o Identifying the target audience, products/services offered, and business objectives. o Defining key website features (e.g., product catalog, shopping cart, user accounts, payment gateway). o Competitor analysis and understanding market trends. Business objectives: o List of capabilities you want your site to have System functionalities: o List of information system capabilities needed to achieve business objectives Information requirements: o Information elements that system must produce in order to achieve business objectives E-commerce Website Development The Systems Development Life Cycle 1-System Analysis/Planning E-commerce Website Development The Systems Development Life Cycle 2- Systems Design Hardware and Software Platforms System design specification: o Description of main components of a system and their relationship to one another Two components of system design: Logical design o Data flow diagrams, processing functions, databases Physical design o Specifies actual physical, software components, models, and so on o Design: o Creating wireframes and mockups for the website. o Focusing on user experience (UX) and user interface (UI) design. o Deciding on branding elements such as logos, color schemes, and typography. E-commerce Website Development The Systems Development Life Cycle 2- Systems Design Build/Host Your Own vs. Outsourcing o Outsourcing: Hiring vendors to provide services involved in building site o Build own vs. outsourcing: o Build your own requires team with diverse skill set; choice of software tools; both risks and possible benefits o Host own vs. outsourcing o Hosting: Hosting company responsible for ensuring site is accessible 24/7, for monthly fee o Co-location: Firm purchases or leases Web server (with control over its operation), but server is located at vendor's facility 3- Building the System E-commerce Website Development The Systems Development Life Cycle o Development: o Building the website using front-end and back-end technologies. o Implementing core features like product display, user accounts, and checkout process. Front-End Development for E-commerce Websites The front-end (or client-side) is what users interact with directly. A good front-end is essential for creating a positive user experience, which ultimately drives conversions and sales. a. HTML (HyperText Markup Language): o Role of HTML: o HTML forms the skeleton of the e-commerce website. It structures the content, such as product categories, product pages, shopping carts, and checkouts. o Understanding how to create clean, semantic HTML helps search engines (SEO) and accessibility tools understand the content. b. CSS (Cascading Style Sheets): o Role of CSS: o CSS styles the content and is responsible for the website's appearance, layout, and design. This ensures that the website is visually appealing and consistent with the brand. o Responsive Design: o E-commerce websites must be responsive, meaning they should work on devices of all screen sizes (desktops, tablets, and smartphones). CSS frameworks like Bootstrap can be used to speed up the development of responsive layouts. C. JavaScript: o Role of JavaScript: o JavaScript brings interactivity to the e-commerce website. It allows for dynamic features like product filtering, sorting, and real-time price updates in the cart. 3- Building the System E-commerce Website Development The Systems Development Life Cycle o Front end The portion of an e-

seller's business processes through which customers interact, including the seller's portal, electronic catalogs, a shopping cart, a search engine, and a payment gateway o Back end The activities that support online order fulfillment, inventory management, purchasing from suppliers, payment processing, packaging, and delivery 3– Building the System E–commerce Website Development The Systems Development Life Cycle Back–End Development for E–commerce Websites The back–end (or server–side) handles data processing, business logic, database management, and server interactions. A well–designed back–end is crucial for maintaining the core functionality of an e–commerce platform. a. Server–side Programming Languages: The back–end is where the logic for processing orders, managing products, handling user sessions, and processing payments happens. o Popular Back–end Languages: o PHP: Commonly used in e–commerce platforms like Magento and WooCommerce. o Node.js: A JavaScript runtime that enables server–side scripting, often used for building real– time, scalable e–commerce applications. o Python: Popular for back–end frameworks like Django and Flask, often used in custom e– commerce projects. o Ruby on Rails: A robust web application framework often used for building dynamic and scalable web applications. 3– Building the System E–commerce Website Development The Systems Development Life Cycle b. Database Management: The back–end communicates with the database to store and retrieve data related to products, users, orders, and transactions. o Relational Databases: o MySQL, PostgreSQL, and SQL Server are commonly used relational databases for storing structured data in e– commerce platforms. o E–commerce websites rely on efficient querying to manage product inventories, customer information, and order processing. o NoSQL Databases: o MongoDB, CouchDB, or Firebase are useful for handling large volumes of unstructured data, especially for dynamic and flexible e–commerce systems. c. Product Management System: o Managing products is the core of any e–commerce platform. The back–end handles the creation, updating, and deletion of products in the database, along with product attributes (e.g., size, color, price). o Features of Product Management: o Adding new products, setting stock levels, and organizing products into categories. Managing product images, descriptions, pricing, and availability 4– Testing E–commerce Website Development The Systems Development Life Cycle Testing for functionality, usability, performance, security, and cross–browser compatibility Testing types o Unit testing: involves testing the site's program modules one at a time. o System testing: involves testing the site as a whole, in the same way a typical user would when using the site o Acceptance testing: requires that the firm's key personal and managers in marketing, production, sales, and general management actually use the system as installed on a test internet. o A/B testing (split testing): this form of testing involves showing two versions (A and B) of a web page to different users to see which one performs better. o Multivariate testing: involves identifying specific elements, or variables, on a web page, such as a headline, image, button, and text. E–commerce Website Development 5– Deployment and Maintenance The Systems Development Life Cycle Launching the website and continuously monitoring and updating the system to ensure smooth operations E–commerce Website Development Core Features of an E–commerce Website A functional e–commerce website must have certain features in place to enable online transactions. a. Product Catalog: o Dynamic and searchable catalog of products with filtering options (by category, price, brand, etc.). o Each product page should have a detailed

description, multiple images, pricing, customer reviews, and availability. b. Shopping Cart: o Allows users to add and review products before proceeding to checkout. o Includes features such as quantity adjustment, applying discount codes, and calculating shipping costs. c. User Accounts and Profiles: o User registration and login systems allow customers to save addresses, view order history, and manage personal information. o Features like wishlists and personalized recommendations based on previous purchases can enhance user experience. E-commerce Website Development Core Features of an E-commerce Website A functional e-commerce website must have certain features in place to enable online transactions. d. Payment Gateway Integration: o Integrating payment processors like Stripe, PayPal, or Square is crucial for securely handling transactions. o E-commerce websites must follow security standards like PCI-DSS (Payment Card Industry Data Security Standard) to ensure secure processing of payment information. e. Checkout Process: o The checkout process should be streamlined, with minimal steps and options like guest checkout. o Implement features like auto-fill forms, support for multiple payment methods, and order confirmation emails. E-commerce Website Development 4 Lecture Topics o E-commerce design and user experience (UX) are fundamental components that determine the success of online retail platforms. o A well-designed e-commerce website enhances user satisfaction, builds trust, and ultimately drives conversions and sales. o By focusing on principles of effective design, intuitive navigation, user-friendly product pages, streamlined checkout processes, and continuous improvement through testing and feedback, businesses can create engaging online shopping experiences that meet the needs of diverse users E-commerce Design and User Experience (UX) 2. Principles of Effective E-commerce Design To create an effective e-commerce website, designers should follow several key principles that enhance usability and overall user satisfaction: a. Simplicity and Clarity: o Minimalist Design: Use a clean and simple layout that avoids clutter. A minimalist design helps users focus on the products and important calls to action (CTAs). o o Clear Navigation: Implement a logical and straightforward navigation structure that allows users to easily find what they're looking for. Use clear labels for categories and subcategories. b. Visual Hierarchy: o Emphasize Key Elements: Use size, color, contrast, and spacing to draw attention to important elements like product images, prices, and CTAs (e.g., "Add to Cart" buttons).software agent can be used in e-commerce to support tasks such as comparing prices, monitoring activities and working as an assistant (consist of a product database, directory & search capabilities & a presentation function). the backbone of most e-selling sites. E-Marketspace Merchant Solutions: Electronic Catalogs, Search Engines, and Shopping Carts Classification of electronic catalogs 1- The dynamics of the information presentation: o Static catalogs; information is presented in text & static picture o dynamic catalogs; information is presented in motion pictures. 2- The degree of customization o standard catalog; merchants offer the same catalog to any customer. o customized catalog; content, pricing, & display are tailored to the characteristics of specific customers. 3- Integration with business processes E-Marketspace Merchant Solutions: Electronic Catalogs, Search Engines, and Shopping Carts 2. Search engine A computer program that can access a database of Internet resources, search for specific information or keywords, and report the results (e.g., requests for product information or pricing).Principles of Effective E-commerce Design To create an effective e-commerce website, designers should follow several key

principles that enhance usability and overall user satisfaction: c. Responsive Design: o Mobile Optimization: Ensure the website is fully responsive and optimized for various devices and screen sizes, including smartphones, tablets, and desktops.(amazon.com, choicemall.com, shop4.vcomshop.com, spree.com) Public portals (yahoo.com, msn.com) – Specialized e-stores/e-malls: These sell only one or a few types of products.(1800flowers.com, fashionmall.com) – Regional versus global e-stores: some stores , such as e- grocers or sellers of heavy furniture, serve customers that live nearby.Lo-fi Wireframe E-commerce Design and User Experience (UX) E-commerce Design and User Experience (UX) E-commerce Design and User Experience (UX) E-commerce Website Development E-Marketspace: DIGITAL MARKETS E-Marketplaces: is a virtual marketplace in which sellers and buyers meet and conduct different types of transactions.A single point of access through a Web browser to critical business information located inside and/or outside an organization E-Marketspace Customer Interaction Mechanisms: Storefronts, Malls, &Portals Major types of portals o Commercial (public) portals: (ex: yahoo.com, AOL.com) o Corporate portals: provide organized access to rich content within relatively narrow corporate & partner's communities) o Publishing portal: these portals are intended for communities with specific interests.It is usually divided into three system types: 1- SaaS platform 2- Open source software 3- Custom solutions Magento: 20% WooCommerce: 17% Shopify: 10% PrestaShop: 7% BigCommerce: 2% E-commerce Website Development What is ecommerce software ?o Online marketplaces are platforms that facilitate e-commerce transactions between buyers and sellers, enabling buyers to showcase their products and reach a larger audience.E-Marketspace Customer Interaction Mechanisms: Storefronts, Malls, &Portals Web (Information)portal: A portal is a mechanism that is used in e- marketplaces, & other types of EC. With the growing use of intranets, & internet, many org.o Typical headers include most essential web pages, which may vary depending on the type of website it is creating E-commerce Design and User Experience (UX) 2.1 Navigation An intuitive navigation is the first step to a pleasant shopping experience.E-commerce Design and User Experience (UX) Hamburger menu o While this is primarily seen on mobile navigation, this simple three line icon is now being seen on many desktop versions of websites, too.Low-Fidelity Wireframe Low-fidelity wireframes are created digitally and display elements in simple content blocks, taking basic concept sketch and turning it into something more refined.E-commerce Design and User Experience (UX) Great websites are composed of multiple amazing parts that seamlessly fit together to create a holistic representation of any brand. o The hamburger menu offers a minimal icon that doesn't interfere with the website's design and is especially useful when real estate is limited (like on mobile devices).o Developing an e-commerce website requires a solid understanding of both front-end and back-end technologies, user experience (UX) design, security, payment integration, and more.o E-commerce software is a system that makes it possible for selling products /services online via website/mobile app.E-commerce Design and User Experience (UX) Wireframe Examples Below are some of the best examples of wireframe types to light up creative zones and help solidify the wireframing process that works.Basic parts of a website There are some components of websites that are so essential to web design that all sites must contain them in order to function properly (all included in website templates).Blog o Blogs are essentially groupings of articles or posts on a variety of topics that are all

related to business.E-Marketspace E-Marketplaces: Mechanisms, Tools, and Impacts of E-commerce o Electronic storefronts A single company's Web site where products and services are sold.The software program of an electronic shopping cart o allows customers to select items, o review what has been selected, o make changes and then finalize the liso Usually e-commerce software includes all the important features such as product listing, order management, setting up payment methods, design, etc.o Consistent Layout: Maintain a consistent layout across product pages, categories, and other sections to create familiarity and reduce cognitive load.o Layouts and features such as menus and buttons are mapped out to assess the overall experience of the end user.High-Fidelity Wireframe Using digital tools, can create a high-fidelity wireframe that illustrates in more detail without the creation of too many graphical elements.Together these parts form the backbone of the website: 01- Header & Menu 02- Image 03- Website 04- Footer E-commerce Design and User Experience (UX) 01.Sidebar o Often websites will use a sidebar, or a horizontal bar typically on the right side of screens that contain more links or information.o Typically, sidebars contain links to other content on site, a way to sign up to newsletter, and advertisements.While blogs can stand on their own, they also can be added as an additional part of an existing website, functioning as a marketing asset for company.E-Marketspace Merchant Solutions: Electronic Catalogs, Search Engines, and Shopping Carts 3.Website content o All sites contain content.Logo 2.1.2.3.3.