A REPORT

ON

WEB DEVELOPMENT INTERNSHIP AT UPTOSKILLS

Submitted by,

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Under the guidance of,

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in partial fulfillment for the award of the degree of

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE AND ENGINEERING

At

GAIN MORE KNOWLEDGE
REACH GREATER HEIGHTS

PRESIDENCY UNIVERSITY

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PRESIDENCY UNIVERSITY

SCHOOL OF COMPUTER SCIENCE ENGINEERING

DECLARATION

I hereby declare that the work, which is being presented in the project report entitled **WEB DEVELOPMENT INTERN AT UPTOSKILLS** in partial fulfillment for the award of Degree of **Bachelor of Technology** in **Computer Science and Engineering**, is a record of our own investigations carried under the guidance of **Dr. Ramesh Sengodan, Professor, School of Computer Science and Engineering, Presidency University, Bengaluru.**

I have not submitted the matter presented in this report anywhere for the award of any other Degree.

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CERTIFICATE

This is to certify that the Project report **"WEB DEVELOPMENT INTERN AT UPTOSKILLS"** being submitted by "Ms. Neha R" bearing roll number(s) "20211CSE0224" in partial fulfillment of the requirement for the award of the degree of Bachelor of Technology in Computer Science and Engineering is a bonafide work carried out under my supervision.

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ABSTRACT

In 2016, UptoSkills was established as a professional skill development firm with its main office in New Delhi, India.Among other fields of study, it provides certification training programs in electrical, mechanical, computer science, electronics, and civil engineering. It functions additionally as an online skill-tech platform.The organization provides industry-relevant training with a particular emphasis on professional education to enhance career potential.Furthermore, UptoSkills provides assistance with job placement to ensure trainees have an easy transition into the workforce. The company uses a "Train-Deploy-Retain" approach, which includes free training as well as continuing skill development programs to assist companies in keeping employees up kept up on industry advancements.Through career-building opportunities, internships, and hands-on training, UptoSkills aims to bridge the knowledge gap between education and employment.By providing possibilities for people to reach their full potential, UptoSkills aims to empower them.In order to provide participants hands-on experience in a variety of industries, they offer a number of virtual internships allowing them to work from home.These internships are designed to develop participants' potential and educate them so they may significantly advance their professions. Web development internships at UptoSkills provide practical training with HTML, CSS, and JavaScript to create responsive websites.As interns work on real-world projects, they sharpen their technical skills, work in teams, and receive mentoring from skilled professionals.By giving participants practical experience with front-end and back-end programming, the internship aims to improve their problem-solving skills and prepare them for careers in web development.The tasks that were allocated included creating the official UptoSkills website, imitating the Horilla website, and designing the Horilla website's front end.

ACKNOWLEDGEMENT

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CHAPTER-1

INTRODUCTION

1.1 Real-World Web Development: Enhancing Technical Skills

The UptoSkills web development internship turned become an ideal opportunity for students to gain practical experience using contemporary web technologies for building and designing websites.The primary goals of this internship have been to develop technical knowledge in HTML, CSS, JavaScript, and responsive design as well as teamwork, problem-solving, and project management abilities.HTML stands for HyperText Markup Language, and it is the most fundamental component of the Web. Web content's structure and meaning are defined by it.

Web pages are typically described by other technologies than HTML, such as CSS (presentation) or JavaScript (activity). HTML annotates text, pictures, and other material as "markup" so that it can be viewed in a web browser. <head>, <title>, <body>, <header>, <footer>, <article>, <section>, <p>, <div>, <span>, <img>, and other unique "elements" are part of HTML markup.[9]

Under the guidance of senior mentors, interns worked on real-world projects such as creating the official UptoSkills website, cloning the Horilla website, and designing the Horilla frontend.This website makes utilization of responsive web design, which is essential for making websites that work seamlessly across a range of screens and devices.The three primary components have been determined to be media queries, flexible grid-based layouts, and adjustable images and media.When these elements are put into effect, a user-friendly experience across a wide range of devices is confirmed. [5] In this report, the learning process, obstacles faced, and solutions brought in during the internship are described.This program provided interns valuable knowledge about industry best practices and prepared them for future web development pursuits.

1.1.1 Background of the internship:

The UptoSkills web development internship set out to give students a hands-on introduction to front-end development and practical exposure to industry standards.To bridge the gap between theoretical understanding and real-world implementation, the program included interns in website development projects that required both technical expertise and innovative ideas.

1.1.2 Objectives of the internship:

The principal objectives of the internship were the following:

Learning HTML, CSS, and JavaScript in order to create responsive websites.Gaining knowledge of responsive web design and unique UI/UX concepts for improving user experience.Ensuring that websites function properly across a variety of displays and devices through the use of responsive web design.In order to build user-friendly experiences that encourage accessibility and engagement, designers might employ techniques such as media queries, responsive visuals, and fluid layouts.Since mobile devices account for a significant portion of web traffic, adopting adaptable design is crucial to being competitive in the digital market.[6] Developing knowledge of Git and other version control systems in order to work together on projects.Learn better at debugging and troubleshooting in real-time project circumstances.

1.1.3 Scope of work:

During their internship, participants were assigned three main tasks to accomplish:

Task 1: Creating UptoSkills' official website while making certain it has a clean and informative interface.

Task 2: Building another version of the Horilla website having a particular focus on understanding pre-existing code structures and development.

Task 3: Developing the Horilla website's front end while including highly sophisticated style and interactive features.

1.1.4 Learning outcomes:

By the end of the internship, the participants' ability to code, solve problems, and get accustomed to professional project management procedures had all progressed.Meanwhile, the experience enhanced their ability to work well with others, take constructive criticism, and efficiently complete tasks on schedule.Upon finishing the three-month internship successfully, trainees get an official internship certificate from UptoSkills as a token of appreciation for their commitment to the projects.

CHAPTER-2

LITERATURE SURVEY

1.1 Task 1: UptoSkills Official Website[1]

UptoSkills, one of India's top skill-development platforms, offers an assortment of services aimed at upgrading students' abilities.To accommodate a range of professional interests, the website provides free courses, internships, and employment possibilities.To encourage innovation and active engagement, the company additionally organizes hackathons and competitions.The platform offers tailored offerings to help businesses and academic institutions better align commercial objectives with academic learning.The UptoSkills website has an easy-to-use structure and offers a number of categories for visitors to browse, including courses, internships, and job openings.The homepage prominently displays links to the employer and candidate login pages, making it convenient for both employers and job seekers to access them.Email addresses and phone numbers are included in the contact details.

UptoSkills Website Design Structure

The UptoSkills website's coordinated layout makes it easier for users to navigate.Its primary resources used to create a responsive and visually striking interface are JavaScript, CSS, and HTML.The navigation bar on the website header enables relatively simple access to a range of resources, including Home, Courses, Internships, Jobs, and Hackathons.The hero section's call-to-action buttons are noticeable and encourage users to seize the chance.CSS is used for styling, with the focus being on color contrast, legibility, and space.JavaScript enhances interaction by providing dynamic features like drop-down menus, animated elements, and form validation.To make the website flexible to different screen widths, Bootstrap or a similar CSS framework was used in its creation.External APIs or scripts are incorporated for search capabilities, filtering choices, and login authentication in order to improve the user experience even further.Employers and students alike may gain from the frontend's skillful balancing act between usability and visual attractiveness.

Limitations of website design of other educational platforms

1. **Complex Navigation:** For instance, Coursera has come into scrutiny for having a confusing navigation system that makes it difficult for users to locate particular courses or features because of the cluttered menus and connections.

Frustration and a bad user experience may result from this.

2. **Overwhelming Layout:** For instance, Udemy's site may seem overflowing with promotions and courses, which might overwhelm new users and make it challenging to concentrate on certain learning pathways.
   A crowded layout might divert visitors' attention and make it more difficult for them to quickly locate pertinent material.

3. **Limited Interactivity:** For instance, Khan Academy mostly provides video-based information with few interactive features, which could not successfully engage all kinds of learners.Absence of interactive elements may result in passive learning experiences that lower engagement and retention.

4. **Poor Mobile Optimization:** For instance, some older educational platforms, like edX, have been criticized for their mobile interfaces, which are not as responsive or user-friendly as necessary for effective mobile learning.

In contrast to these common drawbacks found in other educational platforms, UptoSkills excels in website design by prioritizing user-friendly navigation, a clean and organized layout, engaging interactive features, and optimized mobile access.

Comparison of UptoSkills Website with Other Educational Platforms

1. Design & User Interface
UptoSkills features a clean and user-friendly design that streamlines the experience for users seeking jobs, internships, and courses. It includes distinct sections for both employers and students, complemented by an intuitive navigation bar that follows a conventional layout. In contrast, platforms like Coursera, Udemy, and edX leverage modern UI/UX principles, providing interactive dashboards, AI-driven course suggestions, and visually appealing designs. Their user interfaces are typically more advanced and feature-rich compared to UptoSkills.

2. Course Selection & Instructional Methods
UptoSkills focuses on offering free classes, internships, and hackathons, prioritizing job placement and practical skill development over traditional academic courses. Conversely, Coursera and edX provide university-level courses, including certifications from prestigious Ivy League institutions. Udemy operates as a marketplace, enabling anyone to create and sell their own courses.

3. Learning and Interactivity Features
While UptoSkills emphasizes practical learning through skill-based projects and internships, it lacks interactive elements such as peer discussions, quizzes, or AI-driven recommendations. In contrast, other platforms incorporate features that enhance engagement, such as discussion boards (available on Udemy), AI-guided learning paths (offered by LinkedIn Learning), and automatically graded assignments (found on Coursera and edX).

4. Accreditation & Recognition
Although UptoSkills provides valuable internships and hands-on experience, its certifications may not hold the same weight as those from specialized courses offered by Udemy, edX (including those from Harvard and MIT), or Coursera (which features certifications from Google, IBM, and Meta).

5. Pricing & Accessibility
UpToSkills stands out for its accessibility, offering internships and training at no cost. In comparison, Coursera and edX operate on subscription-based or university-affiliated paid models, while Udemy charges a one-time fee for its courses.

1.2 Task 2: Horilla HRMS Website[2]

HRMS stands for Human Resources Management System It relates to a group of software programs that businesses employ to monitor internal human resources activities.By managing employee data, payroll, recruiting, benefits, training, talent management, employee engagement, and attendance, HRMS software helps HR professionals manage a changing workforce.HRMS systems, sometimes called human resources information systems (HRIS), offer details on a company's most significant assets to individuals who need it.HR software and HRIS systems from the past have been replaced with cloud-based solutions for human capital management. [4]

The Horilla website features an eye-catching, modern layout that prioritizes usability and accessibility.Its straightforward layout and intuitive navigation allow users to swiftly navigate between various sections, including classes, resources, and community forums.The combination of striking colors and appealing imagery upgrades the website's visual appeal and functionality.Additionally, Horilla uses interactive elements like discussion boards and tests to promote student involvement and collaboration.Overall, the design offers consumers searching for educational resources a seamless experience by effectively balancing utility and refinement.The Horilla website uses a cutting-edge web technology stack to provide optimal performance and user experience.Its front-end capabilities include HTML5 for organizing

content, CSS3 for style, and JavaScript for interaction. Frameworks like React, Angular, or Vue.js can enhance these features.Regarding the backend, technologies like Node.js and Express.js allow for efficient server-side development, while databases like MongoDB or PostgreSQL handle user and course data.The platform probably makes use of RESTful APIs or GraphQL to provide seamless front-end-backend communication.Horilla also uses cloud services like AWS or Google Cloud, as well as Content Delivery Networks (CDNs), to improve loading speeds.Technologies like Jenkins and GitHub Actions facilitate continuous integration and deployment.

Functions of HRMS[8]
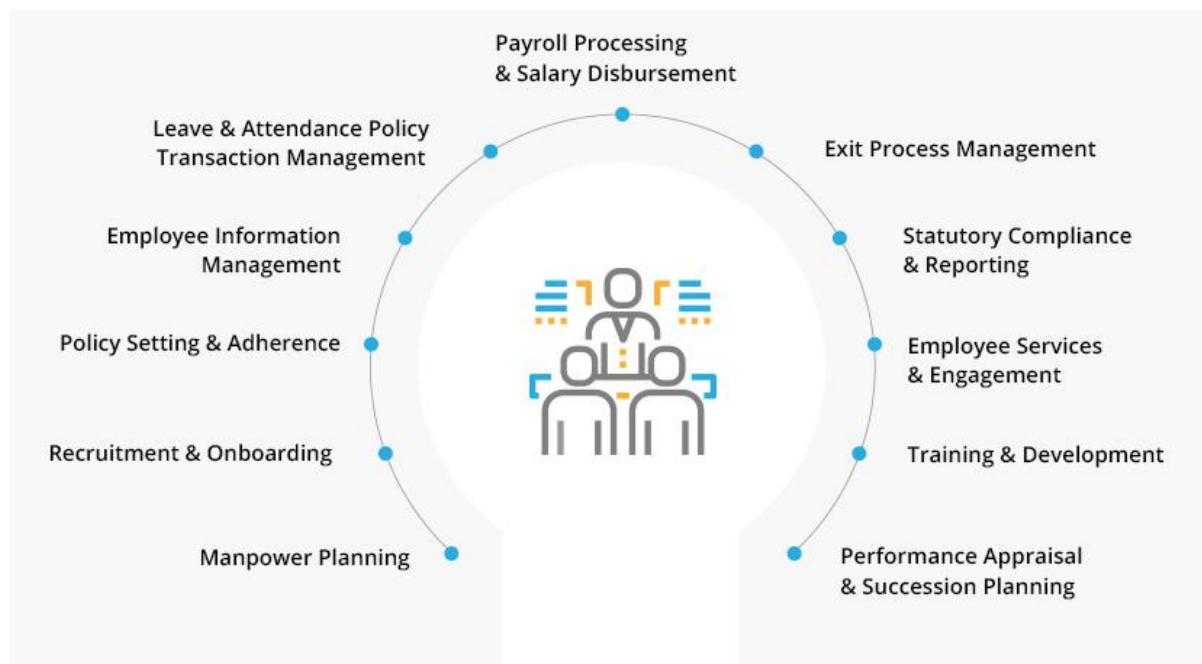
Figure 1

Existing HRMS System Limitations

1. Lack of Integration: Employee management, onboarding, and recruitment are generally managed by distinct modules on many HRMS platforms, including BambooHR, which operate in silos. Due to disparities in data processing brought on by this lack of smooth connectivity, HR teams may encounter difficulties such as inconsistent data entry and duplicate data entry. The structure of the workforce and decision-making may be impacted, for example, if an employee's information is changed in the recruitment module but not in the onboarding module.

2.Manual Procedures: Creating offer letters, monitoring attendance, and granting leave requests are just a few of the crucial HR duties that sometimes

depend on antiquated paper-based techniques or necessitate substantial human involvement. HR specialists could still need to manually enter attendance data into systems like ADP Workforce Now, for instance, which could cause delays and administrative strain. These procedures might be automated to increase efficiency, reduce mistakes, and free up HR teams to concentrate on strategic projects rather than mundane duties.

3.Limited Engagement: The lack of integrated social features in many HRMS platforms, such as Workday, makes it difficult for employees to connect, share updates, and collaborate efficiently within the system. This lack of interactive communication tools can result in lower employee satisfaction, impede the sharing of knowledge, and lower morale, all of which can have an impact on organizational culture.

CHAPTER-3
RESEARCH GAPS OF EXISTING METHODS

- Difficult Navigation Problems Users may find it challenging to locate courses quickly on some educational sites, for instance Coursera, due to their lengthy menus. As a result, users have unpleasant experiences and get even more impatient.The use of retrospective data and the biases present in electronic health records (EHRs) could affect how well these results generalize.

- Excessive User Interface Design: Sites like Udemy consist of a lot of advertising material, which may turn off new users and limit interaction. A cluttered UI might divert users' attention from their learning intentions. Clinical deployment requires rigorous testing and validation in real-world settings to ensure reliability.

- Low Level of Interactivity on Educational Platforms Websites like Khan Academy encourage passive participation since they mostly use videos to teach with limited interactive options.   Retention rates and student motivation might decrease as the outcome.

- Inadequate Mobile Optimization: edX and other older educational platforms have come under criticism for possessing poor mobile responsiveness, which makes it problematic for users to navigate efficiently on smaller screens. This decreases user retention and usability.

- HRMS Systems' Inability to Integrate Easily The payroll, onboarding, and recruitment elements of many HRMS platforms, including BambooHR, function as distinct units that are difficult to interface with. As a result, there are resemble manual entries and inconsistent information.

- Low Staff Involvement in HRMS Lack of social and interactive capabilities on platforms that include Workday contributes to less employee cooperation and engagement. This may have a detrimental effect on team motivation and output.

CHAPTER-4
PROPOSED METHODOLOGY

DESIGN PROCEDURE (Task 1-UptoSkills Website)

The HTML code describes the entire layout of a website's homepage, most likely for the educational platform "UptoSkills".The styling of the website is done with the help of Inline CSS. The implementation of Inline CSS is utilized to modify the appearance of the webpage. We can incorporate inline formatting to our HTML inside individual HTML tags with the help of the style property. Similar to all other HTML attributes, the style attribute functions in the same approach. The equality sign (=) is used after style, and then a quote where all of the style values will be saved using the usual CSS property-value pairs, "property: value;".

<h1 style="...">...</h1> [3]

An explanation of the code's methodology, including its organization, design tenets, and technology, is provided below.

1. Structure of HTML

Declaration of Document Type: This document's HTML5 status is indicated by the declaration. It is an HTML element that signifies that the content is in English.

Head Section: Includes connections to external resources (such as fonts), a title, and meta tags.

Meta Tags: Configure the viewport and character encoding for responsive design.

Title Tag: Determines the page's title that shows in the tab of the browser.

Custom typefaces for text styling are included in the Google fonts link.

2.Styling- Inline Styles: For efficient styling, such as font settings, padding, and background colors, many elements employ inline styles. Although this method is straightforward, it may result in maintenance issues and redundancy.

Flexbox and Grid Layouts: For responsive design, the layout makes use of CSS Flexbox and Grid.

Items in the header and navigation sections are aligned using Flexbox.

Features and blog sections are arranged in a grid fashion using the Grid Layout function.

3. Header and Navigation - Header: Features a login button and contact details, with a dark backdrop for contrast.

The navigation bar makes it easier for people to access different parts of the website by

providing links to them. The white backdrop and shadow add depth, visually separating the navigation from the header.

4.Hero Section - Promotional Content: The hero section includes a compelling headline and a call to action. It adds visual intrigue with a gradient background.

Call to Action Buttons: "Hire From Us" and "HR TPO Podcast" are two examples of buttons that are clear and encourage user interaction.

5.Features Section- Grid of Features: Every feature is displayed as a card, which makes it convenient to read and aesthetically pleasing. Short descriptions and icons improve user comprehension.

Because of its responsive design, the grid can adjust to various screen sizes, making it usable on desktop and mobile devices.

6.Trending Categories Section- Highlighting Categories: Here, trending categories are highlighted with a striking backdrop color.Each category is displayed on a card that has an icon, title, and number of courses.

7. Blog Section - Blog Cards: To encourage content engagement, each blog post is presented in the form of a card with an image, title, and a link to read more.The blog postings are organized in a grid for convenience of viewing, much as the features section.

8. Startup Winners Section - Recognition of Participants: This section describes the startups and team members of competition winners.In order to establish a personal connection, each winner is given an image along with a brief description.

9. Footer - Provides copyright information, social media links, fast links, and contact details.

Grid Layout: To ensure accessibility and clarity, the footer arranges its many components using a grid structure.

10. Aspects of Accessibility - Semantic HTML: Headings, paragraphs, and lists are used to improve accessibility and SEO.

Alt Text for Images: Every image has an `alt` attribute that gives screen readers a description.

Utilized Technologies

HTML5: Used to organize the page.

CSS: Inline CSS allows you to style items inside HTML.

Google Fonts: For unique fonts.

Responsive Web Design: Methods for flexible layouts like Grid and Flexbox.

This HTML code's methodology places a strong emphasis on a responsive, clean design that puts the user experience first. It combines multiple sections to offer thorough platform information, promoting user engagement with obvious calls to action and simple navigation.

The site is easier to use on a variety of devices because to the usage of structured layout and semantic HTML, which also improves accessibility and SEO.

The flowchart describes the process used to create the HTML structure of the UptoSkills webpage. Starting with the general HTML structure, it describes important elements including the Head Section, which contains the title, meta tags, and links to Google Fonts, and the Document Type Declaration. This is followed by the Header (which includes a login button and contact information), the Navigational Bar, and a number of content sections, including the Hero, Features, Trending Categories, Blog, Startup Winners, and Footer sections. A thorough grasp of how the homepage is structured and made for user interaction is ensured by breaking down each area further and emphasizing components such as blog cards, feature grids, call-to-action buttons, promotional content, and footer elements.
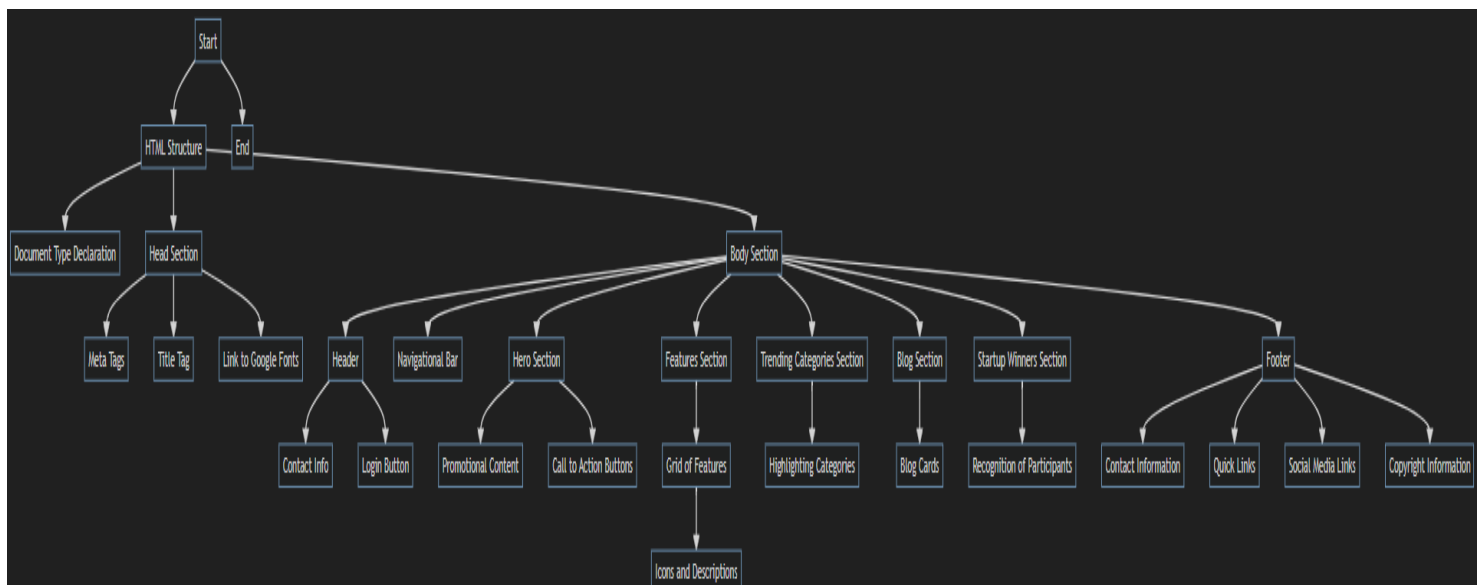
Flowchart

Figure 2

DESIGN PROCEDURE (Task 2 – Horilla HRMS Website)

The HTML code sets up the framework for the main page of "Horilla," an open-source HR software platform.

1. HTML Basics

Document Type: `<!DOCTYPE html>` tells us we're looking at an HTML5 document.

HTML Tag: `<html lang="en-US">` shows the page is in American English.

Special Tags: `xmlns:og` and `xmlns:fb` let the page work with Open Graph and Facebook. This helps when people share the page on social media.

2. Head Section: Meta Tags:

Character Set: `<meta charset="UTF-8">` defines the character encoding.

Viewport Settings: Makes sure the design adapts to mobile screens.

SEO Optimization: Adds meta tags to describe the page, guide search engines, and improve how the page looks when shared on social media.

Link Tags: Points to favicon and CSS files for styling.

Preload: Speeds up loading of the main CSS file.

Scripts: Contains structured data in JSON-LD format to boost SEO giving details about the organization and website.

 3. Body Section

Google Tag Manager: Added to track how users interact with the site and gather data.

Header: Has the logo and navigation bar, so you can get to different parts of the site.

Mobile Menu: A button you can tap for mobile navigation makes it easier to use on smaller screens.

4. Main Content

Hero Section:

Shows a big heading and subheading to grab your attention, with buttons to get a demo and source code.A cool picture shows off the product making it look good.

Feature Section:

Shows the best parts of the software with icons and text in a list, so you can see why it's useful.

5. Call-to-Action Sections

Mobile App Promotion: Tries to get you to download the mobile app with a special section that has a picture and a link to the app store.

Complete HR Solution:

Content in tabs lets you check out different parts (like Recruitment, Attendance Payroll) by clicking around.Each tab tells you all about the features, to keep you interested.

6. Footer Section

Branding and Social Links:

Has the logo, links to social media, and links to important pages so you can find them .

Legal Information: Gives you links to privacy policy and other legal stuff.

Copyright Notice: Tells you who owns it and what year it's from.

7. Scripts and Functionality

JavaScript: Has code to do things like close the banner and make Algolia search work and handling form submission.

The HTML code's structure aims to create a user-friendly experience while boosting search engine visibility and social media sharing. It blends visual components interactive elements, and key details to capture visitors' attention and showcase the Horilla HR software. The approach focuses on responsive design, accessibility, and performance, which leads to a smooth experience for users on all devices.

Flowchart

The onboarding procedure in the HRMS software is as follows:

Figure 3

1. HR Action: - Include the candidate's name, role, and pay.

The candidate's user ID and password will be generated automatically.

The candidate's data should be saved in the users table of the database.

Provide the individual with their credentials and onboarding instructions via email.

2. Candidate Action: The applicant accesses the system and logs in.

They have the ability to change their password.

The offer letter is available for the candidate to download.

The designated team lead or project manager is visible to them.

Additionally, the applicant has access to the social stream.

The HR staff appears to be responsible for uploading the candidate's information, creating their login credentials, and disseminating the onboarding instructions as part of the broader onboarding process. After that, the applicant may log in, change their password, and access important information from the webpage.

The offboarding procedure in the HRMS software is as follows:

1.   HR Action:
•   Identify the employee to be offboarded
•   Initiate the offboarding process
2.   Find Employee to Offboard:
•   Locate the employee's information in the system
•   Prepare for the offboarding tasks
3.   Deactivate Login: Status = Archived:
•   Revoke the employee's access to the system
•   Mark the employee's status as "Archived"
4.   Move Data to Archived Tables:
•   Transfer the employee's data to designated archived tables
•   Ensure the data is securely stored and accessible for future reference.

CHAPTER-5

OBJECTIVES

- **Learning Core Web Development Technologies:** Learning HTML, CSS, and JavaScript firsthand is essential to comprehending the structure, layout, and interactivity of websites. Developers may create scalable and dynamic web apps by becoming proficient with these technologies.

- **Building Functional Webpages:** Developing simple yet useful websites requires knowledge of user interactions, the organization of data, and layout patterns.

  Following best practices, such as clean coding, accessibility, and maintainability, is ensured when working under guidance.

- **Getting Feedback and Developing:** To improve coding skills and comprehend industry norms, regular input from peers and mentors is crucial. The overall functionality, design coherence, and code efficiency are all enhanced by putting proposed changes into practice. Developers improve their ability to produce clear, scalable, and user-friendly code by iterating on projects on a constant basis.

- **Responsive Design:** Web pages with responsive design are guaranteed to adjust effectively to various screen sizes on PCs, tablets, and mobile devices. Layouts that dynamically adapt to the viewing environment are made possible by techniques like media queries, Grid, and CSS Flexbox.

- **UI/UX Design Principles:** Making online applications aesthetically pleasing, straightforward, and simple to use is the main goal of user interface (UI) and user experience (UX) design. Color theory, typography, contrast, and space are some of the principles that improve readability and visual hierarchy. Having a solid grasp of UI/UX guarantees that the website not only looks attractive but also offers users a smooth and pleasurable experience.

CHAPTER-6
SYSTEM DESIGN & IMPLEMENTATION

Task 1 (UptoSkills Official website)

The HTML document is the Home Page for the online platform UptoSkills, which specializes in internships, skill development, and possibilities for employment. The layout has been separated into multiple sections, that include the blog, trending categories, features, hero section, navigation, startup winners, header, and footer. Color of Header Background: Dark (#1a1f2e).

Contact Details: Contains phone number, email address, address, and logo.

The background color of the login button is a distinctive shade of #ff982251.

Getting Around. Links to "Internship," "Jobs," "Competitions," and "Discover" are the primary links. The logo is presented prominently in a robust font. The background of the hero section is a gradient of light to medium hues.

Text: Captivating headlines and summaries that highlight job openings.

Buttons: Podcast and hiring call-to-action buttons.

Grid Layout: Four feature cards with information on services like "Free Jobs" and "For Colleges" highlighted. Icons: Useful emojis that graphically depict each attribute. Grid Display: Four group cards with course numbers and symbols that showcase training options. Background Color: Changing hues to create visual contrast. Blog Cards: Each card is shown in a grid design and includes an illustration, a title, and a link to read more. Showcasing Winners: Comprehensive details regarding startup winners, such as pictures and description of their solutions. Flexbox Layout: For winning cards that are responsive. Information Columns: Four parts split for social media, rapid links, short links, and firm information. At the bottom, in the center, is the copyright notice. Fonts: Makes use of Google Fonts (DM Sans, Space Grotesk, and Poppins). Flexbox and grid layouts are used in responsive design to arrive at design that functions on a

variety of devices. For readability, a color scheme consisting of dark backgrounds and contrasting font colors is typically used. Buttons: Designed to

Task 2 (Horilla HRMS Clone website)

The HTML document is the free and open-source HR software platform Horilla's home page. It uses several of parts, which include a footer, feature highlights, and a hero section, to demonstrate the features, offer navigation, motivate user interaction. Meta Tags: Holds Open Graph metadata for social media sharing, character set, viewport settings, and SEO descriptions. The title is "Horilla – Open Source HR Software | Free HRMS Software". Stylesheets: Various CSS files used for styling, such as platform-specific custom styles. Logo: Shows the Horilla logo as well with a homepage link. Links to various sections, including Home, Features, Documentation, Blogs, Videos, and Contact Us, may be discovered in the navigation menu. Main Heading: Promotes the product as the sole HR software required. Call-to-Action Buttons: GitHub links to the source code and an instance of it. Feature List: Provides explanations and motifs for significant characteristics like "Free of Cost," "Open-source," and "Host Yourself." Branding: Displays a tagline and the Horilla logo. Social Media Links: Icons leading to YouTube, GitHub, LinkedIn, Instagram, Twitter, and Facebook. Copyright Notice: Provides information about copyright and gives the development team credit.

Task 3 (Horilla HRMS Website Frontend)

Modern HRMSs streamline time-consuming and repetitive manual operations, helping firms replace labor-intensive spreadsheet and paper-based processes. As a result, HR staff members may concentrate on more valuable and, eventually, more fulfilling tasks while eliminating human error.Larger businesses began digitizing portions of their core operations in the 1970s, especially data-intensive

and error-prone tasks like accounting and payroll. However, the reach of these early HRM systems was constrained. A greater variety of fundamental HR tasks, including as records management, benefits administration, and recruiting processes, could be digitalized and automated by companies by the 1990s following the development of the Internet and more potent mainframe computers.As smart technologies and cloud connection have grown, HR procedures are no longer restricted to transactional data.Based on regional differences in infrastructure, legislation, and regulatory compliance, an advanced HRMS may collect and integrate data to modify reporting formats in real time.Additionally, these systems employ artificial intelligence (AI) and workflow automation to provide more intelligent and efficient procedures.

The HTML text functions as the open-source HR software platform Horilla's homepage and it also works as a landing page. With a single emphasis or call to action (CTA), a landing page is a stand-alone webpage made especially for a marketing or advertising campaign. Landing pages, as opposed to ordinary web pages that promote exploration, are designed to enhance conversion rates by guiding users toward a specific activity, such purchasing something or subscribing to a newsletter.[10]

Through the usage of a header, primary content sections, and a footer, among other parts, it highlights user interaction by presenting features, offering navigation, and encouraging operations. Character set and viewport options for responsive design are included in meta tags. Links to external Font Awesome stylesheets for icons and internal CSS files (styles.css and utils.css) are an instance of stylesheets. Section 1: Contains a headline, description, and a picture that is relevant to the platform. Section 2: Provides a title, description, and three feature boxes that highlight Horilla HRMS's distinctive selling characteristics. Cost-free, open-source, Host Yourself. Section 3: Lists the several software modules that are available, such as:

Payroll: Features for managing allowances and contracts.

Onboarding: Gets new hires ready and increases retention.

Offboarding: Makes resignation procedures simpler.

Recruitment: Simplifies the process of managing candidates.

Attendance: Tracks attendance automatically.

Accordion toggle: This JavaScript feature enables users to expand or collapse accordion components for more details.Scroll animation increases visual engagement by allowing sections to fade in as the user scrolls down the page.

CHAPTER-7
TIMELINE FOR EXECUTION OF PROJECT
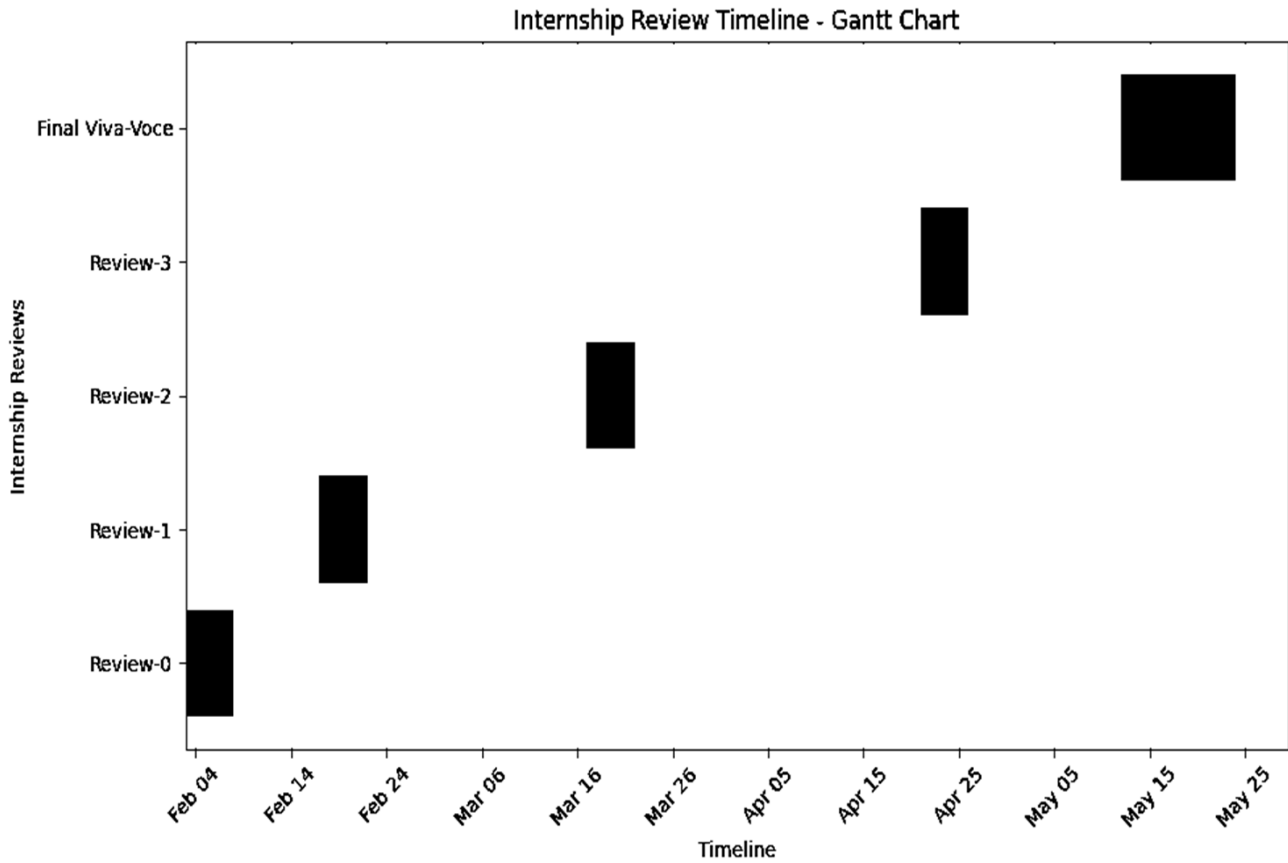# (GANTT CHART)

Figure 4

CHAPTER-8
OUTCOMES

A straightforward and simple interface created with HTML, CSS, and JavaScript was the project's end outcome. Worked on real-world tasks including creating web apps and creating clone of websites. Developed knowledge of web development techniques, such as HTML, CSS, and JavaScript.Gained knowledge of how to write code that is scalable, effective, and clean. As required for internship tasks, enhanced ability to quickly adjust to new frameworks and technologies. Ability to think critically by taking on code problems and overcoming development roadblocks was done. Acquainted with the fundamental tools used in web development, such as Git and integrated development environments (IDEs).To understand the operation and caliber of web apps, learnt how to test and debug code.

CHAPTER-9
RESULTS AND DISCUSSIONS

The UptoSkills website delivers an appealing, responsive, and user-friendly homepage as the outcome of the design and development process. Content blocks might soon be quickly styled and structured inside HTML tags as a result of HTML5 and Inline CSS.With the help of Flexbox and Grid layouts, the website transforms dynamically to multiple screen sizes, ensuring a seamless user experience on desktop and mobile devices. The layout is clear and structured, with sections like Hero, Features, Blogs, Trending Categories, and Footer that are convenient to navigate.Using Google Fonts, gradient backdrops, and cards to improve the appearance and user engagement is a good instance of engaging visual design.Responsive elements enhance accessibility and usability by effectively altering layouts to fit various screen resolutions.Search engine rankings have improved and screen reader compatibility is established through the utilization of alt attributes and semantic HTML.The site presents important platform features and products in an appealing as well as beneficial manner, offering an overall clean and interacting with design.

A customized and performance-optimized landing page for the open-source HR platform has been provided by the Horilla HRMS website. Constructed with an emphasis on user engagement, SEO, and accessibility, the structure makes use of HTML5 with clear meta tags, JSON-LD structured data, and Open Graph elements to increase search engine and social media exposure.Using Professional Design, There is a bold Hero section, apparent call-to-actions, and easy-to-use navigation in this layout.Mobile optimization is made possible by ensuring usability on all device sizes employing responsive viewport settings and a mobile menu.Use of Interactive Components ,User interaction and product investigation are improved by means of tabs in the Complete HR Solution section and mobile

app advertising.Increasing brand visibility through social media links, organized footers, and appropriate branding boosts user trust while also rendering important information more accessible.The end product elevates Horilla's online visibility and user interaction by showcasing it as a reliable, user-focused HR solution.

CHAPTER-10
CONCLUSION

A thorough review of the HTML structures of the UptoSkills and Horilla HRMS websites reveals a thoughtful approach to web design and development that gives a high priority on responsiveness, accessibility, and user experience. Both platforms make use of contemporary web technologies, featuring HTML5, CSS, and JavaScript, to deliver user interfaces that can be both practical and captivating for their target audiences. By maintaining everything is both well-structured and search engine optimized, semantic HTML improves SEO performance. Clear definitions of each section make it simpler for people to navigate and understand. Using CSS Grid and Flexbox, both websites have a responsive design that adapts well on different screen sizes. Whether customers access the website from a desktop, tablet, or mobile device, this is essential in today's multi-device world to guarantee a consistent user experience. Every website has interactive components and well-placed call-to-action buttons that promote user involvement, such as registering for lectures or exploring features. This proactive strategy is crucial for turning site visitors into active users. The incorporation of visually appealing components like photos, symbols, and gradient backgrounds enhances the websites' overall appearance. This visual appeal not only draws in viewers but also facilitates efficient information presentation. User demands and operational workflows are well understood by the HRMS software's onboarding and offboarding procedures.

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[1]UptoSkills website: https://uptoskills.com/

[2]Horilla website: https://www.horilla.com/

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[4]HRMS: https://www.oracle.com/in/human-capital-management/hrms/

[5]https://learn.microsoft.com/en-us/archive/msdn-

magazine/2011/november/html5-responsive-web-design

[6] https://business.adobe.com/blog/how-to/responsive-web-design

[7] https://www.sap.com/india/products/hcm/what-is-hrms.html

[8] https://www.greythr.com/complete-guide-hrms/

[9] https://developer.mozilla.org/en-US/docs/Web/HTML

[10] https://unbounce.com/landing-page-articles/what-is-a-landing-page/

APPENDIX-A

PSUEDOCODE

Task 1:

START

DEFINE DOCUMENT as HTML
SET language to "en"

HEAD SECTION:
   SET character set to "UTF-8"
   SET viewport for responsive design
   SET title to "Home Page"
   LINK to Google Fonts for typography

BODY SECTION:
   SET margin, padding, and box-sizing
   SET font-family to "DM Sans"

   // HEADER
   CREATE HEADER with class "top-header":
      SET background color to dark
      SET text color to white
      ADD container:
         SET max-width and padding
         CREATE contact-info section:
            ADD logo image
            ADD contact items (address, email, phone)
         CREATE Candidate Login button

   // NAVIGATION
   CREATE NAV with class "main-nav":
      SET background color to white
      ADD container:
         CREATE logo link with text "UptoSkills"
         CREATE navigation links (Internship, Jobs, Competitions, Discover)

   // HERO SECTION
   CREATE SECTION with class "hero":
      SET background gradient
      ADD container:
         ADD main heading "Unleash Your Career"

ADD description paragraph
CREATE hero buttons (Hire From Us, HR TPO Podcast)
ADD images for job, skill development, events, and internships

// FEATURES SECTION
CREATE SECTION with class "features":
    SET background color to teal
    ADD container with grid layout:
        CREATE feature cards (For Colleges, Free Jobs, Free Internships, Hackathons & Competitions)

// TRENDING CATEGORIES SECTION
CREATE SECTION with class "trending":
    SET background color to dark
    ADD container:
        CREATE section header (BROWSE TOP, Trending Categories)
        ADD grid for category cards (Job Guarantee Training, Job Certification Courses, Skill Development Training, Training Program)

// MARQUEE FOR PARTNERS
CREATE MARQUEE for partner logos (HCL, Infosys, etc.)

// BLOG SECTION
CREATE SECTION with class "blog":
    ADD section header (DISCOVER NEWS, Read Our Blog)
    ADD grid for blog cards (How to Build a Standout Portfolio, Transforming Customer Experience, etc.)

// STARTUP WINNERS SECTION
CREATE SECTION with class "startup-winners":
    ADD title "STARTUP THON 1.0 WINNERS"
    ADD details for 1st and 2nd runner-ups and winner (names, problems solved, images)

// FOOTER SECTION
CREATE FOOTER with class "footer":
    SET background color to dark
    ADD container with grid layout:
        CREATE sections (UptoSkills info, Quick Links, Short Links, Social Media)
    ADD copyright notice

END

Task 2:

START

DEFINE DOCUMENT as HTML
SET language to "en-US"
DEFINE namespaces for Open Graph and Facebook

HEAD SECTION:
   SET character set to "UTF-8"
   SET compatibility for Internet Explorer
   SET viewport for responsive design
   LINK to favicon
   LINK to preload CSS stylesheet
   SET title to "Horilla – Open Source HR Software | Free HRMS Software"
   ADD SEO meta tags (description, robots, canonical, Open Graph, Twitter)
   ADD structured data in JSON-LD format for SEO
   LINK to various stylesheets for custom styles, plugins, and fonts
   ADD scripts for jQuery and other functionalities (e.g., Google Tag Manager, Algolia)

BODY SECTION:
   // Google Tag Manager (noscript)
   ADD noscript tag for Google Tag Manager

   // AD BANNER
   CREATE div for HR banner:
      ADD content for ad banner (new product, link to app)
      ADD close button for the ad banner

   // HEADER
   CREATE HEADER with class "hr-header":
      ADD logo link to homepage
      ADD menu icon button for mobile navigation
      CREATE navigation menu with links (Home, Features, Documentation, Blogs, Videos, Contact Us)

   // MAIN CONTENT
   CREATE MAIN section:
      ADD container for main content
      CREATE HERO SECTION:

ADD main heading and subheading
ADD buttons for demo and source code
ADD lead image

// FEATURES SECTION
CREATE FEATURES SECTION:
ADD list of feature items with icons and descriptions

// CALL TO ACTION FOR MOBILE APP
CREATE CTA SECTION for mobile app:
ADD heading, description, and download button
ADD image for mobile app screenshot

// COMPLETE HR SOLUTION SECTION
CREATE SECTION for HR modules:
ADD subheading and main heading
CREATE tabs for different modules (Recruitment, Onboarding, Employees, etc.)
ADD content for each tab with features and screenshots

// FINAL CTA SECTION
CREATE FINAL CTA SECTION:
ADD heading, description, and buttons for demo and source code
ADD illustrative image

// FOOTER
CREATE FOOTER SECTION:
ADD branding with logo and description
ADD social media links
CREATE collapsible sections for navigation links, features, source, and legal
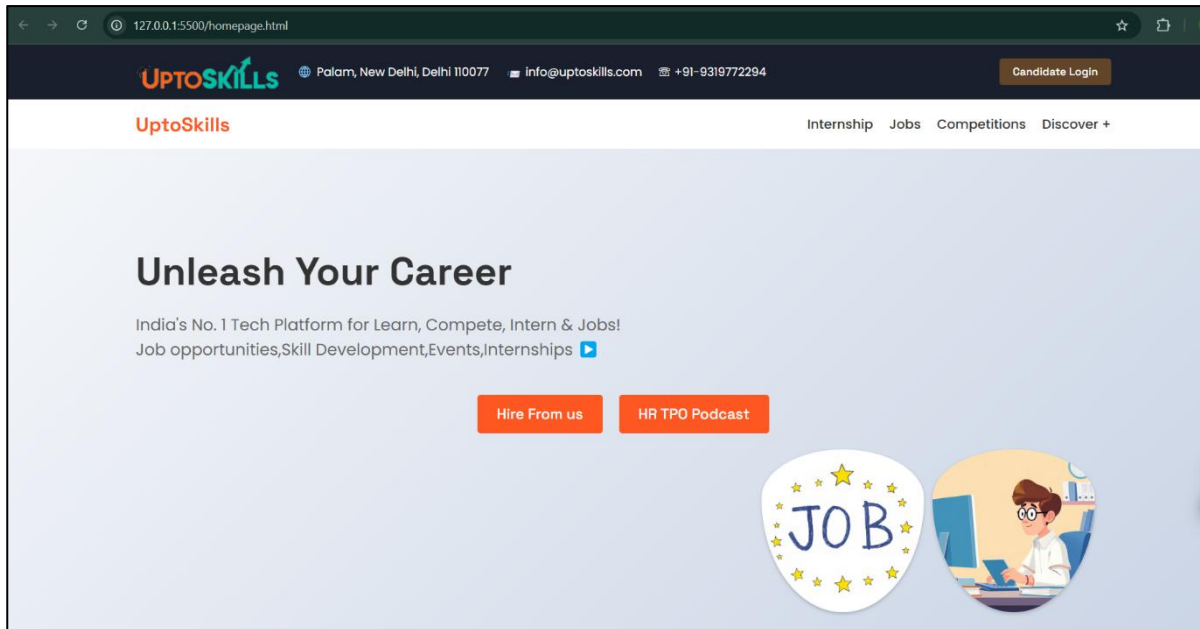ADD bottom container with copyright notice

END

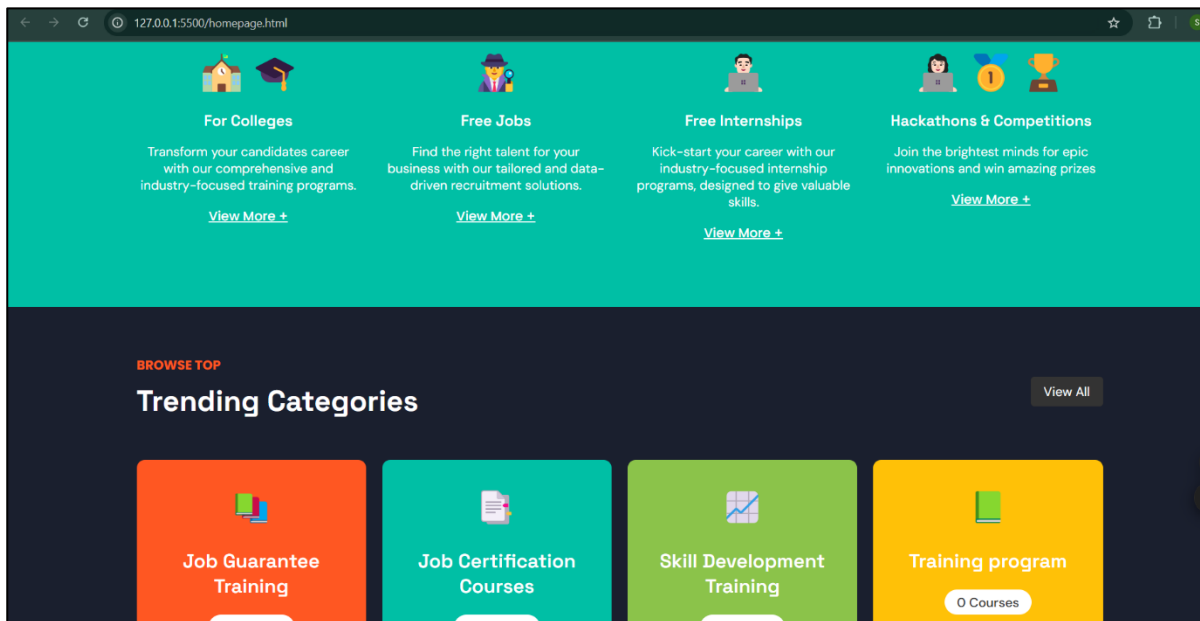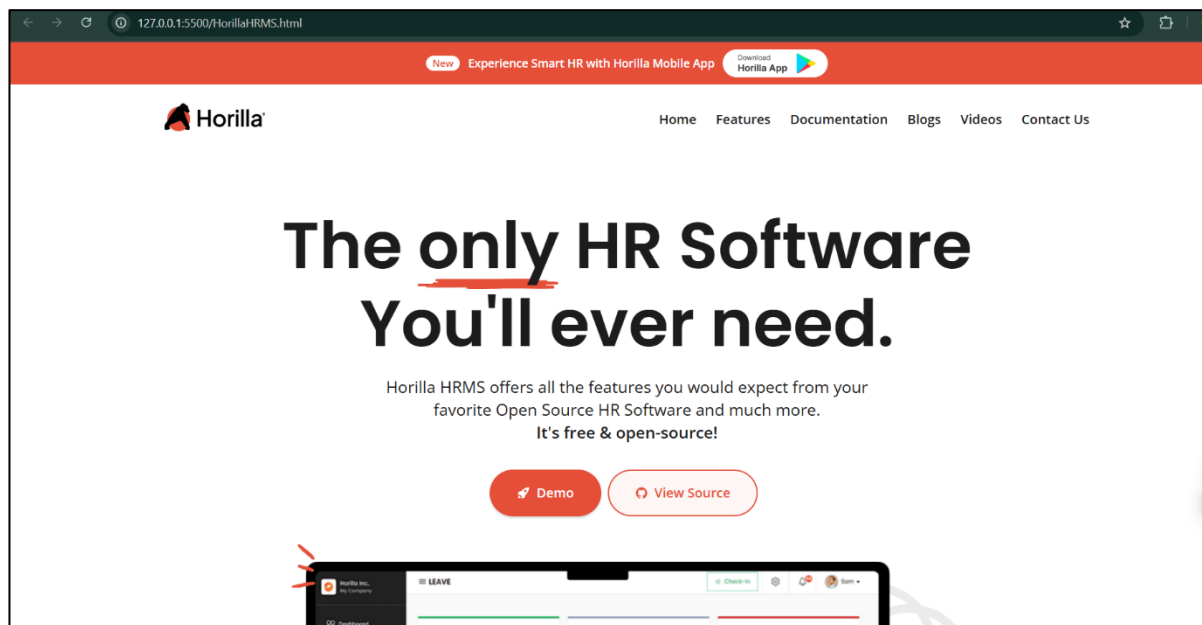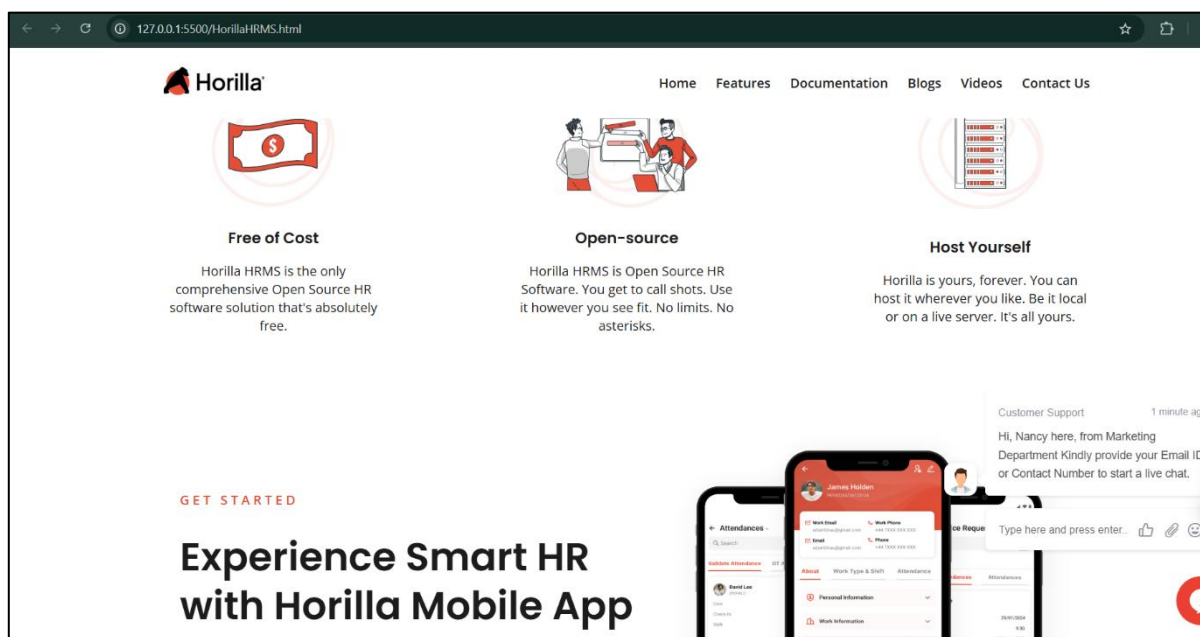# APPENDIX-B

SCREENSHOTS

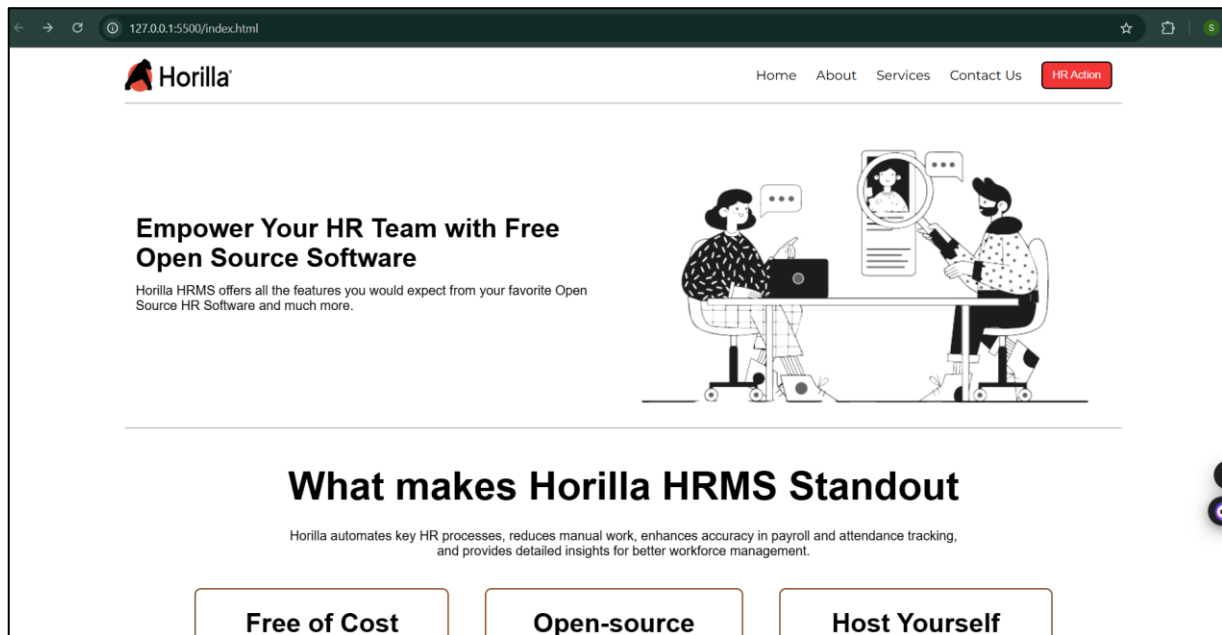Figure 5

Figure 6

Figure 7

Figure 8

Figure 9

APPENDIX-C

ENCLOSURES

1.Internship Offer Letter and Completion Letter

Figure 10

2. Technix International Journal for Engineering Research (TIJER) has accepted and published the paper.

Ref No : TIJER / Vol 12 / Issue 4 / 163

TIJER - INTERNATIONAL RESEARCH JOURNAL
TIJER.ORG | ISSN : 2349-9249
An International Open Access, Peer-reviewed, Refereed Journal

Ref No : TIJER / Vol 12 / Issue 4 / 163

To,
NEHA R

Subject: Publication of paper at TIJER - INTERNATIONAL RESEARCH JOURNAL.
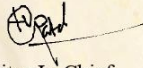
Dear Author,

With Greetings we are informing you that your paper has been successfully published in the TIJER - INTERNATIONAL RESEARCH JOURNAL (ISSN: 2349-9249). Following are the details regarding the published paper.

About TIJER   : ISSN Approved - International Scholarly open access, Peer-reviewed, and Refereed Journal, Impact Factor: 8.57, (Calculate by google scholar and Semantic Scholar | AI-Powered Research Tool), Multidisciplinary, Monthly, Online, Print Journal, Indexing in all major database & Metadata, Citation Generator, Digital Object Identifier(DOI)
Registration ID : TIJER_157656
Paper ID   : TIJER2504163
Title of Paper : EMERGING WEB TECHNOLOGIES : TRENDS, CHALLENGES, AND FUTURE DIRECTIONS
Impact Factor : 8.57 (Calculate by Google Scholar) | License by Creative Common 3.0
DOI   :
Published in   : Volume 12 | Issue 4 | April-2025
Page No   : b169-b176
Published URL : https://tijer.org/tijer/viewpaperforall.php?paper=TIJER2504163
Authors   : NEHA R, SNEHA R

Thank you very much for publishing your article in TIJER.

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Figure 11
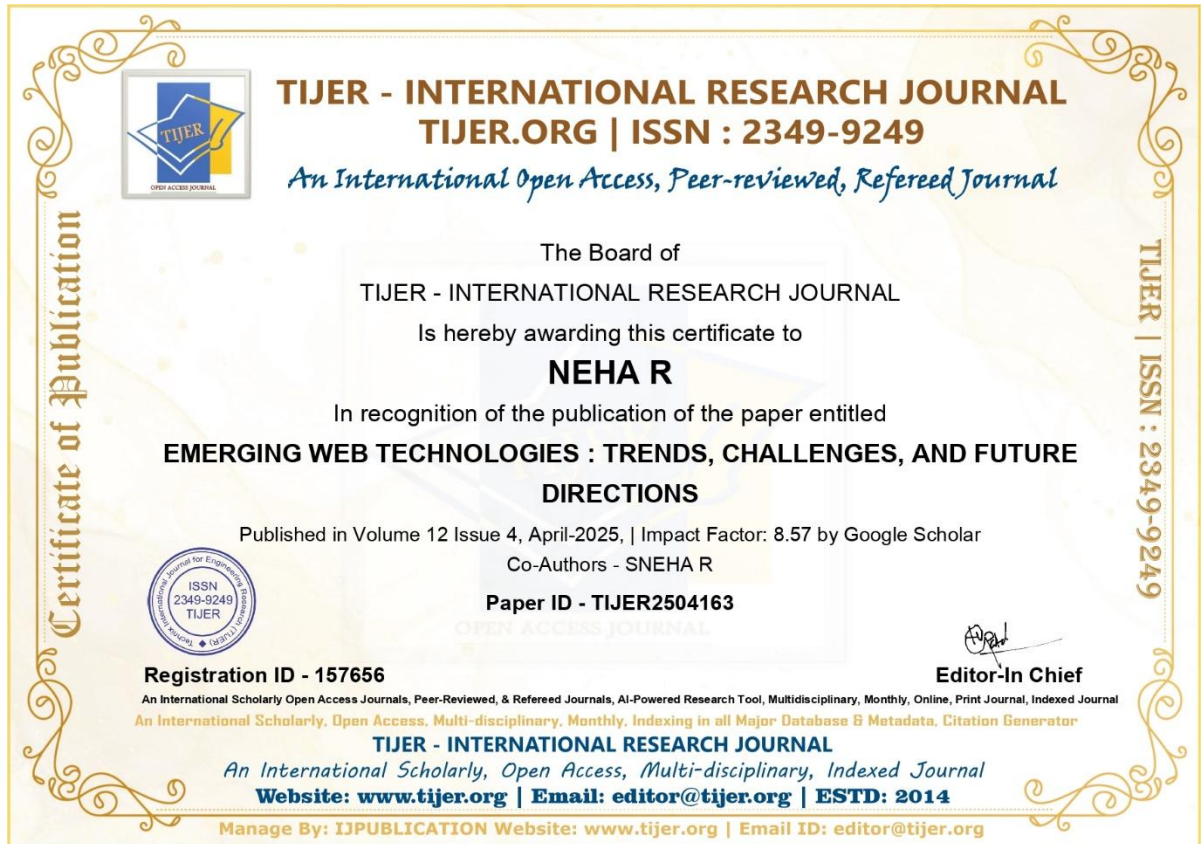
Figure 12

EMERGING WEB TECHNOLOGIES : TRENDS, CHALLENGES, AND FUTURE DIRECTIONS

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Abstract - From the early days of static HTML pages and basic CSS designs, web development has advanced significantly. The industry has changed quickly over time due to both user demands for more dynamic, interactive, and responsive websites and technological advancements. Web developers must continuously adjust to new trends and technologies as the internet becomes a more and more important part of everyday life in order to remain relevant and provide outstanding user experiences.
The following paper explores the evolution of website development, initially exploring static web pages and culminating with dynamic, interactive web-based applications that are growing increasingly more alike desktop apps in terms of capability and complexity.It analyzes the methodological and technical developments that have redefined web development procedures, upgrading user experience and strengthening the functionality of online applications. The study examines how modern technologies, such as serverless architectures, Progressive Web Apps (PWAs), and the incorporation of Artificial Intelligence (AI), have boosted development efficiency and paved the way for a more interactive and captivating web.In addition to presenting insights on how developers, companies, and users are likely to traverse the constantly changing digital terrain, the paper strives to give a thorough review of the history, present situation, and future possibilities of web application development.

Index Terms - Web Development, Dynamic Applications, Progressive Web Apps (PWAs), Serverless Architecture, Artificial Intelligence (AI), Blockchain, Web 3.0, User Experience

I. INTRODUCTION

Since the internet's establishment, the field of web application development has undergone a significant revolution.Early websites generally was short of interactive elements and presented material without any sort of movement.These days, web-based applications have become vital for our digital existence as they provide dynamic and engaging experiences that challenge conventional desktop software.Never-ending technological and development practice innovation has propelled this evolution, drastically altering how developers create apps and people interact with them.

This study attempts to bring out the revolutionary changes brought about by technology developments and project approaches in order to explore the intricate details of web application development.From the earliest days of elementary HTML pages to today's sophisticated, highly interactive mobile applications, we investigate the path of web development, this present state of affairs, as well as what the future holds.

Web development has observed a notable change from continued web pages to dynamic, interactive internet applications.Websites started off very simple. They only displayed information that didn't change. Users could only click to move from one page to the next, without any other ways to interact. There were no features that allowed users to do anything else except for basic navigation.The invention of Common Gateway Interface (CGI) scripts was a big step forward for the internet. Before CGI, websites mostly just showed static pages. CGI scripts allowed websites to create content that could change or update based on user interaction or other factors. This meant that the server could generate new content for a page whenever needed. It marked the beginning of web pages being more interactive and responsive to users, making the internet a more dynamic and engaging place.In the late 1990s and early 2000s, a technology called AJAX became popular. AJAX, which stands for Asynchronous JavaScript and XML, allowed web applications to become much more interactive and responsive. With AJAX, web pages could update by communicating with a server in the background. This meant the whole page didn't have to reload, making the user experience smoother and faster.Around this period, we began utilizing robust tools for web development called frameworks. Two popular ones are Ruby on Rails and Django. These frameworks significantly simplified the steps involved in making websites. They helped developers work faster and build applications more quickly and efficiently. Recently, new technologies like HTML5, CSS3, and the ECMAScript 6 (ES6) update to JavaScript have brought major changes to how websites are created and improved. These advancements have made it possible for developers to build more dynamic and efficient web pages, enhancing both the appearance and functionality of websites for users.These technologies have made web applications better by enhancing their user interface (UI) design, animation, and application logic. As a result, web apps have become more engaging and easier for people to use.

The world of web development is changing at a fast pace. This change is happening because of improvements in how websites are designed to work well on mobile devices first. There are also new and improved types of websites called progressive web apps. Additionally, popular tools and frameworks like React are playing a big role in these changes, making it easier and faster to create websites that are both powerful and easy to use.Low-code platforms and cloud computing have made it much easier for more people to create and develop applications or software than ever before. These technologies allow users with little coding experience to engage in development projects, opening up new opportunities for individuals who want to participate in creating digital solutions.

As a result, development is more accessible to a wider audience, encouraging innovation and collaboration across different fields. As AI chatbots and voice search are getting more popular, and computers help with testing, new developments are on the way. Things like Micro Frontends, which offer a new way to build web applications, and the widespread use of fast 5G technology are set to transform the way we interact with digital technology. These changes promise to make our online experiences faster and more efficient, affecting many aspects of our digital lives. It is very important for developers, new companies, and established businesses to keep up with current trends if they want to stay competitive in the fast-changing world of the web. Staying informed helps them maintain their edge and not fall behind others in this dynamic environment.

II. LITERATURE SURVEY

Web 3.0 and Decentralized Applications

The internet we use has gone through many changes since the idea of the World Wide Web was first introduced in the early 1990s. Over the years, it has evolved in various ways, shaping how we connect, communicate, and find information. The early version of the internet was known as the static web, or Web 1.0. During this time, people could only view information on websites, but they couldn't interact with it or make any changes. It was like reading a book online where you could see the pages but not write anything yourself. The next version of the web arrived and was called the Social Web, or Web 2.0. This new version was interactive. It allowed users to do much more than just read pages. They could now engage with the content, share their thoughts, and connect with others online. The change turned the internet into a place for social interaction and collaboration. With the arrival of Web 3.0, the Internet took on a new form. It offered a way for people to connect directly without needing a middleman, allowing for both reading and writing without central control. This innovation is also known as a decentralized Internet, where users have more freedom and control over their own data and interactions online.

Web 3.0 is the next stage in how the internet and the web are growing and changing. This means that the internet will have new features and capabilities that make it different from what we have now. It's a big step forward in how we use the web every day. The evolution of Web 3.0 could really change how we use the internet today. It presents a chance to transform the way we interact with websites and online services. Web3.0 is like a newer version of Web2.0, but it focuses more on being decentralized, which means no single person or company controls it. Web 3.0 is believed to be the next big step for the internet. It uses crypto-economic networks, which include well-known ones like Bitcoin and Ethereum, to build its foundation. Crypto networks take the best features from the first two phases of the internet. These networks are controlled by the people who use them and are not managed by any one organization. In the future, they could become more powerful than even the most advanced services that are managed by a single entity. Web 3.0 enables computers to process information similarly to humans. This capability helps computers become smarter and share information tailored to meet people's specific needs.[1]

Web 1.0	Web 2.0	Web 3.0
Mostly Read-Only	Wildly Read-Write	Portable and Personal
Company Focus	Community Focus	Individual Focus
Home Pages	Blogs / Wikis	Live-streams / Waves
Owning Content	Sharing Content	Consolidating Content
WebForms	Web Applications	Smart Applications
Directories	Tagging	User Behaviour
Page Views	Cost Per Click	User Engagement
Banner Advertising	Interactive Advertising	Behavioural Advertising
Britannica Online	Wikipedia	The Semantic Web
HTML/Portals	XML / RSS	RDF / RDFS / OWL

Figure 1. Comparison of Web

Web Evolution to Revolution: Navigating the Future of Web Application Development

The creation of frameworks and libraries brought big changes to developing web applications. AngularJS, which Google introduced in 2010, and React, which Facebook released in 2013, are great examples. These tools are powerful and help developers build web applications that work well and respond quickly. They make the process of creating dynamic websites much easier and more efficient. These frameworks, along with others such as Vue.js, gave developers an organized approach to creating applications. This made the process faster and easier by cutting down both the time needed and the complexity involved. The evolution of web standards has played a key role in developing web applications and their capabilities. HTML5 added important features like semantic elements and APIs, which help web applications function more effectively. CSS3 also greatly enhanced the appearance of web applications by introducing features such as transitions, animations, and the flexbox layout. These tools allow for designs that adapt smoothly to various screen sizes, making web content look better and more accessible. When ES6 was introduced, JavaScript added new syntax and features. These changes made it easier to write code in a better way and improved how well browsers could handle JavaScript. Building web

applications today requires using different tools and systems. Among these, React, Angular, and Vue.js are very popular for making the front part of the applications that users see and interact with. Each of these technologies brings its own advantages. React is known for its efficiency in updating user interfaces, Angular offers a comprehensive solution for larger applications, and Vue.js is praised for being simple and easy to learn. Together, they all contribute to making web applications run smoothly, handle more users and data, and be simpler for developers to work with. [2]

A Survey on Exploring the Evolution and Trends of Web Development

The transition of websites from static HTML pages to dynamic and interactive web apps may be explained by this.It points out how crucial it is to use technologies like server-side programming to handle data and carry out intricate operations, CSS to style pages, and JavaScript to make them interactive.Due to these developments, websites may become more useful and stimulating, responding to user demands and providing a more comprehensive experience.Recent advancements in web development and design are covered in the report.It clarifies the necessity of designing websites with mobile devices considerations and making sure they display well on all screen widths.The research also discusses building websites with well-known front-end frameworks like React, Angular, and Vue.The transition to serverless architectures, which eliminate the need for server management, and the expanding usage of progressive web apps are also covered.It also describes the way machine learning and artificial intelligence combine to enhance people's digital experience.This is accomplished by personalizing services to better suit each person's requirements and preferences and by utilizing chatbots, which are able to converse with users.In addition to discussing current challenges with increasing speed and efficiency and guaranteeing data security, the study anticipates that web development will be impacted by future technological developments.These include the Internet of Things, which connects and communicates with common objects through the internet, augmented reality, which overlays digital content on the real world, virtual reality, which creates immersive experiences through computer-generated environments, and blockchain, which is recognized for safe digital transactions.The development and usage of websites will undergo substantial changes as a result of all these technologies.[3]

Design of Enhanced Document HTML and the Reliable Electronic Document Distribution Service

A document is an essential part of business-to-customer communication.It facilitates straightforward information sharing and maintains consistency between the client and the business.Contracts, invoices, and other significant documents that promote mutual understanding can be illustrations for this.There are digital signatures in the proposed Document HTML.By adding credibility to an electronic document, these signatures contribute to ensuring its dependability and security.A variant of Document HTML that integrates blockchain technology is identified as Chained Document.When the content has been transmitted or shared, this technology helps ensure that it stays safe and unaltered while maintaining accuracy.HTML 3.2 was the initial version of HTML made available by the World Wide Web Consortium, or W3C.This has been refined and upgraded throughout time, resulting in HTML 5.3, the most recent version.HTML employs tags for both storing text and explaining the document's structure.Text, pictures, links, and other webpage components can all be included inside these tags.The function and look of the elements within each tag are defined in part by it.Headings, paragraphs, and lists, for instance, include tags that assist organize the material so that it is easier to display on a web browser.HTML-based electronic documents make advantage of responsive web technologies.This makes them appear good and work well on a variety of gadgets, including computers, tablets, and smartphones.Additionally, they include interactive elements that make them easier to use and more interesting.Since they are both flexible and interactive, these HTML-based documents are highly successful at improving the user experience in general.HTML documents, on the other hand, are not single files.To work correctly, they require more resources, such as style files or visuals.Furthermore, HTML lacks standards to guarantee that the material is trustworthy and hasn't been altered.This indicates that HTML itself lacks a built-in mechanism to verify the integrity or legitimacy of the information.It may be necessary for the recipient to confirm that the digital content they have received is identical to the original work that was generated by the sender.A one-way hash function assists in determining whether the information has changed.By creating a distinct code, or "hash," from the original data, this technology offers protection.The hash will change if the data is even significantly updated, indicating that the content has been modified.This technique is frequently employed in digital security to maintain reliable and secure data. [4]
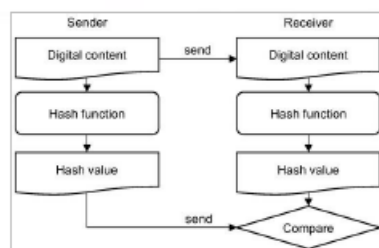

Figure 2. Workflow for verifying content integrity.

Exploring Web 4.0: The Next Generation of the Internet

The next critical level in the progress of the internet is called Web 4.0. People generally refer to it as the "Intelligent Web" or the "Symbiotic Web." In Web 4.0, intelligent computer applications are vital. They enhance the productivity and customizing of online encounters. Over time, these agents deepen their comprehension and adapt to consumers' evolving requirements. As a result, the internet operates more quickly and benefits all users. The latest version aims to bridge the gap between the digital and physical worlds. The objective is to increase communication and cooperation by making it simpler for people to participate in both virtual and actual locations. The capacity of Web 4.0 to improve connectivity is its main goal. Complex cryptography technologies and decentralized systems are used in Web 4.0. These characteristics improve security and better safeguard privacy. Using immersive media such as virtual and augmented reality, Web 4.0 enables users to engage creatively with services and technology. Creating personalized online experiences is the main goal of Web 4.0. AI algorithms that analyze your online behavior and preferences are used to do this. Accordingly, you may find services, advertisements, and material on the internet that suit your own preferences and interests. Web 4.0 automates operations that humans typically perform by utilizing artificial intelligence (AI) and the Internet of Things (IoT). This facilitates the smooth operation of daily operations by making it easier for machines to manage them. For all users, the technology increases productivity and convenience by enabling them to complete more work in less time. [5]

Figure 3. Applications of Web 4.0

Web Development Trends That Will Change the Way You Create Websites in 2025

For any internet user, artificial intelligence is a valuable tool. A variety of AI technologies, including Deepseek, Gemini, and Chatgpt, are employed for different objectives. They are used by people to assist in the effective production of videos, written material, and other tasks. Between 2024 and 2030, the worldwide AI market is anticipated to expand at a rate of almost 37% annually. In web development, artificial intelligence plays a crucial role by analyzing vast amounts of data, forecasting future events, and drawing logical conclusions to help with website creation. This technology helps web developers create better websites for the future by studying how users interact with webpages. It contributes to the development of more user-friendly websites that are jam-packed with useful content. People can create code more rapidly with well-known technologies like GitHub and Copilot, which allow them to do it in real-time. Natural language processing is a technique that these technologies employ to better comprehend human discourse. AI-powered products like Canva and Adobe Sensei may help you alter the appearance of objects or enhance images. These programs can help you improve the quality of your designs and enhance the sharpness and beauty of your photos. AI can help site developers and content makers create a variety of words, photos, and videos with a simple command. Tools that employ AI algorithms collect user data. This makes website design and content more individualized. It also enhances user interaction on the website. Tools that use AI improve the testing process. To assist testers make sure everything appears and works as intended, they work swiftly and accurately to identify errors and visual discrepancies.

Presidency School of Computer Science and Engineering, Presidency University.
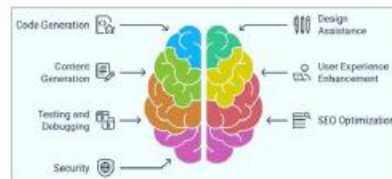
Figure 4. Common uses of AI in web development

A secure and protected way for maintaining data in a database is via a blockchain. To protect data, it employs encryption. This system saves data in discrete units called blocks, which sets it apart from conventional ones. When these blocks are connected, a continuous chain is created. Its ability to make transactions extremely secure and error-free is one of its main advantages. This implies that when you are making any form of payment or trade, there is a lower possibility of errors and more safety. Web developers benefit from blockchain technology because it gives them access to open and publicly available platforms. Developers may work on their projects and produce new apps more easily and effectively with this help.

Figure 5. Major Benefits of Blockchain in web devlopment

A progressive web application, or PWA, is a software program made with basic web-based technologies like HTML and JavaScript, which are often utilized to develop websites. One significant advantage is that it may someday take the place of conventional mobile applications, which are popular with many users. This is because PWAs are a desirable option for both users and developers since they provide comparable functionality and user experiences to native applications, but frequently with extra advantages like simpler updates and the elimination of the need for users to visit an app store. Many web design firms have started providing PWA solutions to their customers worldwide. It also has functions like push notifications. Even if the user is not connected to the internet or the network is not strong, PWAs offer a quick and seamless experience. Because it caches data, you can view stuff even while you are not online.

Figure 6. Benefits of PWA in   Web Development

By speeding up page loads, Accelerated Mobile Pages, or AMP, is improving how we use the internet on our phones. Developers are making changes to websites to make them more compatible with voice queries as voice search becomes widespread. This modification improves accessibility and maintains users' attention by making webpages simpler to use. User interfaces have become more dynamic and captivating with the usage of motion UI and microinteractions. To assist users engage with the program or website, these components include movement and minor interactive aspects.

The shift to API-first programming is facilitating the expansion and seamless integration of many platforms. Software from different locations may collaborate more efficiently and manage additional users or data as they expand thanks to it. Lastly, cybersecurity is receiving increased priority. In order to safeguard user data from attacks and maintain users' confidence in online apps, this attention is

essential.Businesses and developers may help avoid data breaches and preserve trust among customers by concentrating on cybersecurity. [6]

The Future of the Web

The evolution of web development is covered in this paper.It talks about the transition from outdated websites with few changes to modern websites constructed using component-based architectures.They are designed to be compatible with a wide range of smart devices, including Internet of Things devices.Technology like JavaScript, AI, IoT, WebAssembly, and serverless computing are becoming more and more significant, according to the authors. They stress the need of developers enhancing their efficiency. Adopting improved techniques and procedures is essential for developers in order to provide more complex online tools and services. "The future of the web depends largely on combining new advanced technologies with the ability of developers to quickly adjust to these changes," the report concludes.[7]

Modern tools and current trends in web-development

This study offers an in-depth review of the most recent approaches utilized in web development.Making use of modern frameworks and technologies like Redux, SCSS, Node.js, React.js, and MongoDB is the primary objective. They ensure that users have a better experience with the applications by making sure they are responsive and easy to use. The paper outlines various software development methodologies. Microservices architecture, in which each component is independent, and monolithic architecture, in which everything is constructed together, are the two types examined.To ensure that websites adapt and display well on computers, tablets, and smartphones, it suggests utilizing CSS media queries. The paper investigates the process of developing a social media site that is equivalent to Facebook or LinkedIn. The necessity of creating designs that are easy for people to use that is, user-friendly—is emphasized throughout the study. Several important technologies are now attracting a lot of interest in the web development community. Among these is the MongoDB database, which is renowned for its scalability and versatility. Another crucial piece of technology is Node.js, a runtime that enables programmers to utilize JavaScript for server-side scripting, enabling the creation of quick and effective network applications. Finally, there's React.js, a well-liked user interface development library that's especially helpful for making responsive and dynamic web pages.

MongoDB, often known as a non-relational database system or non-RDBMS, is a kind of database management system that does not make use of relational tables. Because MongoDB can store and manage vast volumes of data more effectively than earlier relational database management systems (RDBMS) like MySQL, more users now opt to utilize it. JavaScript Object Notation, or JSON for short, is the format that MongoDB uses to store data. Key-value pairs are used to organize information in JSON, meaning that each item of data has a corresponding name or key.It is simple to maintain and comprehend the data in the database thanks to this format. Due to its simplicity and adaptability, JSON is extensively utilized, enabling MongoDB to effectively manage many kinds of data.Mongoose is a tool for linking data in a MongoDB database in a manner akin to that of MySQL tables.Mongoose facilitates the creation of a schema and establishes a connection between the MongoDB database and the back-end of your application.An application's back-end is created with Node.js. This section manages the server-side functions, including front-end data processing, database interaction, and crucial back-end duties to ensure overall system performance.One well-liked solution that helps display the website's pages directly to consumers on their devices is ReactJS. It controls what users see and do on a website since it operates on the front end.React makes use of a mechanism known as a virtual DOM.Only the content that need updating is re-rendered when a web page is altered.While Angular re-renders the full page, this is not the same. This allows React to update only what is required rather than refreshing everything, which speeds performance and improves efficiency.[8]

The current opportunities and challenges of Web 3.0

The capacity of Web 3.0 to significantly alter the internet is examined in detail in this article.Its main goal is to make the internet more decentralized—that is, free from centralized control.It also discusses providing people with greater control over their online experience and data. Furthermore, Web 3.0 integrates cutting-edge technology such as blockchain for safe transactions, faster 5G internet, artificial intelligence (AI), and the metaverse, a virtual reality environment where users may communicate with one another. But it also faces significant obstacles, including as its difficult-to-understand technology, ambiguous government regulations, and the requirement that many people use it before it can truly take off. Web 3.0 intends to provide blockchain solutions in the future that are scalable and interconnected. Apps will be able to operate without requiring centralized control thanks to this. Using Web 3.0 in conjunction with the Internet of Things (IoT), artificial intelligence (AI), and other contemporary technologies to create more intelligent and responsive apps. Together, these developments enhance apps' comprehension and responsiveness to user contexts and demands.[9]
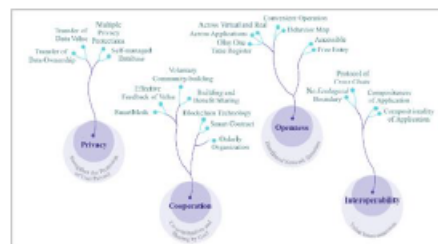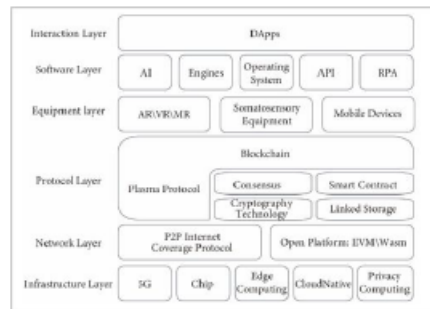

Figure 7. Characteristics of Web 3.0

Figure 8. Web 3.0 Technology Stack

The Future of Web Design: Predictions for 2025 and Beyond

The paper provides a useful examination of recent developments that are revolutionizing the web design sector. The key findings indicate that people continue to prioritize designs that are straightforward and easy to use. Web sites are becoming increasingly fluid as a result of technologies like HTML5, CSS3, and JavaScript frameworks like React and Vue.js. This means that as users interact with the pages, they alter and react rapidly. This responsiveness and energy enhance the experience and better grab people's interest. It implies that because these websites are more engaging and dynamic, consumers will probably spend more time there. Machine learning and artificial intelligence are poised to significantly alter customization. These technologies enable websites to adapt and show information based on user preferences and online behavior. This implies that the content and style you see on a website may be tailored just for you. Ensure that webpages continue to function and look well across a wide range of devices. For this reason, we start by building responsive websites and focusing on mobile devices. Regardless of whether you're using a computer, tablet, or smartphone, these efforts help maintain a seamless and entertaining experience. As explained in the piece of writing, dark mode designs are becoming more and more popular. It discusses creative methods to browse webpages. It also discusses the potential effects of emerging technologies like blockchain and quantum computing on web development in the future. The way websites are designed and operate may change significantly as a result of these developments.[10]

III. INNOVATIVE TECH TRENDS

No-code/Low Code Development: Low-code and no-code platforms are good choices if you're searching for simple technology that allows you to build applications without investing in a lot of coding. Even those without advanced coding knowledge can use these platforms to construct software solutions. These platforms frequently come with a straightforward drag-and-drop user interface. This makes it simple for users to add functions, link to data sources, and create user interfaces. With this configuration, anyone may easily access to the required data and create their own features. To help in application creation, they employ visual aids such as diagrams and images. Popular and easy-to-use apps may be made with the support of low-code platforms such as Nintex and OutSystems. These platforms function effectively when skilled developers utilize them to create widely used, easily accessible apps that satisfy a wide range of user demands. Webflow, Scapic, and Mailchimp are some instances of no-code systems designed to assist with particular business processes. They make it exceptionally easy for individuals with little to no programming experience to use these tools for their business requirements.

WebAssembly: The cutting-edge technology WebAssembly optimizes the speed and performance of the web-based apps. This allows websites more capable of doing more complicated activities without experiencing lag, giving users a more seamless experience. It allows high-level programming languages to execute almost as quickly as original code by integrating with JavaScript in web browsers. These languages must be translated into binary code so that the browser's CPU can comprehend and run it directly. The speed and efficiency of this technology are attributed to its binary format. It is ideal for serverless computing environments, where efficiency and speed are crucial, because of these characteristics. Developers are increasingly employing WebAssembly to create online editors, interactive apps, and web-based games. The numerous benefits it offers account for this increase in use. Faster development, automated processes like data entry and validation, enhanced collaboration with multi-user capabilities, browser sandboxing's robust security, and compatibility with numerous web browsers are some of these benefits. AutoCAD and Figma were among the first platforms to use WebAssembly.

Serverless architecture: A novel approach to software development is serverless architecture, sometimes referred to as serverless computing. With this method, the apps are hosted by third-party service providers. This eliminates the requirement for developers to manage server hardware and infrastructure. This contemporary method streamlines the development process and liberates developers from managing servers and hardware so they can focus on creating code. It keeps the system from being overloaded, minimizing crashes. Additionally, it saves money due to decreased development expenses. Serverless architecture is revolutionizing server use with the help of big cloud service providers like Amazon Web Services. There are several benefits to employing serverless architecture in web development. It requires fewer personnel to operate and less processing power. This method works well for managing varying activity levels because it can readily add or subtract resources according to the degree of activity. By automatically modifying server capacity, it also helps avoid server failures and maintains seamless operation. With this method, developers may devote more effort to improving the user experience. In the meanwhile, the routine maintenance of servers is no longer the responsibility of IT staff. AWS Lambda, Microsoft Azure Functions, and Google Cloud Functions are a few well-known serverless solutions.

Multi-experience: The way consumers engage with a single application across many digital platforms is known as multi-experience. This implies that they may utilize it on chatbots, websites, mobile applications, and even wearable technology like smartwatches. The goal is to make sure that using the program is seamless and consistent regardless of where or how you access it. By 2025, it's expected that multi-experience will be increasingly important in web development as technology continues to progress. This technology facilitates the rapid creation and growth of initiatives. It gives developers access to a wide range of front-end tools and back-end services. It frequently makes use of low-code frameworks, giving developers more choice over how their applications are implemented. Among the most prominent platforms for multi-experience development are Microsoft, Salesforce, Appian, and Oracle.
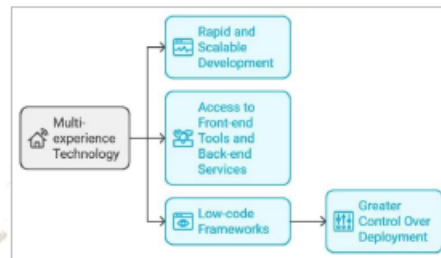

Figure 9. Multi-experience benefits

Motion UI: One application called Motion UI helps make websites appear good and work well on PCs, tablets, and smartphones. It is intended for users who wish to make their websites visually striking and simple to use and navigate. With the use of this technology, developers may include animations and movement into native app environments. It provides them with motion elements that are ready to employ in a variety of creative tasks. By including unique animations and transitions, Motion UI makes using digital products simpler and more pleasant. These are made using SASS library utilities that assist in adding various moving components to a product. One of its main benefits is that it's easy to set up, even if you don't know JavaScript or jQuery. It also accelerates the development of animated features for applications and websites.[6]

Figure 10. Motion UI Benefits

CONCLUSIONS

The field of web development is undergoing rapid change. Web developers must stay informed of these developments in order to satisfy consumers' evolving needs and expectations. Simple websites with static pages were common in the past. Developers discovered new methods and resources to improve websites throughout time. They began utilizing progressive web apps, frameworks, and dynamic applications. They are able to create more engaging websites with effortless user interaction according to these emerging technologies. The internet is changing further due to the usage of decentralized technologies, blockchain, and artificial intelligence. These technologies are improving the safety, user personalization, and operational efficiency of the web. Developers and businesses will need to adopt new technologies and adapt to the evolving digital world in the upcoming years. To remain competitive in the market, this flexibility is essential. Responding to these changes will be crucial for success as the entire world grows more interconnected.

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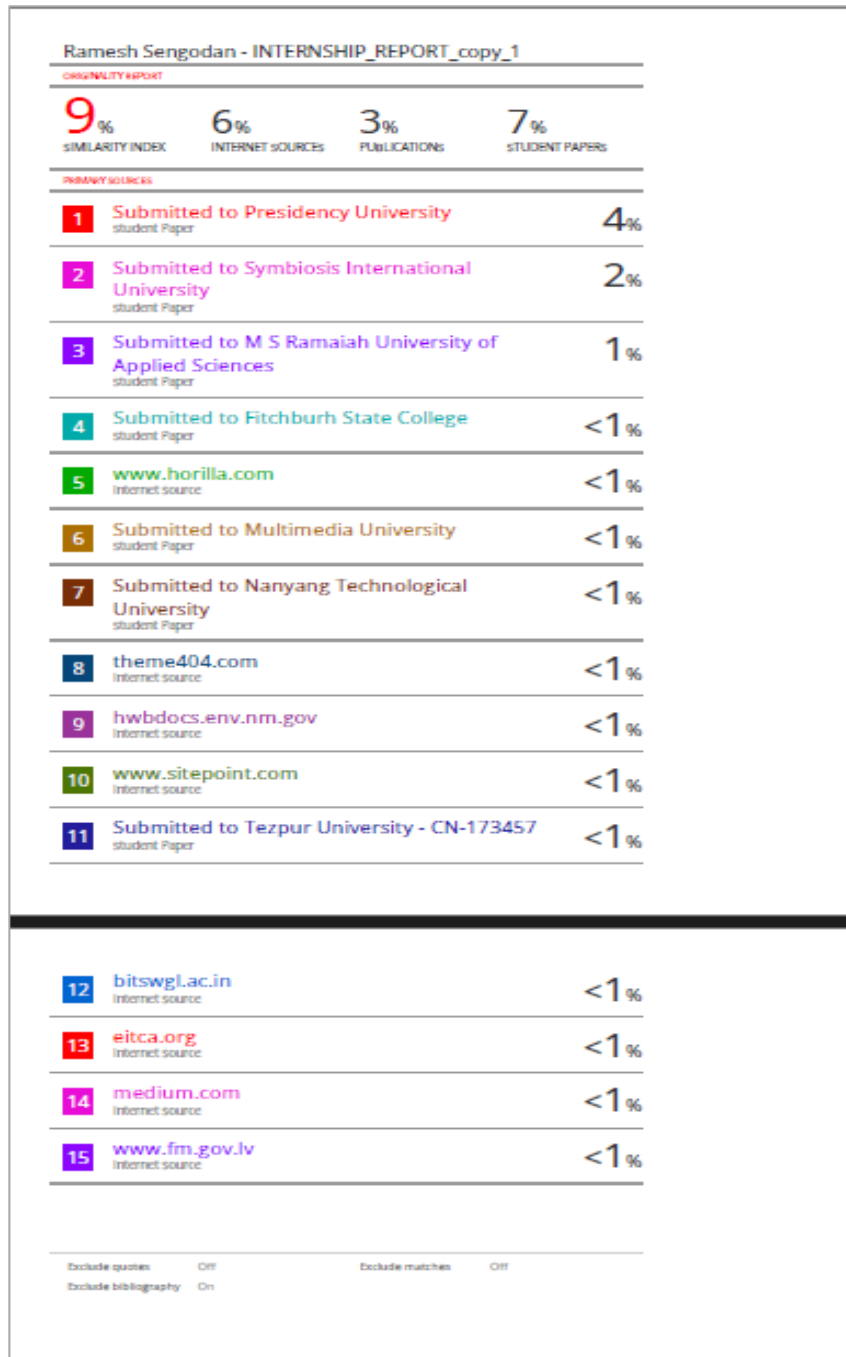| Exclude quotes	Off	Exclude matches	Off
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Figure 13

3.Details of mapping the project with the Sustainable Development Goals (SDGs):

Figure 14

Sustainable Development Goals (SDGs) 3: Good Health and Wellbeing

Website	Contribution
UptoSkills	Encourages well-being by providing possibilities for education and job advancement, which lessens stress and uncertainty among both professionals and students. An organized, easy-to-use website design ensures a low-friction, accessible user experience, thereby encouraging digital wellbeing.

| Horilla | Facilitates the welfare of employees by optimizing HR procedures such as payroll, leave, and attendance. Through simple and responsive design, it promotes open HR practices, eases workplace stress, and enables work-life balance. |

Table 1: Mapping of SDG 3

Sustainable Development Goals (SDGs) 4: Quality Education

Website	Contribution
UptoSkills	Directly contributes to SDG 4 by providing an online community for training, education, and upskilling. With regard to its effectively organized HTML and CSS design, the information is readable on all devices, allowing people from various socioeconomic and geographic backgrounds to participate in inclusive learning.
Horilla	Allows internal learning more simple by using training instruments for management and well-organized HR programs. The software enables staff members keep updated on skill standards and HR rules while fostering ongoing learning within firms.

Table 2: Mapping of SDG 4

Sustainable Development Goals (SDGs) 7: Affordable and Clean Energy

Website	Contribution
UptoSkills	Although it has little to do with energy specifically, UptoSkills can provide or advertise courses on sustainability, green technology, and renewable energy.

	Users may develop awareness and skills that will be valuable in the future by learning about possibilities for green energy.
Horilla	By managing energy-efficient work schedules, remote work regulations, and employee participation in sustainability projects, Horilla HRMS may assist green workplace initiatives. By reducing the need for paper records, its online platform indirectly assists in conserving energy and resources.

Table 3: Mapping of SDG 7