SUMMER INTERNSHIP REPORT

ON

WEB DEVELOPMENT

Submitted in partial fulfillment of the requirements for the Degree

of

BACHELOR OF TECHNOLOGY

Uttaranchal Institute Of Technology

MENTOR:

Prof. Sachin Kumar

SUBMITTED BY:

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Roll No. – 28
7th Semester

ACKNOWLEDGEMENT

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Ayush Kumar Dhiman
7th Semester

DECLARATION

I hereby declare that the internship report entitled **Web Development** is submitted by Ayush Kumar Dhiman to Uttaranchal Institute of Technology. The internship was done under the guidance of **Prof. Sachin Kumar.** I further declare that the work reported in this internship has not been submitted and will not be submitted, either in part or in full, for the award of any other degree or diploma in this university or any other university or institute.

Date: 29-10-2023
Ayush Kumar Dhiman
B.Tech

7th semester

CERTIFICATE OF ORIGINALITY

This is to certify that the internship entitled **"Web Development"** by **Ayush Kumar Dhiman** has been submittedin the partial fulfillment of the requirements for the award of the degree of B.Tech from Uttaranchal University, Dehradun. The results embodied in this project have not been submitted to any other University or Institution for the record of any degree.

Under the guidance of:
Prof. Sachin Kumar

UttaranchalUniversity
Dehradun

COMPANY CERTIFICATE

INTERNSHALA TRAININGS

Certificate of Training

Ayush Kumar Dhiman

from uttaranchal institute of technology has successfully completed an 8-week online training on **Web Development**. The training consisted of HTML, CSS, Bootstrap, DBMS, PHP, JS, React, and Final Project modules.

In the final assessment, Ayush scored 50% marks.

We wish Ayush all the best for future endeavours.

Sarvesh Agarwal

FOUNDER & CEO, INTERNSHALA

Date of certification: 2023-09-10

Certificate no. : 1ok29scir6c

For certificate authentication, please visit https://trainings.internshala.com/verify_certificate

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Company Profile

Internshala is an Indian-based company that operates as an internship and training platform. Internshala was founded in 2010 by Sarvesh Agrawal and is headquartered in Gurgaon, India. The platform is dedicated to connecting students and recent graduates with employers offering internships. It serves as a bridge between students seeking practical experience and companies looking for talented interns.

Features:

Internship Listings: Employers can post internship opportunities, and students can search and apply for these positions.

Online Training: Internshala offers a variety of online courses and training programs to help users acquire new skills and improve their employability.

Career Resources: The platform provides articles, blogs, and other resources to guide users in making informed career decisions.

Company Services

Internship Platform: Internshala provides a platform where students and recent graduates can search for and apply to various internship opportunities across different industries and locations.

Training and Skill Development: In addition to internships, Internshala offers various online training programs to help users develop skills in areas such as programming, web development, digital marketing, and more. These courses aim to enhance the employability of users.

Career Guidance: The platform provides career guidance and resources to help students make informed decisions about their career paths

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Overview of company profile

Internshala is an online platform that serves as a bridge between students/young professionals seeking internships, online trainings, and job opportunities and various companies offering such opportunities. It primarily focuses on facilitating skill development, internships, and job placements for students and recent graduates. Here's an overview of the typical elements you might find in an Internshala profile:

User Profile: Upon signing up, users create a profile that includes personal details such as name, education, skills, and interests. This profile helps match users with suitable internships or training programs.

Internship Search: Internshala provides a vast database of internships across various fields and industries. Users can search for internships based on location, field of study, duration, and stipend, if available.

Online Trainings: Internshala offers online training courses across a wide array of subjects, including programming, business development, marketing, design, and more. These courses are designed to enhance skills and knowledge in specific areas.

Skill Development: The platform also provides resources for skill development, such as articles, tutorials, and webinars, to help users improve their employability.

Resume Building: Internshala offers tools and guidance for users to create effective resumes to increase their chances of landing internships or jobs.

Placement Assistance: Some programs on Internshala offer placement assistance, connecting candidates who have successfully completed training programs or internships with potential employers.

Community & Forums: There are forums and communities where users can ask questions, share experiences, and seek advice related to internships, careers, and skill development.

Notifications and Updates: Users receive notifications about new internship opportunities, application deadlines, and relevant updates based on their preferences.

Internshala aims to provide a comprehensive platform for students and professionals to explore, learn, and gain practical experience to kickstart their careers. Users can access a variety of resources to improve their skills, find internships, and connect with potential employers across different industries.

Topics covered in first week of internship

H T M L –

HTML stands for HyperText Markup Language. It is used to design web pages using a markup language. HTML is a combination of Hypertext and Markup language. Hypertext defines the link between web pages. A markup language is used to define the text document within the tag which defines the structure of web pages. This language is used to annotate (make notes for the computer) text so that a machine can understand it and manipulate text accordingly. Most markup languages (e.g. HTML) are human-readable. The language uses tags to define what manipulation has to be done on the text.

INTRODUCTION

Web development is the process of creating and maintaining websites or web applications. It encompasses a variety of tasks and skills, including web design, front-end development, back-end development, and web server configuration. The goal of web development is to build a functional and visually appealing website that meets the needs of users or clients.

- **Objective-**

The objectives of web development can vary depending on the context, the type of project, and the goals of the individuals or organizations involved. However, there are several common objectives that are often associated with web development:

Create an Online Presence:

Establishing a presence on the internet is a fundamental objective of web development. This allows individuals, businesses, and organizations to showcase information, products, or services to a global audience.

Provide Information:

One of the primary purposes of websites is to disseminate information. This could include company details, product descriptions, educational content, news, and more.

Facilitate Communication:

Web development enables communication between individuals and entities. This can take the form of social media platforms, forums, chat applications, or contact forms on websites.

Enable E-Commerce:

For businesses, creating an online platform for buying and selling goods and services is a significant objective. E-commerce websites facilitate transactions and expand the reach of businesses beyond physical locations.

- **Experience-**

The experience of web development can vary widely depending on factors such as the complexity of the project, the technologies involved, and the level of expertise of the developer. Here is an overview of the typical experiences that developers may encounter during the web development process:

Planning and Requirements Gathering:

The web development process often begins with planning and gathering requirements. This involves understanding the goals of the project, identifying the target audience, and determining the features and functionality needed.

Design Phase:

In the design phase, developers create wireframes and mockups to visualize the structure and layout of the website or web application. This phase may also involve decisions about color schemes, typography, and overall aesthetics.

Front-End Development:

Front-end development involves translating the design into actual code using HTML, CSS, and JavaScript. Developers work on creating the user interface, ensuring responsiveness for various devices, and implementing interactivity.

Back-End Development:

Back-end development focuses on server-side logic, database interactions, and the overall functionality of the web application. This often involves using server-side programming languages (such as Python, PHP, or Node.js) and working with databases.

Database Design and Integration:

Developers design and implement databases to store and retrieve data efficiently. This may involve creating database schemas, defining relationships between tables, and integrating the database with the back-end logic.

Testing:

Testing is a crucial phase in web development to identify and fix bugs, ensure functionality across different browsers and devices, and validate that the website or application meets the specified requirements.

Version Control and Collaboration:

Developers use version control systems like Git to track changes in the code, collaborate with team members, and easily revert to previous versions if needed.

Deployment:

Once development and testing are complete, the website or application is deployed to a web server to make it accessible on the internet. Deployment may involve configuring servers, setting up databases, and optimizing performance.

Maintenance and Updates:

After deployment, developers may be involved in ongoing maintenance to address any issues that arise, implement updates or new features, and ensure the security of the website or application.

Continuous Learning:

Web development is a field that constantly evolves with new technologies and frameworks. Developers often engage in continuous learning to stay updated on industry trends and enhance their skills.

COMPANY PROFILE

Internshala is a platform that connects students and recent graduates with employers offering internships and training programs. It aims to bridge the gap between education and industry by providing students with practical work experience and exposure to various industries.

Key Features and Services-

Internship Listings: Internshala provides a platform where companies can post internship opportunities, and students can search and apply for these internships based on their interests and skills.

Training Programs: In addition to internships, Internshala offers various online training programs across a range of subjects. These programs are designed to enhance the skills of students and make them more employable.

Skill Development: The platform focuses on skill development and provides resources for students to acquire new skills relevant to their career goals.

Virtual Internships: Internshala also offers virtual internships, allowing students to work on projects remotely and gain valuable experience from anywhere.

- **Key Services-**

Some key services provided by Internshala:

Internship Listings:

Internshala connects students and recent graduates with companies offering internships across various industries. The platform allows companies to post internship opportunities, and students can search and apply for these internships based on their interests, skills, and career goals.

Online Training Programs:

Internshala provides a range of online training programs designed to enhance the skills of students and make them more employable. These training programs cover diverse subjects such as programming, digital marketing, business development, graphic design, and more.

Skill Development Resources:

Internshala focuses on skill development and offers resources to help students acquire new skills relevant to their chosen fields. This may include articles, tutorials, and other educational content to assist users in developing a well-rounded skill set.

Virtual Internships:

In addition to traditional internships, Internshala offers virtual internships that allow students to work on projects remotely. Virtual internships provide flexibility and the opportunity for students to gain practical work experience from anywhere.

Job Listings:

While the primary focus is on internships, Internshala may also provide job listings for entry-level positions and opportunities for recent graduates.

- **Aim:**

The aim of Internshala may be to bridge the gap between education and industry by providing students with practical work experience through internships and enhancing their employability.

- **Vision:**

The vision of Internshala could be to create a platform that empowers students to acquire valuable skills, connect with industry opportunities, and embark on successful career paths.

- **Mission:**

The mission of Internshala may involve facilitating meaningful connections between students and companies, offering quality training programs to improve skill sets, and contributing to the overall development of the workforce.

BRIEF SUMMARY OF SIP

● Overview-

Overview of the key aspects of web development:

Front-End Development:

HTML (Hypertext Markup Language): Provides the structure and content of web pages.
CSS (Cascading Style Sheets): Styles and formats the HTML elements to enhance visual presentation.
JavaScript: Enables dynamic and interactive content on the client side, handling user interactions and modifying the page in real-time.

Back-End Development:

Server-Side Programming Languages: Such as PHP, Python, Ruby, Java, or Node.js. Responsible for server-side logic and handling requests from the client.

Databases:

Store and retrieve data. Common databases include MySQL, PostgreSQL, MongoDB, and SQLite.

Frameworks and Libraries:

Front-End Frameworks: Like React, Angular, or Vue.js, providing pre-built components and structures to streamline front-end development.
Back-End Frameworks: Such as Django (Python), Ruby on Rails (Ruby), or Express (Node.js), which offer pre-built functionalities and patterns to expedite back-end development.

Web Servers and Hosting:

Web Servers: Software that serves web pages to users. Examples include Apache, Nginx, and Microsoft IIS.
Hosting Services: Platforms like AWS, Heroku, and traditional hosting providers facilitate the deployment and accessibility of websites.

Databases:

Relational Databases: Like MySQL and PostgreSQL, use structured query language (SQL) to manage and retrieve data.
NoSQL Databases: Such as MongoDB, use a non-relational approach, suitable for handling unstructured or semi-structured data.

Version Control:

Tools like Git help developers track changes in source code, collaborate with others, and manage different versions of the project.

● Why MERN Stack-

The key components of the MERN stack and the reasons why it is widely adopted:

MongoDB (Database):

MongoDB is a NoSQL database that stores data in a flexible, JSON-like format called BSON (Binary JSON). It is particularly well-suited for handling large volumes of unstructured or semi-structured data.

Benefits:
Schema flexibility allows developers to work with dynamic and evolving data structures.
Scalability and performance for handling large datasets.
JSON-like data format aligns well with JavaScript, simplifying the development process.

Express.js (Back-End Framework):

Express.js is a minimalist and flexible Node.js web application framework. It provides a set of features for building robust and scalable web applications and APIs.
Benefits:
Simplifies the creation of server-side logic and handling of HTTP requests and responses.
Middleware support for extending functionality.
Integrated with Node.js for building server-side applications using JavaScript.

React (Front-End Library):

React is a declarative, efficient, and component-based JavaScript library for building user interfaces. It allows developers to create reusable UI components that update efficiently in response to data changes.
Benefits:
Virtual DOM for efficient updates and rendering.
Component-based architecture promotes code reusability.
Large community and ecosystem of libraries and tools.

Node.js (JavaScript Runtime):

Node.js is a JavaScript runtime built on the V8 JavaScript engine. It enables developers to run JavaScript code on the server side, allowing for the creation of server-side applications using JavaScript.
Benefits:
Event-driven, non-blocking I/O architecture for high concurrency.
Single language (JavaScript) for both front-end and back-end development.
Large ecosystem of packages and modules available through npm (Node Package Manager).
Reasons for Using the MERN Stack:

JavaScript Throughout:

One of the main advantages of the MERN stack is the use of JavaScript throughout the entire development stack. This simplifies development by using a consistent language for both server-side

and client-side code.

First week of internship-

In first week of internship we studied and worked on HTML, which stands for Hypertext Markup Language, is the standard markup language used to create and structure content on the web. It provides a set of elements or tags that define the structure and semantics of a web document. HTML is the backbone of web development and is used in conjunction with Cascading Style Sheets (CSS) and JavaScript to create visually appealing and interactive web pages.

Here are some fundamental aspects of HTML:
An HTML document is structured using various elements, each enclosed in opening (<tag>) and closing (</tag>) tags. The basic structure of an HTML document includes:

```
<!DOCTYPE html>
<html>
<head>
   <title>Document Title</title>
</head>
<body>
   <!-- Content goes here -->
</body>
</html>
```

1. **Basic HTML Elements:**

- **Headings:**

```
<h1>This is a Heading 1</h1>
<h2>This is a Heading 2</h2>
     <!-- ... up to <h6> -->
```

- **Paragraph:**

```
html
<p>This is a paragraph.</p>
Links:
<a href="https://www.example.com">Visit Example.com</a>
```

Images:

```
html
<img src="image.jpg" alt="Description">
```

Lists:

```
html
<ul>
  <li>Item 1</li>
  <li>Item 2</li>
</ul>

<ol>
  <li>Item 1</li>
```

```
<li>Item 1</li>
</ol>
```

● Second & Third week of internship-

In second & third week of internship we studied and worked on CSS, or Cascading Style Sheets, is a style sheet language used to describe the presentation and layout of HTML documents. CSS allows developers to apply styles, such as colors, fonts, spacing, and positioning, to HTML elements, enhancing the visual appearance of web pages. By separating the content (HTML) from the presentation (CSS), developers can create more flexible and maintainable web designs.

Ex- Properties and Values:

CSS properties define the visual style of selected elements, and values determine how those properties should be applied. For instance:

```
h1 {
   font-size: 24px;
   color: blue;
}

.container {
   width: 80%;
   margin: 0 auto;
}
```

Layout Techniques:

CSS provides various layout techniques, such as Flexbox and Grid, that enable developers to create responsive and flexible designs. These layouts help in positioning and aligning elements on the page efficiently.

Responsive Design:

With media queries, CSS allows you to apply different styles based on the characteristics of the device or viewport size. This is crucial for creating responsive designs that adapt to various screen sizes.

Cascade and Specificity:

CSS operates on a cascade and specificity model, meaning that styles can be inherited, overridden, or combined based on the order of application and the specificity of selectors.

By using CSS, we can separate the structure (HTML) and presentation (CSS) of a web page, making it easier to maintain and update the design across multiple pages. CSS is a powerful tool for creating visually appealing and responsive web applications.

● Fourth week of internship-

In fourth week of internship we studied and worked on Bootstrap. Bootstrap is a free and open-source tool collection for creating responsive websites and web applications. It is the most popular HTML, CSS, and JavaScript framework for developing responsive, mobile-first websites. It solves many problems which we had once, one of which is the cross-browser compatibility issue. Nowadays, the websites are perfect for all the browsers (IE, Firefox, and Chrome) and for all sizes of screens (Desktop, Tablets, Phablets, and Phones). All thanks to Bootstrap developers -Mark Otto and Jacob Thornton of Twitter, though it was later declared to be an open-source project. Bootstrap has evolved many versions and every time when we want to use this framework we can select the version which we want to use.

Why Bootstrap?

Faster and Easier Web Development.
It creates Platform-independent web pages.
It creates Responsive Web-pages.
It is designed to be responsive to mobile devices too.
It is Free! Available on www.getbootstrap.com

Ex-

<link rel=”stylesheet”

href=https://stackpath.bootstrapcdn.com/bootrap/4.3.1/css/bootstrap.min.css

integrity=”sha384ggOyR0iXCbMQv3Xipma34MD+dH/1fQ784/j6cY/iJTQU
OhcWr7x9JvoRxT2MZw1T”

crossorigin=”anonymous”>

● Fifth week of internship-

In fifth week of internship we studied and worked on DBMS. A Database Management System (DBMS) is a software system that is designed to manage and organize data in a structured manner. It allows users to create, modify, and query a database, as well as manage the security and access controls for that database.

Key Features of DBMS

Data modeling: A DBMS provides tools for creating and modifying data models, which define the structure and relationships of the data in a database.

Data storage and retrieval: A DBMS is responsible for storing and retrieving data from the database, and can provide various methods for searching and querying the data.

Concurrency control: A DBMS provides mechanisms for controlling concurrent access to the database, to ensure that multiple users can access the data without conflicting with each other.

Data integrity and security: A DBMS provides tools for enforcing data integrity and security constraints, such as constraints on the values of data and access controls that restrict who can access the data.

Backup and recovery: A DBMS provides mechanisms for backing up and recovering the data in the event of a system failure.

DBMS can be classified into two types: Relational Database Management System (RDBMS) and Non-Relational Database Management System (NoSQL or Non-SQL)

RDBMS: Data is organized in the form of tables and each table has a set of rows and columns. The data are related to each other through primary and foreign keys.

A database is a collection of interrelated data which helps in the efficient retrieval, insertion, and deletion of data from the database and organizes the data in the form of tables, views, schemas, reports, etc. For Example, a university database organizes the data about students, faculty, admin staff, etc. which helps in the efficient retrieval, insertion, and deletion of data from it.

Database Languages-

- Data Definition Language
- Data Manipulation Language
- Data Control Language
- Transactional Control Language

DBMS is a powerful tool for managing and manipulating data, and is used in many industries and applications, such as finance, healthcare, retail, and more.

- **Sixth week of internship-**

In sixth week of internship we studied and worked on PHP

PHP is an acronym for "PHP: Hypertext Pre-processor"

PHP is a widely-used, open source scripting language

PHP scripts are executed on the server

PHP is free to download and use

What Can PHP Do?

- PHP can generate dynamic page content
- PHP can create, open, read, write, delete, and close files on the server
- PHP can collect form data
- PHP can send and receive cookies
- PHP can add, delete, modify data in your database
- PHP can be used to control user-access
- PHP can encrypt data

Why PHP?

- PHP runs on various platforms (Windows, Linux, Unix, Mac OS X, etc.)
- PHP is compatible with almost all servers used today (Apache, IIS, etc.)
- PHP supports a wide range of databases
- PHP is free. Download it from the official PHP resource: www.php.net
- PHP is easy to learn and runs efficiently on the server side

Advantages-

- It is powerful enough to be at the core of the biggest blogging system on the web (WordPress)!
- It is deep enough to run large social networks!
- It is also easy enough to be a beginner's first server side language!

● Seventh week of internship-

In Seventh week of internship we studied and worked on JS , JavaScript is a programming language that adds interactivity to your website. This happens in games, in the behavior of responses when buttons are pressed or with data entry on forms; with dynamic styling; with animation, etc.

What is JavaScript?

JavaScript is a powerful programming language that can add interactivity to a website. It was invented by Brendan Eich.

JavaScript is versatile and beginner-friendly. With more experience, you'll be able to create games, animated 2D and 3D graphics, comprehensive database-driven apps, and much more!

JavaScript itself is relatively compact, yet very flexible. Developers have written a variety of tools on top of the core JavaScript language, unlocking a vast amount of functionality with minimum effort.

These include:

Browser Application Programming Interfaces built into web browsers, providing functionality such as dynamically creating HTML and setting CSS styles; collecting and manipulating a video stream from a user's webcam, or generating 3D graphics and audio samples.

Third-party APIs that allow developers to incorporate functionality in sites from other content providers, such as Twitter or Facebook.

Third-party frameworks and libraries that you can apply to HTML to accelerate the work of building sites and applications.

● Eighth week of internship-

In Eighth week of internship we studied and worked on ReactJS, ReactJS is a declarative, efficient, and flexible JavaScript library for building reusable UI components. It is an open-source, component-based front end library responsible only for the view layer of the application. It was created by **Jordan Walke,** who was a software engineer at **Facebook.** It was initially developed and maintained by Facebook and was later used in its productslike **WhatsApp** & **Instagram.** Facebook developed ReactJS in **2011** in its newsfeed section, but itwas released to the public in the month of **May 2013.**

Today, most of the websites are built using MVC (model view controller) architecture. In MVC architecture, React is the 'V' which stands for view, whereas the architecture is provided by the Redux or Flux.

A ReactJS application is made up of multiple components, each component responsible for outputting a small, reusable piece of HTML code. The components are the heart of all React applications. These Components can be nested with other components to allow complex applications to be built of simple building blocks. ReactJS uses virtual DOM based mechanism to fill data in HTML DOM. The virtual DOM works fast as it only changes individual DOM elements instead of reloading complete DOM every time.

To create React app, we write React components that correspond to various elements. We organize these components inside higher level components which define the application structure. For example, we take a form that consists of many elements like input fields, labels, or buttons. We can write each element of the form as React components, and then we combine it into a higher-level component, i.e., the form component itself. The form components would specify the structure of the form along with elements inside of it.

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