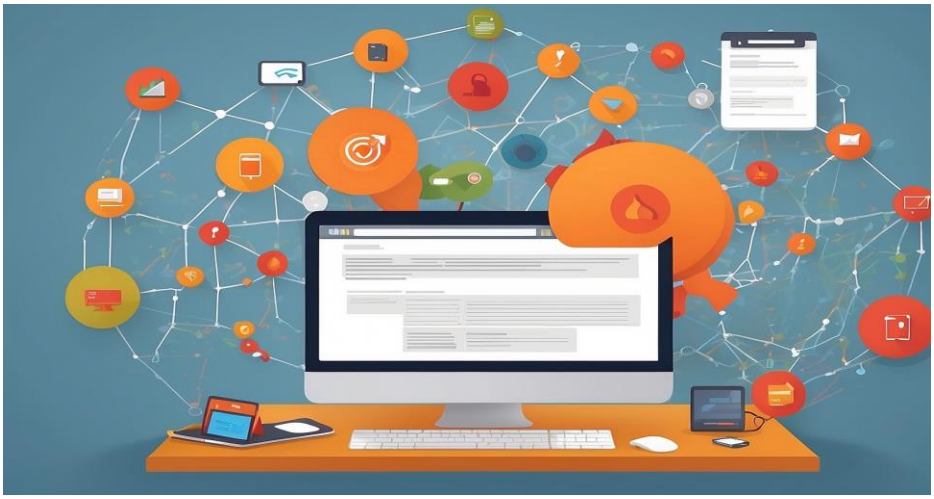
Web Development and Database Administration
Level III

Based on November, 2023 Version-II Curriculum



Module Title: Website Technical Requirement Modeling

Module code: EIS WDDBA3 M01 1123

Nominal duration: 30 Hours

Prepared by: Ministry of Labor and Skill

November, 2023

Addis Ababa, Ethiopia

Table of Contents

Acknowledgment 2
Acronym 3
Introduction to the Module 5
Unit One: Website technical environment 6
1.1. Hardware and software in business requirements 7
1.2. Website Development Requirements: Standards, Software, and Hardware 10
1.3. Website architecture principles 13
1.4. Website development tools, equipment and standards 15
1.5. Information gathering 17
Self-Check 1 24
Unit Two: Human Computer Interface 26
2.1. User profiling and needs analysis 27
2.2. Determine user content and requirements 28
2.3. Principles of website design 30
2.4. Identification of operating system 32
2.5. Determination of search engine 35
Self-Check 2 39
Chapter Three: Website Hierarchy 41
3.1. Hierarchy of pages and information 42
3.2. Logic and accessibility of content to user 43
3.3. Clear and consistent navigation across pages 45
Self-Check 3 48
Reference 49
Developer's Profile 50

Acknowledgment

Ministry of Labor and Skills wish to extend thanks and appreciation to the many representatives of TVET instructors and respective industry experts who donated their time and expertise to the development of this Teaching, Training and Learning Materials (TTLM).

Acronym

API……Application Programming Interface

AWS ……. Amazon Web Services

CDN……. Content Delivery Network

CMS……. Content Management System

CSS……..... Cascading Style Sheets

DB ……. Database

DBMS ……...Database Management System

HTML……Hypertext Markup Language

HTTP……. Hypertext Transfer Protocol

HTTPS ……. Hypertext Transfer Protocol Secure

IDE……Integrated Development Environment

IIS……. Internet Information Services

MVC……. Model-View-Controller

NET……NET Framework

PHP……Hypertext Preprocessor

SEO……Search Engine Optimization

SQL……Structured Query Language

SSL……. Secure Sockets Layer

SVN……Apache Subversion

URL……Uniform Resource Locator

UX……...User Experience

VCS……. Version Control System

VPS……. Virtual Private Server

WCAG……. Web Content Accessibility Guidelines

XSS……. Cross-Site Scripting

Introduction to the Module

This module provides you to acquire understanding on hardware and software business requirements, website architecture principles, data gathering and analysis, user profiling, operating system and search engine selection, and hierarchical structure for content presentation. By the end of this module, you will have a solid foundation in the technical requirements necessary for successful website development.

This module covers the units:

- Website technical environment
- Human computer interface
- Site hierarchy

Learning Objective of the Module

- To define technical environment for developing a website
- Gather information through formal and informal ways
- To define human computer interface in designing a website
- Determine site hierarchy

Module Instruction

For effective use of this module trainees are expected to follow the following module instruction:

- Read the specific objectives of this Learning Guide.
- Read the information that this module contain.
- Complete the Self-check.
- Submit your accomplished Self-check.

Unit One: Website technical environment

This unit is developed to provide you the necessary information regarding the following content coverage and topics

- Hardware and software in business requirements
- Website Development Requirements: Standards, Software, and Hardware
- Website architecture principles
- Website development tools, equipment and standards
- Information gathering

This unit will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Understand hardware and software business requirements
- Identify types of hardware and software to meet business requirement
- Understand standards and hardware and software requirements to develop a site
- Understand website architecture principles
- Identifying website development tools, equipment and standards
- Understand how to perform information gathering

1.1. Hardware and software in business requirements

Every new activity, every new product, and every new project in the workplace is created in response to a business need. Yet we often find ourselves in situations where, despite spending tremendous time and resources, there's a mismatch between what has been designed and what is actually needed.

A focused and detailed business requirements analysis can help you avoid problems like these. This is the process of discovering, analyzing, defining, and documenting the requirements that are related to a specific business objective. And it's the process by which you clearly and precisely define the scope of the project, so that you can assess the timescales and resources needed to complete it.

When developing a website, it is important to identify the business requirements, hardware, and software needed to ensure a successful project. Here are some steps to follow:

- **Understand the business requirements**: Start by gathering information about the purpose and goals of the website. Identify the target audience, desired functionality, and any specific features or integrations required.
- **Determine the technical requirements**: Assess the technical aspects of the website, such as the expected traffic volume, scalability needs, and performance requirements. Consider factors like load times, server resources, and bandwidth.
- **Choose a hosting provider**: Based on your technical requirements, select a hosting provider that can accommodate your website's needs. Consider factors such as server reliability, security measures, scalability options, and support services.
- **Select a content management system (CMS):** Choose a CMS that aligns with your business requirements and technical capabilities. Popular options include WordPress, Drupal, and Joomla. Consider factors such as ease of use, customization options, available plugins and themes, and community support.

- **Identify necessary software and tools**: Determine the software and tools needed to build and maintain the website. This may include code editors, design software, version control systems, and project management tools. Consider the specific requirements of your development team.
- **Plan for responsive design:** With the increasing use of mobile devices, it is crucial to ensure your website is responsive and mobile-friendly. Consider the design and development tools needed to create a seamless experience across different screen sizes.
- **Consider security measures:** Identify the security measures required to protect your website and user data. This may include SSL certificates, firewalls, regular backups, and secure authentication methods. Consult with cyber security professionals if needed.
- **Determine analytics and tracking requirements:** Decide on the analytics and tracking tools necessary to monitor website performance, user behavior, and conversions. Popular options include Google Analytics, Hotjar, and Mixpanel.
- **Plan for ongoing maintenance and updates**: Consider the resources and processes needed for website maintenance, including software updates, content updates, bug fixes, and security patches. Determine who will be responsible for these tasks.
- **Test and evaluate:** Before launching the website, thoroughly test its functionality, compatibility, and performance across different browsers and devices. Gather user feedback to identify any issues or areas for improvement.



Figure1.1. Understand business requirement

Types of software and hardware to meet business requirement

When developing a website, it is important to define the software and hardware types that will meet your business requirements. Here are some common software and hardware components to consider:

- **Software:**
  - **Content Management System (CMS):** A CMS allows you to create, edit, and manage the content on your website. Popular CMS options include WordPress, Drupal, and Joomla.
  - **Web Development Frameworks:** Frameworks like Ruby on Rails, Laravel, or Django provide a structured approach to building websites, making development more efficient.
  - **Web Servers:** Web servers like Apache, Nginx, or Microsoft IIS are responsible for serving web pages to users. Choose a web server that suits your business requirements in terms of performance, scalability, and security.
  - **Database Management Systems (DBMS):** DBMSs like MySQL, PostgreSQL, or MongoDB store and manage the website's data. Consider the scalability, security, and compatibility of the DBMS with your chosen framework and CMS.
  - **Front-end Development Tools:** HTML, CSS, and JavaScript are essential for building the user interface of your website. Frameworks and libraries like React, Angular, or Vue.js can help streamline front-end development.
  - **Version Control Systems:** Version control systems like Git or SVN allow for efficient collaboration and code management during website development. They help track changes, revert to previous versions, and ensure code integrity.
- **Hardware:**
  - **Web Hosting:** Choose a hosting provider that meets your website's requirements in terms of server resources, bandwidth, scalability, and security. Options include shared hosting, virtual private servers (VPS), dedicated servers, or cloud hosting.

- **Server Infrastructure:** Consider the hardware specifications needed to support your website's expected traffic and performance requirements. This includes factors like processing power, memory, storage capacity, and network connectivity.
- **Networking Equipment:** Depending on your infrastructure and hosting setup, you may need networking equipment like routers, switches, and load balancers to ensure reliable and efficient data transmission between servers and users.
- **Backup and Storage Solutions:** Implement backup and storage solutions to protect your website's data. This may include redundant storage systems, backup servers, or cloud-based backup services.
- **Security Measures:** Invest in hardware security measures such as firewalls, intrusion detection systems, and SSL certificates to protect your website and user data from unauthorized access and cyber threats.
- **Monitoring and Analytics Tools**: Consider hardware solutions or cloud-based services for monitoring website performance, uptime, and user analytics. This may involve hardware monitoring devices, network probes, or integration with third-party analytics platforms.

These are just some examples of software and hardware components to consider when developing a website. The specific requirements will depend on your business needs, budget, and technical considerations. It is essential to evaluate and select the most suitable software and hardware components to ensure a successful website development project.

1.2. Website Development Requirements: Standards, Software, and Hardware

1.2.1. Standards:

- **HTML and CSS Standards:**
  - Follow the latest HTML5 and CSS3 standards to ensure compatibility across different browsers and devices.
  - Use semantic HTML markup for better accessibility and search engine optimization.

- Apply proper CSS styling techniques and adhere to the CSS box model.

- **Web Accessibility Standards:**
  - Comply with Web Content Accessibility Guidelines (WCAG) 2.1 or higher to ensure your website is accessible to users with disabilities.
  - Implement features like alternative text for images, proper heading structure, keyboard navigation support, and color contrast considerations.
- **SEO Standards:**
  - Optimize your website's structure, content, and meta tags to improve search engine visibility.
  - Follow SEO best practices such as using descriptive URLs, adding appropriate keywords, and creating unique and valuable content.
- **Security Standards:**
  - Utilize secure protocols like HTTPS to encrypt data transmission between the server and users.
  - Implement security measures like input validation, protection against cross-site scripting (XSS) and SQL injection attacks, and secure user authentication.

1.2.2. Software:

- **Integrated Development Environment (IDE):**
  - Use popular IDEs like Visual Studio Code, Sublime Text, or JetBrains WebStorm for coding, debugging, and version control integration.
- **Code Editors:**
  - Choose code editors like Notepad++, Atom, or Brackets for editing HTML, CSS, and JavaScript files with syntax highlighting and code completion features.
- **Content Management System (CMS):**
  - Select a CMS like WordPress, Drupal, or Joomla if you require a user-friendly interface for managing website content, templates, and plugins.

- **Web Development Frameworks:**
  - Utilize frameworks like Ruby on Rails, Laravel, or Django to streamline development, enhance code reusability, and provide robust features for building web applications.
- **Version Control System (VCS):**
  - Use Git or SVN for version control, collaboration, and code management during website development.
- **Design Tools:**
  - Employ design tools like Adobe Photoshop, Sketch, or Figma for creating website layouts, graphics, and assets.

1.2.3. Hardware:

- **Development Machine:**
  - Ensure your development machine meets the minimum hardware requirements for the software and tools you'll be using, including sufficient processing power, memory, and storage capacity.
- **Testing Devices:**
  - Test your website on various devices and screen sizes to ensure responsiveness and compatibility. Have a range of devices like desktops, laptops, tablets, and smartphones for comprehensive testing.
- **Server Infrastructure:**
  - Determine the hardware requirements for your hosting environment based on your website's expected traffic, scalability needs, and performance requirements. Consider factors like processing power, memory, storage, and network bandwidth.
- **Networking Equipment:**
  - Depending on your hosting setup, you may need networking equipment like routers, switches, and load balancers to ensure reliable and efficient data transmission.

- **Backup and Storage Solutions:**
  - Implement backup and storage solutions to protect your website's data. This may involve redundant storage systems, backup servers, or cloud-based backup services.
  - By considering these detailed standards, software, and hardware requirements, you can ensure a solid foundation for developing a successful and high-performing website.

1.3. Website architecture principles

Website architecture refers to the structure and organization of a website, including its components, functionality, and how they interact with each other. Here are some key principles to consider when designing the architecture of a website:

Scalability is a key aspect to ensure that the website can handle increasing levels of traffic and user interactions without sacrificing performance. Techniques like load balancing, caching, and horizontal scaling can be employed to achieve scalability.

Modularity involves breaking down the website into modular components that can be developed, tested, and maintained independently. This approach enables easier updates, enhancements, and troubleshooting. Common architectural patterns such as Model-View-Controller (MVC) or microservices can facilitate modularity.

The principle of separation of concerns emphasizes separating different aspects of website functionality into distinct layers or components. By separating the presentation layer (HTML, CSS), the business logic layer (server-side scripting), and the data layer (database), maintainability, reusability, and troubleshooting become more manageable.

Flexibility and extensibility are important considerations for future growth and the incorporation of new features or functionalities. This can be achieved by employing flexible and modular architectures, adopting industry-standard protocols and APIs, and avoiding tightly coupled components.

Security should be integrated into the architecture to safeguard the website and its data from unauthorized access, attacks, and vulnerabilities. Implementing secure authentication and

authorization mechanisms, utilizing encryption for sensitive data transmission, and following security best practices for coding are essential.

Performance optimization is crucial for fast load times and a seamless user experience. Techniques such as caching, minimizing HTTP requests, optimizing database queries, and utilizing content delivery networks (CDNs) for serving static assets contribute to improved performance.

Ensuring accessibility standards are met allows the website to be usable by people with disabilities. Designing and implementing features like alternative text for images, proper heading structure, keyboard navigation support, and semantic HTML markup enhance accessibility.

Maintainability focuses on designing the architecture in a way that is easy to understand, update, and debug. Clean and modular code, adherence to coding standards and best practices, and thorough documentation of the architecture and its components aid future developers in maintaining the website.

Incorporating performance monitoring mechanisms enables the identification of bottlenecks or issues. Tools for tracking server response times, page load speeds, and user interactions help optimize performance and identify areas for improvement.

Considering integration with other systems or third-party services ensures seamless interoperability. This may involve designing APIs or ensuring compatibility through adherence to standards and protocols.

User experience should be at the forefront of architecture design, prioritizing factors such as navigation, responsiveness, and usability to ensure users can easily find information and interact with the website.

Compliance with legal and regulatory requirements specific to the industry or region is vital. This may include adhering to data protection regulations, privacy laws, or accessibility standards.

By adhering to these website architecture principles, you can create a well-structured, scalable, secure, and maintainable website that delivers an excellent user experience while meeting your business objectives.

1.4. Website development tools, equipment and standards

1.4.1. Website development tools

- **Integrated Development Environment (IDE):** An IDE provides a comprehensive set of tools for website development, including code editors, debugging capabilities, and version control integration. Popular IDEs include Visual Studio Code, Sublime Text, and JetBrains WebStorm.
- **Code Editors:** Code editors are essential for writing and editing HTML, CSS, and JavaScript code. They often offer features like syntax highlighting, code completion, and code snippets. Examples include Notepad++, sublime text, Atom, and Brackets.
- **Content Management System (CMS):** A CMS simplifies website development and content management, especially for websites with frequent updates. Popular CMS options are WordPress, Drupal, and Joomla.
- **Version Control System (VCS):** VCS tools like Git or SVN help track changes, manage code versions, and facilitate collaboration among developers working on the website.
- **Design Tools:** Design software such as Adobe Photoshop, Sketch, or Figma enables the creation of visually appealing layouts, graphics, and assets for the website.
- **Task Runners and Build Tools:** Task runners like Gulp or Grunt automate repetitive tasks such as minification, concatenation, and image optimization. Build tools like Webpack or Parcel bundle and optimize code for production.
- **Front-end Frameworks:** Front-end frameworks like React, Angular, or Vue.js provide pre-built components and a structured approach to building interactive and responsive user interfaces.
- **Back-end Frameworks:** Back-end frameworks like Ruby on Rails, Laravel, or Django offer tools and libraries for server-side programming, database management, and API development.

1.4.2. Website development equipment

- **Development Machine:** A reliable computer or laptop with sufficient processing power, memory, and storage capacity is necessary for efficient website development. Ensure it meets the minimum requirements of the development tools and software being used.
- **Testing Devices:** To ensure the website's responsiveness and compatibility across various devices and screen sizes, a range of testing devices should be available, including desktops, laptops, tablets, and smartphones.
- **Networking Equipment:** Depending on the hosting setup, networking equipment like routers, switches, and load balancers may be required to ensure smooth data transmission and reliable connectivity.
- **Server Infrastructure:** For hosting and deploying the website, a server infrastructure is necessary. This can range from shared hosting to dedicated servers or cloud-based solutions like Amazon Web Services (AWS) or Microsoft Azure.
- **Backup and Recovery Solutions:** Implementing backup and recovery solutions ensures the website's data is protected and can be restored in case of any unforeseen events. This may involve regular backups to external storage or utilizing cloud-based backup services.

1.4.3. Website development standards

- **HTML and CSS Standards:** Following the latest HTML and CSS standards ensures compatibility across browsers and devices. It includes using semantic HTML markup, proper CSS styling techniques, and adhering to the CSS box model.
- **Web Accessibility Standards:** Compliance with Web Content Accessibility Guidelines (WCAG) ensures the website is accessible to users with disabilities. Implementing features like alternative text for images, proper heading structure, and keyboard navigation support is essential.
- **SEO Standards:** Optimizing the website's structure, content, and meta tags according to SEO best practices improves search engine visibility. Consider factors like descriptive URLs, appropriate keywords, and unique and valuable content.

- **Performance Standards:** Optimizing website performance is crucial for a smooth user experience. This includes techniques like caching, minimizing HTTP requests, optimizing images, and using content delivery networks (CDNs) to serve static assets.
- **Security Standards:** Implementing security measures protects the website from unauthorized access and vulnerabilities. This includes using secure protocols like HTTPS, input validation, protection against attacks like cross-site scripting (XSS), and secure user authentication.
- **Usability and User Experience Standards:** Designing the website with usability and user experience in mind ensures easy navigation, clear information hierarchy, and intuitive interactions. Consider factors like responsive design, clear calls-to-action, and consistent branding.

By utilizing the appropriate website development tools, equipment, and adhering to the relevant standards, a well-structured, functional, and secure website can be developed to meet the specific requirements and goals of the project.

1.5. Information gathering

To ensure a successful website development process, it is crucial to conduct information gathering workshops and interviews. Here is a breakdown of the key steps involved:

- **Determine Participants and Goals:** Begin by identifying the key stakeholders and subject matter experts who should participate in the workshops and interviews. These individuals possess valuable insights and expertise relevant to the website's objectives. Additionally, define the goals and objectives of the information gathering process, such as understanding user needs, clarifying requirements, and gathering content
- **Plan the Workshops and Interviews:** Determine the format, duration, and location of the workshops and interviews based on the availability and preferences of the participants. It is important to create a conducive environment for open communication and collaboration. Prepare an agenda or interview guide to ensure that the discussions remain structured and focused, covering all the necessary topics.

- **Documentation and Analysis:** Document the information gathered during the workshops and interviews in a structured manner. This documentation serves as a reference and helps maintain a clear record of the insights and requirements gathered. Analyze the collected data to identify common themes, patterns, and priorities that will guide the subsequent stages of the website development process.
- **Regular Communication and Feedback:** Maintain ongoing communication with stakeholders throughout the website development process. Seek their feedback and validation at key milestones to ensure alignment with their requirements and expectations. Regular communication and feedback loops promote transparency, collaboration, and ensure that the website development process remains on track.

By following these steps and conducting information gathering workshops and interviews, you can gather valuable insights, clarify requirements, and ensure a comprehensive understanding of user needs and stakeholder expectations. This collaborative approach will inform the website development process, improve user experience, and create a website that effectively meets the needs of both the target audience and the stakeholders involved.

1.5.1. Analyze reports and data for business insights

When conducting research for your website development project, it is important to explore various reports and data sources. Here are the key steps involved:

- **Identify Relevant Reports and Data Sources:** Determine which reports and data sources are relevant to your website development project. Consider sources such as market research reports, industry analysis, customer surveys, website analytics, and competitor analysis. These sources provide valuable insights into your target audience, industry trends, and competitor landscape.
- **Gather and Review Market Research Reports:** Look for market research reports that provide insights into your target audience, industry trends, and customer preferences. Analyze data related to demographics, purchasing behavior, and market size to inform content and

design decisions. These reports offer a comprehensive understanding of your audience's needs and preferences.

- **Analyze Industry Analysis and Reports:** Review industry analysis reports to gain a broader understanding of your industry's landscape, challenges, and opportunities. Identify key trends, emerging technologies, and competitive factors that may impact your website's content and positioning. This analysis helps you stay informed about industry developments and adapt your website accordingly.
- **Utilize Customer Surveys and Feedback:** Gather customer survey data or feedback from previous interactions to understand customer preferences, pain points, and expectations. Look for patterns and insights that can inform the website's content, user experience, and functionality. This data provides valuable input for creating a customer-centric website.
- **Review Website Analytics:** Analyze website analytics data to gain insights into user behavior, popular pages, traffic sources, and conversion rates. Identify pages or features that are performing well and areas for improvement to inform the development of the new website. Website analytics help you understand how users interact with your current website and optimize the user experience.
- **Conduct Competitor Analysis:** Review competitor websites and analyze their strengths, weaknesses, and unique selling points. Identify gaps or opportunities in the market that your website can address and differentiate from competitors. By understanding your competitors' strategies and offerings, you can position your website effectively and provide a unique value proposition.

By following these steps and utilizing relevant reports and data sources, you can gather valuable insights that inform your website development process. This research helps you understand your target audience, industry landscape, and competition, allowing you to create a website that meets user needs, aligns with industry trends, and differentiates your business in the market.

1.5.2. Identification of current and future directions of the organization

To develop a website that aligns with the organization's goals and effectively communicates its value proposition, it is important to consider the following steps:

- **Review the Organization's Mission and Vision:** Start by reviewing the organization's mission statement and vision to understand its current direction and long-term goals. Identify the key values, purpose, and aspirations that guide the organization's activities. This step helps establish a foundation for the website's content and messaging.
- **Analyze Strategic Plans and Objectives:** Review the organization's strategic plans and objectives to gain insights into its current priorities and focus areas. Identify the specific goals and initiatives that the organization aims to achieve in the near future. This analysis ensures that the website aligns with the organization's strategic direction.
- **Conduct Stakeholder Interviews or Surveys:** Engage with key stakeholders, such as senior management, employees, customers, and partners, to gather their perspectives on the organization's current and future direction. Ask questions related to strategic priorities, market positioning, target audience, and growth opportunities. This input provides valuable insights for shaping the website's content and features.
- **Analyze Market Trends and Competitor Analysis:** Conduct research on market trends, industry developments, and competitor analysis to understand the external factors that may impact the organization's future direction. Identify emerging technologies, changing customer preferences, and competitive advantages that the organization can leverage. This analysis helps ensure that the website remains relevant and competitive.
- **Identify Organizational Strengths and Weaknesses:** Evaluate the organization's internal strengths and weaknesses to gain insights into its capabilities and areas for improvement. Consider factors such as unique expertise, resources, brand reputation, and operational efficiency. This understanding helps showcase the organization's strengths on the website and address any weaknesses.

- **Consider Future Expansion or Diversification Plans:** Determine if the organization has any plans for expansion into new markets, product/service diversification, or strategic partnerships. Understand how these future directions may impact the website's content, functionality, and design. This consideration ensures that the website supports the organization's growth and diversification strategies.
- **Align Website Development with Organizational Direction**: Ensure that the website's content, messaging, and features align with the organization's current and future directions. Highlight the organization's unique value proposition, key offerings, and competitive advantages on the website. This alignment strengthens the organization's brand and resonates with its target audience.
- **Communicate the Organization's Future Direction:** Use the website as a platform to communicate the organization's future direction to stakeholders, customers, and partners. Clearly articulate the organization's strategic goals, vision, and plans to showcase its commitment to growth and innovation. This communication builds trust and confidence among stakeholders and reinforces the organization's positioning.

By considering the current and future directions of the organization, you can develop a website that aligns with its goals and effectively communicates its value proposition. This approach strengthens the organization's brand, attracts the target audience, and supports its growth objectives.

- **Confirmation of business-critical factors with stakeholders**
  - Start by explaining the importance of confirming business-critical factors with stakeholders when developing a website.
  - Highlight the significance of stakeholder involvement in ensuring the success of the website development process.
  - Provide an overview of the subsequent pages and what information will be covered.
- **Identifying Stakeholders**
  - Explain the concept of stakeholders and their relevance in website development.

- Provide a list of potential stakeholders involved in the process, such as business owners, marketing teams, IT departments, and end-users.
- Emphasize the importance of involving all relevant stakeholders to ensure a comprehensive understanding of the business-critical factors.

- **Determining Business-Critical Factors**
  - Discuss the process of identifying and determining business-critical factors.
  - Explain that these factors are the essential elements that directly impact the success of the website in achieving the organization's goals.
  - Include examples of common business-critical factors, such as target audience, desired functionalities, branding guidelines, and content requirements.
- **Engaging Stakeholders**
  - Describe the methods and techniques for engaging stakeholders in the website development process.
  - Highlight the significance of open communication, regular meetings, and collaborative workshops to gather input and feedback.
  - Emphasize the importance of actively involving stakeholders in decision-making processes to ensure their buy-in and alignment with the project's objectives.
- **Confirming Business-Critical Factors with Stakeholders**
  - Explain the final step of confirming business-critical factors with stakeholders.
  - Discuss the importance of documenting and validating the requirements, expectations, and preferences gathered from stakeholders.
  - Highlight the significance of obtaining stakeholder sign-off or approval to ensure a clear understanding and alignment of the project scope and objectives

1.5.3. Analyze responses to define business priorities

When developing a website, it is crucial to analyze both group and individual responses to define business priorities. Understanding the needs and preferences of both groups and individuals involved in the website development process is vital for creating a successful website. In the

following paragraphs, we will explore the importance of analyzing group and individual responses and how it contributes to defining business priorities.

Starting with group responses, analyzing these collective inputs helps in defining business priorities. This can be done through group meetings, workshops, or surveys involving various stakeholders such as business owners, marketing teams, and IT departments. By gathering input from these groups, common goals can be identified, objectives can be aligned, and consensus can be established regarding business priorities.

On the other hand, individual responses also play a significant role in defining business priorities. It is essential to conduct one-on-one interviews or feedback sessions with key stakeholders to gather their unique perspectives and requirements. Individual responses provide valuable insights into specific needs, preferences, and priorities that may not be identified through group responses alone.

The process of analyzing responses involves categorizing and organizing the collected data to identify recurring themes, patterns, and priorities. It is important to consider both the collective needs of the group and the specific requirements of individuals when defining business priorities. By considering a holistic view of the responses, a comprehensive understanding of the business priorities can be achieved.

In the final step, the identified themes, patterns, and priorities are used to define business priorities. This involves establishing a clear hierarchy of business objectives and goals based on the analyzed responses. It is crucial to document and communicate these priorities to ensure alignment among all stakeholders involved in the website development process.

In conclusion, analyzing group and individual responses is essential to define business priorities when developing a website. By understanding the needs and preferences of both groups and individuals, and considering their input during the analysis process, a solid foundation can be built for the website development project. This approach ensures that the website effectively meets the objectives and goals of the business and delivers a valuable experience to its target audience.

Self-Check 1

Part-I: Choose the correct answer

1. Why is it important to identify business requirements when developing a website?
   A. To prioritize personal preferences of the web developer
   B. To ensure the website aligns with the goals and objectives of the business
   C. To improve the visual design of the website
   D. To increase website traffic
2. Why is it important to consider security measures when identifying website architecture principles?
   A. To randomly choose website architecture principles without considering security concerns
   B. To protect the website and its data from unauthorized access
   C. To ensure that the chosen website architecture provides a secure environment for data and user information
   D. B and C
3. What is the benefit of using integrated development environments (IDEs) in website development?
   A. Increased security features
   B. Better compatibility with web development frameworks
   C. Improved visual design of the website
   D. Enhanced coding productivity and debugging capabilities

Part-II: Answer the following questions accordingly

1. How can the analysis of group and individual responses help in identifying common goals and aligning business priorities during website development?
2. Why is it important to review reports and other data sources when developing a website for a business?

3. Why are conducting information gathering workshops and interviews important in the website development process?
4. What are the benefits of conducting information gathering workshops and interviews for website development?

Part-III: Say true or false

1. Incorporating hardware and software requirements into business requirements discard that the website can function optimally.
2. Hardware requirements for website development may include servers, hosting services, and network infrastructure.
3. Following website architecture principles helps to ensure the website is user-friendly and easy to navigate.
4. Information gathering weakens developers to align their technical decisions with the goals and expectations of the website project.

Unit Two: Human Computer Interface

This unit is developed to provide you the necessary information regarding the following content coverage and topics

- User profiling and needs analysis
- Determination of user content and requirements
- Principles of website design
- Identification of operating system
- Determination of search engine

This unit will also assist you to attain the learning outcomes stated in the cover page.
Specifically, upon completion of this learning guide, you will be able to:

- Understand and analyze user profile and user needs
- Identify user content and requirements
- Identify design principles
- Determine operating system
- Identifying search engine

2.1. User profiling and needs analysis

User analysis is a crucial step in understanding the target audience and creating user-centered products or services. To conduct effective user analysis and gather detailed information about the user profile, several key steps need to be followed. Firstly, it is important to define the research goals and clearly establish the objectives of the user analysis, identifying the specific information needed about the users. Next, the target audience must be identified, considering factors such as demographics (age, gender, location, education level, occupation) to determine the specific groups to be analyzed. Surveys and interviews are conducted to gather in-depth information about the users' characteristics, including their background, interests, preferences, behaviors, as well as their goals, motivations, and challenges related to the product or service. Existing data is analyzed, looking for patterns, trends, and commonalities among previous users or customers, using sources such as customer feedback, market research, or user registrations. Field research is conducted to gain firsthand insights by observing and interacting with users in their natural environment, conducting usability tests, interviews, or ethnographic studies to understand their behaviors, needs, and pain points. User personas are created based on the collected data, representing different segments or archetypes of the target audience, including details such as demographics, goals, motivations, behaviors, preferences, and challenges, serving as reference points throughout the product or service development process.

User profiles are validated and refined by cross-referencing the collected data and feedback from multiple sources, ensuring their accuracy and incorporating new insights that emerge during the analysis process. Finally, a comprehensive document is created to describe the user profile in detail, including relevant demographic information, goals, motivations, behaviors, preferences, and challenges, utilizing visuals such as images or quotes to enhance relatability and memorability. By conducting a thorough user analysis incorporating these steps, a detailed understanding of the user profile can be achieved, allowing for the design and development of products, services, or experiences that effectively cater to the specific needs, preferences, and goals of the target audience.

2.2. Determine user content and requirements

- **User Research and Analysis**
  - **Conduct User Interviews and Surveys:**
    - ✓ Conduct interviews and surveys with the target audience to gather insights on their needs, preferences, and expectations.
    - ✓ Ask open-ended questions to understand their goals, pain points, and desired outcomes when visiting the website.
  - **Analyze User Demographics and Behaviors:**
    - ✓ Gather demographic information such as age, gender, location, education level, and occupation
    - ✓ Study user behaviors, browsing habits, and device preferences to inform content and design decisions.
  - **Identify User Personas:**
    - ✓ Create user personas based on the collected data to represent different segments of the target audience.
    - ✓ Include details such as demographics, goals, challenges, motivations, and preferred content formats.
- **User Goals and Objectives**
  - **Define User Goals:**
    - ✓ Identify the specific actions or tasks users want to accomplish on the website.
    - ✓ Prioritize goals based on user importance and frequency.
  - **Establish Business Objectives:**
    - ✓ Align user goals with the business objectives of the website.
    - ✓ Determine how the website can support the organization's goals, such as increasing conversions or improving user engagement.

- **Content Planning and Organization**
  - **Determine Key Content Categories:**
    - ✓ Identify the main sections or categories of content that align with user goals and business objectives.
    - ✓ Examples may include About Us, Products/Services, Blog, Testimonials, Contact, etc.
  - **Conduct Content Inventory:**
    - ✓ Review existing content assets to identify what can be repurposed or updated.
    - ✓ Determine any content gaps that need to be filled to meet user needs.
  - **Define Content Requirements:**
    - ✓ Specify the types of content needed for each category, such as text, images, videos, or interactive elements.
    - ✓ Consider the tone of voice, language, and level of technicality appropriate for the target audience.
- **Information Architecture and User Flow**
  - **Create Site Map:**
    - ✓ Develop a visual representation of the website's structure and organization.
    - ✓ Outline the main sections, subpages, and their hierarchical relationships.
  - **Map User Journeys:**
    - ✓ Identify the different paths users may take when navigating the website.
    - ✓ Consider the sequence of pages visited and the actions users are likely to take.
- **Wire framing and Prototyping**
  - **Create Wireframes:**
    - ✓ Develop visual representations of the website's layout and structure.
    - ✓ Consider the hierarchy of content, placement of key elements, and user interactions.
  - **Prototype and Test:**
    - ✓ Build interactive prototypes to test the user experience and gather feedback

- ✓ Conduct usability testing to validate the effectiveness of the website's content and layout.

By following these detailed steps, you can effectively determine the user content and requirements for website development. This comprehensive approach ensures that the website aligns with user needs, goals, and preferences, ultimately providing a valuable and engaging user experience.

2.3. Principles of website design

An effective website design should fulfil its intended function by conveying its particular message whilst simultaneously engaging the visitor.

1. Analyze User Research:

- Review user research findings to understand the target audience's preferences and expectations.
- Identify common patterns and themes related to design preferences and usability.

2. Define User Goals:

- Determine the specific goals and desired outcomes users want to achieve when visiting the website.
- Prioritize and align these goals with the overall objectives of the website.

- **Establishing Design Objectives**
  - **Define Design Objectives:**
    - ✓ Identify the key objectives that the design should achieve, such as enhancing usability, improving engagement, or conveying brand identity.
    - ✓ Ensure that the design objectives align with the overall goals of the website and the needs of the target audience.
  - **Consider Branding and Visual Identity:**
    - ✓ Determine how the design elements can reflect and reinforce the organization's branding and visual identity.
    - ✓ Consider the color scheme, typography, logo placement, and other visual elements that represent the brand.

- **Applying Design Principles**
  - **Usability and User-Friendliness:**
    - ✓ Prioritize usability by ensuring that the website is intuitive, easy to navigate, and accessible to all users.
    - ✓ Apply consistent and familiar design patterns, such as clear navigation menus and logical page layouts.
  - **Visual Hierarchy and Information Architecture:**
    - ✓ Implement a clear visual hierarchy to guide users' attention and facilitate information consumption.
    - ✓ Organize content in a logical and intuitive manner, ensuring that important information is easily discoverable.
  - **Responsive and Mobile-Friendly Design:**
    - ✓ Design the website to be responsive and adaptable across different devices and screen sizes.
    - ✓ Ensure that the website is optimized for mobile use, considering touch interactions and smaller screens.
- **Typography and Readability**
  - **Choose Appropriate Fonts:**
    - ✓ Select fonts that are legible and align with the website's purpose and target audience.
    - ✓ Consider the readability on different devices and screen sizes.
  - **Font Hierarchy and Formatting:**
    - ✓ Establish a clear font hierarchy to guide users through the content.
    - ✓ Use formatting techniques such as headings, subheadings, and bullet points to improve readability and scan ability.

- **Visual Design and Aesthetics**
  - **Consistency and Branding:**
    - ✓ Ensure visual consistency throughout the website, using consistent colors, fonts, and design elements.
    - ✓ Incorporate brand elements and visual cues to reinforce the organization's identity.
  - **Balance and White Space:**
    - ✓ Maintain a balanced layout by distributing elements evenly and using white space effectively.
    - ✓ White space helps improve readability and allows important elements to stand out.
  - **Engaging Visuals:**
    - ✓ Use high-quality images, videos, and graphics that align with the website's purpose and target audience.
    - ✓ Ensure that visuals enhance the user experience and do not distract from the content.

By following these detailed steps, you can determine appropriate design principles for website development. These principles will guide the design process and help create a visually appealing, user-friendly, and engaging website that meets the needs and goals of the target audience.

2.4. Identification of operating system

1. Define Website Development Requirements:

- Determine the specific technical requirements for the website, such as programming languages, frameworks, and dependencies.
- Consider the desired functionality, scalability, and performance expectations.

2. Identify Supported Technologies:

- Research the compatibility of different operating systems with the required development technologies.

- Consider the availability of development tools, libraries, and community support for each operating system.

- **Evaluating Operating System Options**
  - **Windows:**
    - ✓ Consider Windows if you prefer a user-friendly interface and a wide range of development tools and software.
    - ✓ Windows is well-suited for .NET, Microsoft technologies, and Windows-specific frameworks.



Figure 2.1 Windows OS

  - **macOS:**
    - ✓ Choose macOS if you prefer a Unix-based environment and seamless integration with Apple hardware and software.
    - ✓ macOS is popular among web developers using technologies like Ruby on Rails, Node.js, and PHP.



Figure 2.2 macOS

  - **Linux:**
    - ✓ Select Linux if you prefer an open-source environment with extensive customization options and strong community support.

- ✓ Linux is widely used for web development, particularly with technologies like Python, PHP, and JavaScript.



Figure 2.3 Linux OS

- **Considering Development Workflow and Collaboration**
  - ➢ **Development Workflow:**
    - ✓ Evaluate how each operating system integrates with your preferred development workflow and tools.
    - ✓ Consider factors such as code editors, version control systems, package managers, and deployment options.
  - ➢ **Collaboration and Team Preferences:**
    - ✓ Discuss with your development team or collaborators to understand their familiarity and preferences regarding operating systems.
    - ✓ Consider the ease of collaboration, sharing code, and maintaining consistent development environments.
- **Performance and Scalability**
  - ➢ **Performance Considerations:**
    - ✓ Evaluate the performance characteristics of each operating system, such as speed, memory management, and resource utilization.
    - ✓ Consider the potential impact on website performance and responsiveness.
  - ➢ **Scalability and Deployment:**

- ✓ Assess how each operating system handles scalability and deployment requirements.
- ✓ Consider factors such as server management, containerization, and cloud platform compatibility.

- **Security and Maintenance**
  - **Security:**
    - ✓ Evaluate the security features and track record of each operating system.
    - ✓ Consider factors such as vulnerability management, security updates, and community support.
  - **Maintenance and Updates:**
    - ✓ Consider the ease of maintenance and updates for each operating system.
    - ✓ Evaluate factors such as the frequency of updates, stability, and backward compatibility.

By thoroughly evaluating the development requirements, considering factors like supported technologies, development workflow, collaboration preferences, performance, scalability, security, and maintenance, you can identify the appropriate operating system for website development. Remember to consider the specific needs of your project and the expertise of your development team to make an informed decision.

2.5. Determination of search engine

- **Understanding Search Engine Landscape**
  - **Research Search Engine Market Share:**
    - ✓ Analyze the market share and popularity of different search engines, such as Google, Bing, Yahoo, and others.
    - ✓ Consider regional differences and target audience preferences when evaluating search engine usage.

- **Study Search Engine Algorithms and Ranking Factors:**
  - ✓ Familiarize yourself with the algorithms and ranking factors used by different search engines to determine search results.
  - ✓ Understand the criteria that influence search engine rankings, such as relevance, authority, and user experience.

- **Considerations for Google as the Primary Search Engine**
  - **Dominance and User Base:**
    - ✓ Consider Google's dominant position as the most popular search engine worldwide.
    - ✓ Recognize the potential reach and visibility that Google can provide for your website.
  - **Algorithm Updates and Guidelines:**
    - ✓ Understand Google's frequent algorithm updates and the impact they can have on search rankings.
    - ✓ Familiarize yourself with Google's Webmaster Guidelines to ensure compliance and improve search visibility.

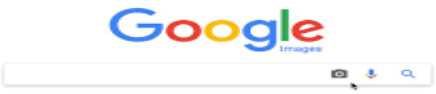


Figure 2.4 Google search engine

- **Evaluating Alternative Search Engines**
  - **Bing:**
    - ✓ Consider Bing as an alternative search engine, especially if your target audience includes users who prefer Microsoft products.

- ✓ Evaluate Bing's market share and its integration with Microsoft services and devices.



Figure 2.5 Bing search engine

- ➢ **Yahoo:**
  - ✓ Assess Yahoo's search engine as an alternative, particularly if your target audience includes users who are loral to the Yahoo brand.
  - ✓ Consider Yahoo's partnership with Bing and its impact on search results.



Figure 2.5 Yahoo search engine

- **Niche Search Engines and Verticals**
  - ➢ **Vertical-Specific Search Engines:**
    - ✓ Identify niche search engines that cater to specific industries or verticals relevant to your website.

- ✓ Evaluate the potential benefits of targeting these specialized search engines for better visibility within your industry.2. Local Search Engines:
- ✓ Consider local search engines that have significant usage in specific regions or countries.
- ✓ Evaluate their relevance and popularity within your target geographic area.

- **Multi-Search Engine Optimization Strategies**
  - **Diversification:**
    - ✓ Consider adopting a multi-search engine optimization strategy to target a broader audience.
    - ✓ Optimize your website for multiple search engines to increase visibility and capture traffic from different sources.
  - **Analytics and Performance Monitoring:**
    - ✓ Utilize web analytics tools to track the performance of your website on different search engines.
    - ✓ Monitor search engine referrals, rankings, and user engagement metrics to assess the effectiveness of your optimization efforts.

By understanding the search engine landscape, considering factors such as market share, algorithms, user base, and vertical-specific search engines, you can determine the appropriate search engine(s) for your website development. Remember to evaluate your target audience preferences, geographic considerations, and the benefits of diversification to optimize your website's visibility and reach.

Self-Check 2

Part-I: Choose the correct answer

1. What is the purpose of conducting user analysis in web development?
   A. To increase website traffic
   B. To improve search engine optimization
   C. To determine a user profile and user needs
   D. To make the website visually appealing
2. How can you determine user content and requirements?
   A. By relying solely on the web developer's assumptions
   B. By conducting surveys and interviews with potential users
   C. By focusing on the personal preferences of the web developer
   D. By analyzing website traffic and click-through rates
3. What factors should be considered when identifying the appropriate operating system for web development?
   A. Personal preferences of the web developer
   B. The availability of free software options
   C. Compatibility with web servers and databases
   D. The popularity of the operating system
4. How can the choice of operating system impact collaboration and teamwork in web development?
   A. By randomly selecting an operating system without considering collaboration tools
   B. By prioritizing personal preferences of the web developer over collaboration needs
   C. By ensuring that the operating system supports the required collaboration tools and software
   D. By focusing solely on the visual design of the website

Part-II: Answer the following questions

1. Explain the importance of conducting a needs analysis for website development.
2. Explain the significance of considering appropriate design principles for a website.
3. Why is it necessary to identify the appropriate operating system for a website?
4. What factors should be considered when determining the appropriate search engine for a website?

Chapter Three: Website Hierarchy

This unit is developed to provide you the necessary information regarding the following content coverage and topics

- Hierarchy of pages and information
- Logic and accessibility of content
- Clear and consistent navigation across pages

This unit will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Understand hierarchy of pages and information hierarchy
- Understand in logic and accessibility of content to user
- Understand consistency and clarity of navigation between pages in line with site hierarchy

3.1. Hierarchy of pages and information

To create an effective and user-centric website, it is crucial to understand the goals of the website and the needs of its users. Firstly, the website goals should be clearly defined, articulating the objectives and purpose of the website. It is important to identify the key actions or outcomes that you want users to achieve on each page. Additionally, analyzing user needs and behavior is essential. User research should be conducted to gain insights into the goals, preferences, and behaviors of the target audience. This research helps identify the specific information users are seeking and the tasks they need to accomplish on the website.

Once the website goals and user needs are understood, the hierarchy of pages can be determined. This involves identifying the main sections or categories of content that align with the website's goals and user needs. These main sections should reflect the primary topics or themes of the website. Establishing hierarchical relationships between the main sections and subpages within each section is crucial. Logical groupings and the flow of information should be considered to ensure a clear and intuitive navigation structure.

Within each page, the information hierarchy needs to be established. This involves identifying the key content elements for each page, such as headings, subheadings, paragraphs, images, videos, or interactive elements. Creating a visual hierarchy using font size, color, and formatting helps prioritize important information and make it easily scannable for users. Content elements should be arranged in a logical order that guides users through the page, considering the order of importance and the sequence in which users are likely to consume the information.

Navigation and site architecture play a significant role in the user experience. Clear navigation menus should be designed to reflect the hierarchy of pages and allow users to easily navigate between sections. Labels should be clear, and the placement and visibility of the menu on different devices should be considered. Breadcrumb navigation can also be implemented to provide users with a clear path back to higher-level pages, enhancing the overall navigation experience and helping users understand their location within the website.

Consistency and user-friendly design are important factors to consider. Maintaining consistency across pages by using a consistent design and layout provides a cohesive user experience. Consistent navigation elements, branding, and visual styles create familiarity and reduce cognitive load for users. Additionally, the website's design and layout should be optimized for usability and ease of navigation. Factors such as responsive design, intuitive interaction patterns, and clear calls to action contribute to a user-friendly design.

By following these detailed steps, you can effectively determine the hierarchy of pages and information hierarchy for your website development. This will help you create a well-organized and user-friendly website that effectively communicates information, guides users through the content, and achieves the goals of your website

3.2. Logic and accessibility of content to user

- **Understanding User Needs and Accessibility Guideline**
  - **Analyze User Needs:**
    - ✓ Conduct user research to understand the needs, preferences, and behaviors of your target audience.
    - ✓ Identify any specific accessibility requirements or considerations based on user demographics or disabilities.
  - **Familiarize Yourself with Accessibility Guidelines:**
    - ✓ Study accessibility guidelines such as the Web Content Accessibility Guidelines (WCAG) to understand best practices.
    - ✓ Ensure that your website meets the necessary accessibility standards for different disabilities, including visual, auditory, cognitive, and motor impairments.
- **Organizing and Structuring Content Logically**
  - **Define Logical Information Architecture:**
    - ✓ Determine the overall structure and organization of the website's content.

- ✓ Create a clear hierarchy of pages and sections that aligns with user needs and goals.

➢ **Use Descriptive Headings and Subheadings:**

- ✓ Employ meaningful and descriptive headings to provide a clear outline of the content structure.
- ✓ Use proper HTML heading tags (H1, H2, etc.) to indicate the importance and hierarchy of the headings.

- **Writing Clear and Accessible Content**

➢ **Use Plain Language:**

- ✓ Write content in clear and concise language that is easy to understand.
- ✓ Avoid jargon, complex terms, and ambiguous phrases that may confuse users.

➢ **Break Content into Digestible Chunks:**

- ✓ Divide content into smaller paragraphs and sections to improve readability and comprehension.
- ✓ Use bullet points, numbered lists, and subheadings to break up information and make it more scan able.

➢ **Provide Alternative Text for Images:**

- ✓ Include descriptive alternative text (alt text) for images to provide context for visually impaired users.
- ✓ Use alt text that accurately describes the content or purpose of the image.

- **Enhancing Navigation and User Experience**

➢ **Clear and Consistent Navigation:**

- ✓ Design intuitive and user-friendly navigation menus that are easy to understand and navigate.
- ✓ Ensure that navigation labels are descriptive and make logical sense.

- **Keyboard Accessibility:**
  - ✓ Ensure that your website can be easily navigated and interacted with using only a keyboard.
  - ✓ Implement keyboard shortcuts and focus indicators to assist users who rely on keyboard navigation.

- **Testing and Continuous Improvement**
  - **Conduct Accessibility Testing:**
    - ✓ Regularly test your website's accessibility using automated tools and manual testing methods.
    - ✓ Address any accessibility issues or barriers identified during testing.
  - **Gather User Feedback:**
    - ✓ Encourage users to provide feedback on the accessibility and usability of your website.
    - ✓ Use this feedback to identify areas for improvement and make necessary adjustments.

By following these steps, you can ensure the logic and accessibility of content to users when developing a website. Prioritizing user needs, adhering to accessibility guidelines, organizing content logically, writing clear and accessible content, enhancing navigation, and continuously testing and improving will help create a website that is user-friendly, inclusive, and accessible to all users.

3.3. Clear and consistent navigation across pages

To create a well-structured and user-friendly website, it is important to define the site hierarchy and establish clear navigation goals. The site hierarchy involves determining the overall structure of your website's pages and content sections. This includes identifying the main categories or sections and defining their relationships to create a clear hierarchy. By organizing your website in a logical and hierarchical manner, users can easily navigate and find the information they need.

Once the site hierarchy is established, it is crucial to define the navigation goals of your website. Consider the primary objectives you want to achieve with the navigation, such as guiding users to specific sections, promoting certain pages, or facilitating user tasks. It is important to keep user needs and expectations in mind when planning the navigation flow. By aligning the navigation with user goals, you can create a seamless and intuitive browsing experience.

When designing the navigation menu, focus on creating clear labels for each menu item. Use descriptive and easily understandable terms that accurately represent the content users will find when they click on the menu item. Avoid using ambiguous or vague labels that may confuse users. Consistency in the placement of the navigation menu is also important. Keep the menu in a consistent location across all pages, such as at the top or side of the website. This helps users locate and access the navigation easily, enhancing their overall browsing experience.

Implementing intuitive navigation patterns is crucial for user-friendly navigation. Use clear visual cues to indicate interactive navigation elements, such as hover effects, underlines, or color changes. These cues help users identify clickable links and understand their purpose. Including a home link in your navigation menu ensures that users can easily return to the main page at any point during their navigation.

Breadcrumb navigation is a useful feature to implement, especially for websites with a complex hierarchy. Breadcrumbs provide users with a clear path back to higher-level pages, allowing them to understand their location within the website's hierarchy and retrace their steps. Use descriptive labels in your breadcrumb navigation to indicate the page hierarchy, helping users understand the relationship between pages and navigate accordingly.

For mobile devices, it is essential to optimize navigation for a smaller screen and touch-based interactions. Ensure that your navigation is responsive and adapts well to different screen sizes with a responsive design. Consider using a hamburger menu or collapsible navigation to save space and improve usability. Simplify the navigation structure for mobile devices by prioritizing the most important menu items and using dropdown menus, expandable sections, or accordion-style navigation to provide a streamlined experience.

By following these steps, you can ensure the consistency and clarity of navigation between pages in line with the site hierarchy while developing your website. Defining the site hierarchy, designing clear navigation menus, implementing intuitive navigation patterns, incorporating breadcrumb navigation, and optimizing navigation for mobile devices will help users easily navigate your website and find the content they are looking for.

Self-Check 3

Part-I: Choose the correct answer

1. What are some best practices for maintaining consistency and clarity of navigation between pages?
   A. Using random labels for navigation links
   B. Organizing the navigation menu based on the site hierarchy
   C. Frequently changing the placement and styling of navigation elements
2. Which is a best practice for organizing and structuring web content?
   A. Using long paragraphs with minimal headings
   B. Including excessive amounts of irrelevant information
   C. Utilizing clear and concise headings and subheadings
   D. Making the content difficult to scan and skim-read
3. How can developers test the accessibility of their web content?
   A. By relying solely on their own judgment
   B. By using automated accessibility testing tools
   C. By ignoring user feedback and recommendations
   D. By conducting user testing with a diverse group of users

Part-II: Answer the following questions accordingly

1. What does it mean to ensure the logic of content to the user?
2. Provide an example of how inconsistent navigation can negatively impact user experience
3. What does it mean to ensure the logic of content to the user?

Reference

Books

Responsive Web Design by Ethan Marcotte
A common-sense approach to Web Usability by Steve Krug

URL

https://www.whatmattersmarketing.com/blog/website-technical-requirements-checklist

https://banc.digital/blog/how-to-write-a-website-requirements-document-and-statement-of-work/#:~:text=A%20website%20requirements%20document%20outlines,notes%20on%20individual%20design%20elements

https://developer.mozilla.org/en-US/docs/Web.
https://developers.google.com/web/fundamentals.
https://www.learnenough.com/web-development-for-beginners.

Developer's Profile

No	Name	Qualification	Field of Study	Organization/ Institution	Mobile number	E-mail
1	Frew Atkilt	M-Tech	Network & Information Security	Bishoftu Polytechnic College	0911787374	frew.frikii@gmail.com
2	Gari Lencha	MSc	ICT Managment	Gimbi Polytechnic	0917819599	Garilencha12@gmail.com
3	Kalkidan Daniel	BSc	Computer Science	Entoto Polytechnic	0978336988	kalkidaniel08@gmail.com
4	Solomon Melese	M-Tech	Computer Engineering	M/G /M/Polytechnic College	0918578631	solomonmelese6@gmail.com
5	Tewodros Girma	MSc	Information system	Sheno Polytechnic College	0912068479	girmatewodiros @gmail.com
6	Yohannes Gebeyehu	BSc	Computer Science	Entoto Polytechnic College	0923221273	yohannesgebeyehu73@gmail.com