

Industrial Internship Report
on
**Software Development Engineer Intern at People
Chime**

A Report submitted in partial fulfilment for the Degree of

Bachelor of Technology
in
Computer Science and Engineering



Submitted by

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Roll No. 202077

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June, 2024

Certificate

This is to certify that the project report entitled **Software Development Engineer Intern at People Chime** prepared and submitted by **Birender** bearing roll no. **202077** to the Central University of Haryana, in partial fulfilment for the award of the degree of **B. Tech. in Computer Science and Engineering** is a bonafide record of project work carried out by him under my supervision. The contents of this report, in full or in parts, have not been submitted to any other Institution or University for the award of any degree or diploma.

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June, 2024

Declaration

I declare that this project report titled **Software Development Engineer Intern at People Chime** submitted in partial fulfillment for the degree of **B.Tech. in Computer Science and Engineering** is a record of original work carried out by me under the supervision of **Dr. Vishal Pass- richa**, and has not formed the basis for the award of any other degree or diploma, in this or any other Institution or University. In keeping with the ethical practice in reporting Scientific information, due acknowledgements have been made wherever the findings of others have been cited.

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I am extremely grateful to my department staff members and friends who helped me in the successful completion of this internship. I would like to acknowledge that this internship and project is completed entirely by me and not by someone else.

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Abstract

This report details my internship at People Chime, a distinguished company in the tech domain that delivers high-quality software solutions to various firms. People Chime is renowned for offering top-tier industrial training across all technical fields, supplemented by placement guidance, mock tests, and mock-interview series. The purpose of this document is to outline the analysis conducted, projects completed, and experience gained during my tenure as a Software Development Engineer Intern, highlighting my achievements in this role.

During my internship at People Chime, I was introduced to some new cutting-edge and innovative technologies, programming languages, and frameworks. The most remarkable aspect of my experience, however, was working within a multicultural environment in a multinational company.

Reflecting on my time at People Chime, I am immensely gratified by the outcomes. I successfully bridged the gap between theoretical knowledge and practical application by tackling real-world challenges within a professional context. This opportunity allowed me to leverage the skills I acquired as a computer science student at Central University of Haryana, making a meaningful impact on the organization.

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Chapter 1

Objective

The objective of my internship in software development was to gain hands-on experience and deepen my understanding of key concepts, tools, and techniques essential in the field. Throughout the internship, I aimed to contribute to various assignments and projects, collaborate with professionals, and enhance my skills in full-stack development. This included managing the backend on Amazon Web Services (AWS), developing the frontend using React JS and NextJS, and working with DynamoDB for database management. By engaging in diverse web projects and applying logical methodologies, I sought to develop insights and actionable logic to create fully-fledged websites. Moreover, I aimed to broaden my proficiency in programming languages such as C++, and familiarize myself with popular backend libraries and frameworks. Overall, the primary goal of my internship was to advance my professional development and equip myself for a successful career in software development.

The objectives of industrial Internship/training are:

1. Gain practical experience in the field of software development and apply theoretical knowledge to real-world challenges.
2. Design and implement responsive and interactive frontend applications

using React JS and Next JS, ensuring optimal user experience.

3. Develop scalable and secure backend systems on AWS, utilizing services such as Lambda, CloudFormation, API Gateway, and DynamoDB.
4. Optimize database performance and scalability using DynamoDB, ensuring efficient data storage and retrieval.
5. Enhance proficiency in C++, applying object-oriented programming principles and developing robust algorithms.
6. Familiarize with popular backend libraries and frameworks, such as Express JS and Node JS, to improve development efficiency.
7. Develop experience in AWS Amplify, leveraging its features for authentication, APIs, and storage to build robust full-stack applications.
8. Apply logical methods and problem-solving techniques to develop insights and actionable logics for building fully-fledged websites.
9. Apply critical thinking and analytical skills to solve complex problems and develop actionable logics.
10. Stay up-to-date with industry trends and emerging technologies, continuously learning and adapting to new tools and techniques.
11. Develop a strong understanding of DevOps practices, ensuring efficient deployment, monitoring, and maintenance of applications.

Chapter 2 Introduction

2.1 Software Development Engineer Intern-ship

The field of software development has become increasingly prominent from the start, with organizations across industries recognizing the immense value of harnessing data to drive insights, innovation, and informed decision-making. As part of my academic journey, I had the opportunity to undertake an in-ternship in software development, immersing myself in real-world applica-tions of these disciplines and gaining invaluable hands-on experience.

During my internship, I had the privilege of collaborating with a team of seasoned professionals in a vibrant and innovative setting. The primary ob-jective of my internship was to bridge the gap between theoretical knowledge and practical implementation, enabling me to apply the concepts and tech-niques learned in the classroom to real-world data challenges.

This report aims to provide a detailed account of my internship experience, highlighting the projects, tasks, and skills I acquired throughout the duration of the internship. It will delve into the specific methodologies and tools I uti-lized during the development of frontend, backend, and databases, shedding

light on the practical applications of these techniques.

Furthermore, this report will outline the key achievements and contributions I made during my internship, demonstrating my ability to effectively tackle complex problems, extract meaningful insights from requirements, and develop them, as well as communicate outcomes to stakeholders. It will also address the challenges encountered during the internship, along with the strategies employed to overcome them, fostering personal growth and resilience in the face of data-driven obstacles.

Overall, this internship experience has been instrumental in shaping my understanding of software development, solidifying my passion for the field, & equipping me with the practical skills & knowledge necessary for a successful career. The following sections will provide a detailed account of my projects, experiences, and reflections, showcasing the valuable lessons learned & the contributions made during this enriching internship opportunity.

2.2 Company Overview

2.2.1 About Company

People Chime is a distinguished organization that specializes in providing tech skills, learning opportunities, and placement guidance to tech enthusiasts. With a strong commitment to fostering growth and success, People Chime offers a comprehensive suite of services, including mock tests, interviews, and placement sessions for final year students. The company's dedication to student success extends beyond the classroom, as it offers free resume review, revamp, and job assistance to help students secure their dream jobs. People Chime boasts an extensive network of clients and partners, both

domestically and internationally. With a rich clientele that spans across the globe, the company works with numerous offshore clients from countries such as the USA, UK, France, Germany, Finland, Indonesia, Saudi Arabia, Japan, and Australia. This global reach is a testament to the company's reputation for excellence and its ability to deliver high-quality services to clients world- wide.

The company's success is built on the foundation of its highly skilled and experienced employees. With a workforce ranging between 300-500, People Chime is home to some of the most talented IT experts in the industry. The company's main office and headquarter is located in Whitefield, Bangalore, while its second office is situated in Jaipur, Rajasthan. These offices provide an ideal learning and working environment for students, enabling them to develop their skills and thrive in their careers.

2.2.2 Founder and Leader

The founder of People Chime is **Ms. Riya Kulshrestha** and the leading head is **Mr. Shobhit Sinha**. Mr. Shobhit Sinha was my project manager throughout this internship.

2.2.3 Contact Details

Organization: People Chime

Address: Sumadhura Groups, Nallurhalli, Whitefield, Bangalore, 560066 Mobile: 7975885263

Email: connect@peoplechime.com

Web: peoplechime.com

2.3 Full Stack Development

In today's fast-paced digital landscape, full stack development has emerged as a crucial component of building dynamic, scalable, and user-friendly applications. A full stack developer is a master of multiple domains, possessing expertise in both front-end and back-end development, as well as database management and infrastructure. This unique blend of skills enables them to oversee the entire application development process, from conceptualization to deployment. Full stack development is the backbone of modern application building, enabling the creation of robust, efficient, and user-centric applications that meet the evolving needs of businesses and users alike. As technology continues to advance, the demand for skilled full stack developers will only continue to grow, making them an indispensable asset in the digital landscape.

Full stack development plays a crucial role in modern web application development, as it enables developers to build complete web applications and websites from scratch. Full stack developers possess a diverse set of skills and knowledge, making them highly valuable in the tech industry. They are capable of working on all aspects of web development, from designing user interfaces to managing databases and implementing server-side logic. This versatility makes full stack development a popular choice for businesses looking to build robust and scalable web applications.

The demand for full stack developers has been on a steady rise in recent years, and it's expected to continue growing exponentially. According to a report by Glassdoor, the average salary for a full stack developer in the United States is over \$ 114,000 per year, making it one of the highest-paying jobs in the tech industry. The Bureau of Labor Statistics predicts that employment

Three tier architecture

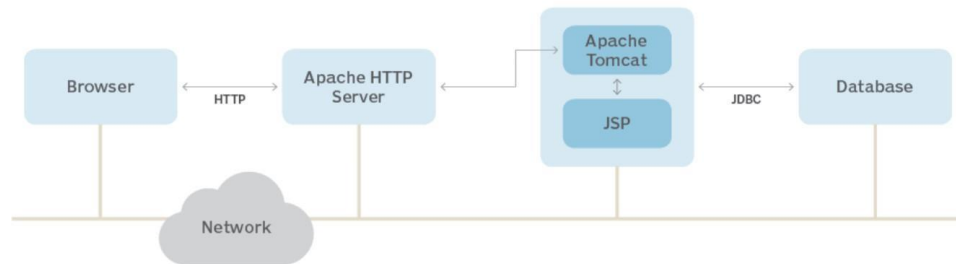


Figure 2.1: Three Tier Architecture of Full Stack Development

of web developers, including full stack developers, will grow 13% from 2020 to 2030, much faster than the average for all occupations. This growth is driven by the increasing need for businesses to have a strong online presence, as well as the rising demand for mobile and web applications. As technology continues to advance and more companies shift their focus to digital transformation, the demand for skilled full stack developers will only continue to increase. In fact, a report by Indeed found that full stack development is one of the top 10 most in-demand skills in the job market, with a growth rate of over 30% year-over-year. With the rapid growth of the digital landscape, it's clear that full stack development is a career path that's here to stay, and those who possess these skills will be in high demand for years to come.

2.4 Front End Development

Front-end development is a pivotal aspect of web development that focuses on the creation and maintenance of the user interface (UI) and user experience (UX) of websites and web applications. At its core, front-end devel-

opment involves using HTML, CSS, and JavaScript to build and style the components that users interact with directly. HTML, or HyperText Markup Language, provides the fundamental structure of web pages, defining elements like headings, paragraphs, lists, and links. Semantic HTML, which introduces meaningful tags, enhances the understanding of web content for both search engines and accessibility tools. CSS, or Cascading Style Sheets, is responsible for the visual presentation of web pages, allowing developers to apply styles such as layouts, colors, and fonts. CSS also plays a crucial role in responsive design, enabling web pages to adapt to various screen sizes and devices through techniques like media queries.

JavaScript is integral to front-end development, adding dynamic functionality and interactivity to web pages. To streamline and enhance the development process, front-end developers often utilize frameworks and libraries. **React**, developed by Facebook, is a popular library for building user interfaces, especially single-page applications, through its component-based architecture and virtual DOM for efficient updates. **Angular**, maintained by Google, is a comprehensive framework for dynamic web applications, offering features like two-way data binding and dependency injection. **Vue.js**, known for its simplicity and flexibility, is another progressive framework that allows for incremental adoption, making it suitable for a wide range of projects.

Version control systems like Git are essential for tracking changes and managing code versions, with platforms like GitHub, GitLab, and Bitbucket facilitating collaborative development through features such as pull requests and code reviews. Code editors and integrated development environments (IDEs) like Visual Studio Code, Sublime Text, and WebStorm provide robust environments for writing and debugging code, each offering unique features and extensions to support developers' workflows.

The front-end technologies used throughout the internship are **React TS** and **Next JS**.

2.4.1 React TS

React with TypeScript, commonly referred to as React TS, is a powerful synergy between two robust technologies: React, a widely used JavaScript library for building dynamic user interfaces, and TypeScript, a statically typed superset of JavaScript. This combination enhances code quality, provides better tooling, and offers a more reliable development experience, especially in large-scale applications.

React, developed by Facebook, is known for its component-based architecture, which allows developers to create reusable UI components. These components make it easier to manage and scale complex user interfaces. React's efficient update mechanism, the virtual DOM, ensures that changes in the application state result in minimal re-rendering, leading to better performance. **TypeScript**, on the other hand, is developed by Microsoft and adds optional static typing to JavaScript. By incorporating static types, TypeScript helps developers catch errors during the development process rather than at runtime. This early error detection contributes significantly to the reliability and maintainability of the code. TypeScript also includes modern JavaScript features and provides robust tools that are particularly beneficial for large-scale application development.

In conclusion, combining React with TypeScript leverages the strengths of both technologies, providing a development environment that is both efficient and robust. This combination enhances code quality, improves developer productivity, and makes it easier to manage and scale large applications. As

the demand for reliable and maintainable web applications grows, React TS stands out as a powerful solution for modern front-end development.

2.4.2 Next JS

Next.js is a popular React framework developed by Vercel that facilitates building server-side rendered (SSR) and static web applications with ease. It enhances the capabilities of React by providing a comprehensive solution for routing, server-side rendering, and static site generation out of the box. One of the standout features of Next.js is its hybrid approach, allowing developers to choose between SSR and static generation for each page. This flexibility enables optimal performance and SEO benefits, as server-side rendered pages can be dynamically fetched while static pages are pre-rendered at build time, reducing load times and improving user experience.

Another key advantage of Next.js is its built-in support for API routes, which simplifies the process of creating serverless functions that can handle backend logic directly within the Next.js project. This feature streamlines the development process by reducing the need for a separate backend server, making it easier to build full-stack applications. Additionally, Next.js supports incremental static regeneration (ISR), which allows static content to be updated without rebuilding the entire site, ensuring that the website stays up-to-date with minimal deployment effort. These features, combined with extensive documentation and a vibrant community, make Next.js an attractive choice for developers aiming to create performant, scalable, and maintainable web applications.

2.5 Back End Development

Backend development focuses on the server-side of web applications, managing the logic, database interactions, authentication, and server configuration that power the front-end interface. It involves working with server-side languages such as Node.js, Python, Java, Ruby, or PHP to create robust, scalable, and efficient application logic. Key responsibilities in backend development include designing and implementing databases (using SQL databases like MySQL, PostgreSQL, or NoSQL databases like MongoDB), creating RESTful APIs or GraphQL endpoints to facilitate communication between the client and server, and ensuring security measures like data encryption and secure authentication. Additionally, backend developers are tasked with performance optimization, ensuring that the server can handle high traffic loads and providing quick response times. They also work on integrating third-party services, maintaining server infrastructure, and implementing cloud services like AWS, Azure, or Google Cloud for scalability and reliability. This foundational work supports the seamless functionality of the front-end, ensuring a smooth and secure user experience.

Throughout this internship, I have used **AWS** to manage the backend.

2.5.1 AWS

Amazon Web Services (AWS) is a comprehensive and widely adopted cloud platform that offers a vast array of services to help businesses scale and grow. As a leading provider in the cloud computing market, AWS offers over 200 fully featured services from data centers globally. Major services include computing power with EC2 (Elastic Compute Cloud), storage solutions with S3 (Simple Storage Service), and database management with RDS (Rela-

tional Database Service) and DynamoDB. These services enable businesses to deploy and manage applications efficiently, providing robust infrastructure that can be scaled up or down based on demand. AWS's global infrastructure ensures high availability and low latency, making it an ideal choice for enterprises that require reliable and fast performance.

AWS also excels in providing advanced services in areas such as artificial intelligence (AI) and machine learning (ML) with tools like SageMaker, as well as big data analytics with services like Redshift and EMR (Elastic MapReduce). Its extensive suite of developer tools, including AWS CodePipeline and CodeBuild, streamlines the software development lifecycle, promoting continuous integration and continuous delivery (CI/CD). Security and compliance are also paramount in AWS, with a comprehensive set of security tools and features like IAM (Identity and Access Management), encryption, and DDoS protection. The combination of these capabilities makes AWS a versatile and powerful platform for a wide range of applications, from simple websites to complex enterprise-level solutions.

S3

Amazon S3 (Simple Storage Service) is a highly scalable, reliable, and low-latency object storage service designed for large-scale data storage and retrieval. It offers virtually unlimited storage capacity, allowing users to store and manage any amount of data, ranging from small individual files to large media archives and big data analytics datasets. S3's key features include its durability, achieved through automatic replication across multiple geographically dispersed data centers, and its accessibility, which ensures that data can be retrieved quickly and efficiently from anywhere in the world. S3 also supports a wide range of data management and security features, such as

versioning, lifecycle policies, and server-side encryption, enabling fine-grained control over data retention, access, and protection. Its integration with other AWS services and its compatibility with various data analytics and machine learning tools make S3 an essential component for modern cloud-based architectures, supporting diverse use cases like data lakes, backup and restore, disaster recovery, and content distribution.

Lambda

AWS Lambda is a serverless computing service that allows developers to run code without provisioning or managing servers, enabling a focus on writing and deploying applications without worrying about the underlying infrastructure. Lambda automatically scales applications by running code in response to triggers such as HTTP requests via API Gateway, modifications in S3 buckets, changes in DynamoDB tables, and many other event sources. It supports various programming languages, including Python, Node.js, Java, C# and Go, making it versatile for different types of applications. With Lambda, users only pay for the compute time consumed, which can lead to significant cost savings as there are no charges when the code is not running. Lambda's integration with other AWS services and its ability to handle complex workflows through AWS Step Functions make it an essential tool for building highly responsive, scalable, and cost-efficient applications in the cloud.

API Gateway

Amazon API Gateway is a fully managed service that makes it easy for developers to create, publish, maintain, monitor, and secure APIs at any scale. It acts as a front door for applications to access data, business logic, or func-

tionality hosted on AWS or outside of AWS. API Gateway enables developers to build RESTful APIs or WebSocket APIs quickly and efficiently, with features such as request and response transformations, caching, and throttling. It integrates seamlessly with other AWS services like Lambda, allowing developers to create serverless applications that respond to incoming API requests without managing servers. With API Gateway's built-in authorization and access control features, developers can enforce fine-grained permissions and protect APIs from unauthorized access, ensuring the security and integrity of their applications. Additionally, API Gateway provides detailed monitoring and logging capabilities, allowing developers to track API usage, diagnose issues, and optimize performance effectively.

Cognito

Amazon Cognito is a comprehensive identity and access management service that provides authentication, authorization, and user management for web and mobile applications. It allows developers to easily add user sign-up, sign-in, and access control functionalities to their applications, reducing the complexity of managing user identities. With Cognito, developers can choose from various authentication methods, including username and password, social identity providers like Google and Facebook, and enterprise identity providers such as Active Directory. Cognito also supports multi-factor authentication (MFA) and adaptive authentication, enhancing the security of applications. Furthermore, Cognito seamlessly integrates with other AWS services, enabling developers to control access to resources based on user identities and permissions. Its scalability, reliability, and ease of integration make Cognito a valuable tool for building secure and user-friendly applications in the cloud.

CloudWatch

Amazon CloudWatch is a comprehensive monitoring and observability service provided by AWS, designed to give developers insights into their applications, infrastructure, and services running on the cloud. It collects and tracks metrics, logs, and events, allowing users to gain visibility into the performance, availability, and health of their AWS resources in real-time. CloudWatch offers a range of monitoring capabilities, including customizable dashboards, alarms, and automated actions based on predefined thresholds or anomalies. It also provides centralized logging, enabling users to aggregate, search, and analyze logs from various AWS services and applications. With CloudWatch, users can troubleshoot issues, optimize performance, and ensure the reliability of their cloud-based applications effectively. Additionally, CloudWatch integrates seamlessly with other AWS services, enabling users to automate tasks, scale resources dynamically, and maintain operational efficiency. Overall, CloudWatch is a powerful tool that empowers users to monitor, manage, and optimize their AWS infrastructure and applications with ease.

CloudFormation

AWS CloudFormation is a powerful infrastructure as code (IaC) service provided by Amazon Web Services, designed to simplify and automate the process of provisioning and managing AWS resources. With CloudFormation, developers can define their infrastructure in a declarative template using JSON or YAML syntax, specifying the desired configuration and interdependencies between resources. CloudFormation then takes care of provisioning and configuring the resources, ensuring consistency and reliability across environments. This approach enables users to version-control their infrastructure, track changes over time, and replicate configurations across multiple

environments with ease. CloudFormation supports a wide range of AWS services and features, including EC2 instances, S3 buckets, RDS databases, and IAM roles, allowing users to model complex architectures and application stacks efficiently. Moreover, CloudFormation integrates seamlessly with other AWS services, enabling users to automate deployments, update stacks, and manage infrastructure resources programmatically through APIs or the AWS Management Console.

2.5.2 Email JS

EmailJS is a cloud-based service that simplifies the process of sending emails directly from client-side JavaScript applications without the need for server-side code or infrastructure. With EmailJS, developers can easily integrate email functionality into their web applications by simply adding a few lines of JavaScript code. The service supports various email providers, including Gmail, Outlook, and SendGrid, allowing users to send transactional emails, newsletters, and notifications effortlessly. EmailJS provides a straightforward API for sending emails, which includes features such as template rendering, file attachments, and dynamic content generation. Additionally, EmailJS offers robust security features, including SSL encryption and OAuth authentication, ensuring the privacy and integrity of email communications. Overall, EmailJS offers a convenient and efficient solution for developers seeking to incorporate email functionality into their web applications with minimal effort and complexity.

2.6 Database Management

Database management using cloud services revolutionizes the way organizations store, manage, and access their data, offering scalability, reliability, and flexibility unmatched by traditional on-premises solutions. Cloud database services, such as Amazon RDS, Google Cloud SQL, and Microsoft Azure SQL Database, provide fully managed, scalable databases with features like automated backups, replication, and high availability. These services enable organizations to focus on their applications and business logic while offloading the burden of database administration and maintenance to the cloud provider. With pay-as-you-go pricing models, organizations can scale their databases elastically based on demand, minimizing costs and optimizing resource utilization. Additionally, cloud databases offer built-in security features such as encryption, access controls, and compliance certifications, ensuring the confidentiality, integrity, and availability of sensitive data. By leveraging cloud database services, organizations can accelerate innovation, improve agility, and drive business growth while reducing operational overhead and complexity associated with traditional database management.

2.6.1 Dynamo DB

Amazon DynamoDB is a fully managed NoSQL database service provided by AWS, offering high performance, scalability, and low latency for applications requiring fast and predictable data access. DynamoDB is designed to handle massive workloads and scale seamlessly from a few requests per second to millions of requests per second without manual intervention. It provides a flexible data model, allowing users to store and retrieve structured and semi-structured data with ease. DynamoDB's key features include

automatic data replication across multiple availability zones for high availability and durability, built-in security controls with encryption at rest and in transit, and fine-grained access control through AWS Identity and Access Management (IAM) policies. Additionally, DynamoDB offers features like on-demand and provisioned capacity modes, global secondary indexes, and DynamoDB Streams for real-time data processing and analytics. With its fully managed and serverless architecture, DynamoDB enables developers to focus on building applications rather than managing infrastructure, making it an ideal choice for a wide range of use cases, from web and mobile applications to gaming and IoT platforms.

Chapter 3 Work

Done

3.1 Training Program

The internship was divided into broadly two parts - The Training Program and the Working Internship. In the initial days of the internship, I was trained for 15 days on the following:

1. AWS Lambda
2. AWS Cognito
3. CDK and SDK
4. DynamoDB
5. TypeScript

3.1.1 AWS Lambda

AWS Lambda is a serverless computing service that allows us to run code without provisioning or managing servers, making it highly scalable and cost-effective. It supports various programming languages and automatically scales our application by running code in response to triggers such as changes

WBP for Training Completion

Phase 1: 01 Feb, 2024 - 15 Feb, 2024

Date	Section	Topics	Remarks
1st Feb	Section 1,2,3	Intro, AWS CDK & Cloud Formation, AWS CDK-Intermediate	☒
2nd Feb	Section 4,5,6	Serverless Project with CDK, AWS Lambda, AWS DynamoDb with CDK and Lambda	☒
3rd Feb	Section 7,8,9	Halfway Discussion, Securing APIs with AWS Cognito and Cognito identity pools.	☒
4th Feb	Section 10,11,12	UI-General Topics, Using AWS inside a React project, Monitoring with CloudWatch.	☒
5th Feb	Section 13,14	AWS-SDK and CDK Testing, CI/CD with CodePipeline	☒
6th Feb	Section 16	Typescript	☒
7th Feb	Section 1-17	Go through the marked topics and revision of some imp. concepts with practical implementation.	☒

Figure 3.1: A snap from Working Backward Plan of Training Phase

in data, system state, or user actions. AWS Lambda integrates seamlessly with other AWS services, enabling you to build complex, event-driven architectures. It also provides built-in logging and monitoring capabilities through Amazon CloudWatch, ensuring we can maintain visibility and control over the functions. With AWS Lambda, we only pay for the compute time you consume, which optimizes costs for intermittent workloads.

3.1.2 AWS Cognito

AWS Cognito is a service designed to simplify authentication, authorization, and user management for web and mobile applications. It allows developers to add sign-up, sign-in, and access control to their apps quickly. With AWS Cognito, you can manage and authenticate users via user pools, which provide a secure user directory, and identity pools, which enable federated access to AWS services using third-party identity providers like Google, Facebook, and enterprise identity systems. Cognito also supports multi-factor authentication (MFA) and encryption for enhanced security. It integrates seamlessly with other AWS services, enabling secure and scalable applications. Additionally, AWS Cognito offers customizable workflows with Lambda triggers, allowing developers to tailor the authentication process to their specific needs. Following are the properties of AWS Cognito:

1. User Pool
2. Identity Pool
3. Multi-Factor Authentication
4. Federated Access
5. Scalability and Encryption

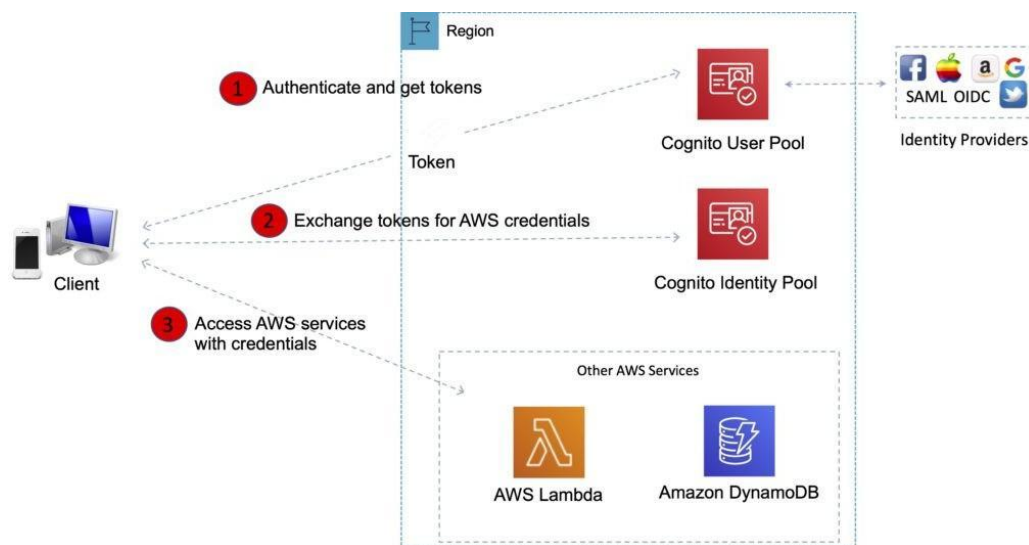


Figure 3.2: Cognito Authentication and Authorization

3.1.3 CDK and SDK

The AWS Cloud Development Kit (CDK) is a powerful framework that allows developers to define cloud infrastructure using familiar programming languages such as TypeScript, Python, Java, and C#. By enabling infrastructure as code (IaC), the CDK simplifies the creation and management of AWS resources through high-level, reusable constructs, streamlining the deployment process. It integrates seamlessly with AWS CloudFormation, leveraging its robust capabilities for provisioning and managing infrastructure while providing a more developer-friendly experience. With AWS CDK, we can model and deploy complex cloud environments with less effort and greater consistency, promoting best practices and reducing the risk of configuration errors.

A Software Development Kit is a comprehensive set of tools, libraries, documentation, and sample code that developers use to create applications for specific platforms or frameworks. SDKs provide the necessary resources to

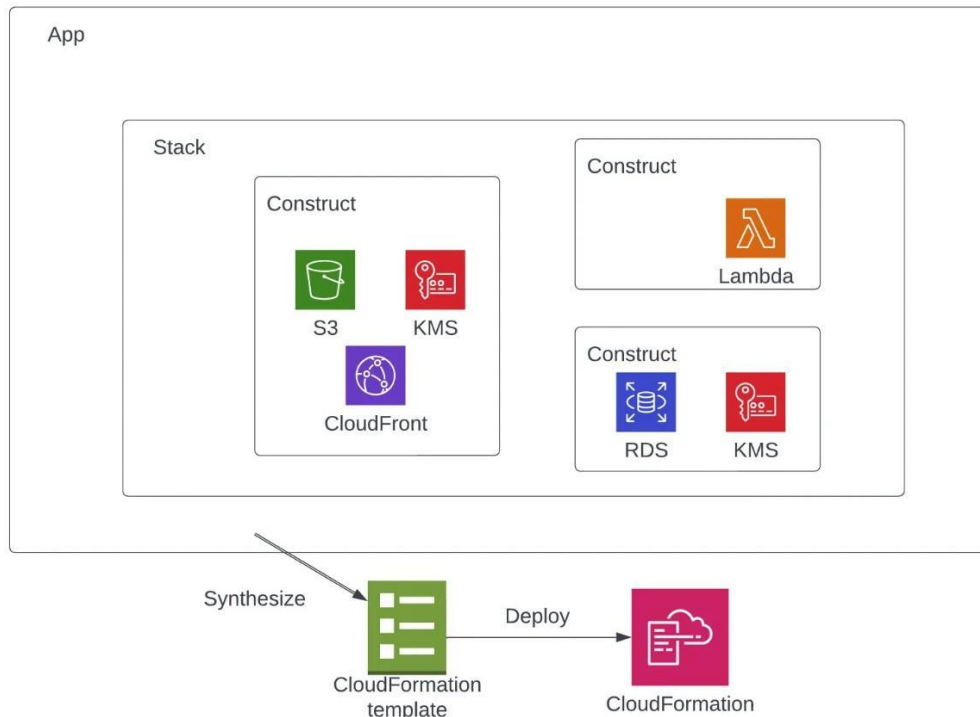


Figure 3.3: Amazon CDK Working

interact with APIs, simplifying the integration of complex functionalities like authentication, data storage, and device capabilities into applications. By offering pre-built components and guidelines, SDKs streamline the development process, reduce time-to-market, and ensure adherence to platform standards. They play a crucial role in enhancing productivity and enabling developers to build robust, feature-rich applications efficiently.

3.1.4 Dynamo DB

Amazon DynamoDB is a fully managed NoSQL database service that provides fast and predictable performance with seamless scalability. Designed for applications that require consistent, single-digit millisecond latency at

any scale, DynamoDB is ideal for use cases such as web and mobile applications, gaming, IoT, and real-time analytics. It automatically handles the administrative burdens of operating and scaling a distributed database, so developers can focus on their application's functionality. Its flexible data model, support for both document and key-value store models, and integrated support for AWS Lambda and other AWS services make DynamoDB a versatile choice for modern applications.

3.1.5 TypeScript

TypeScript is a statically typed superset of JavaScript developed by Microsoft, designed to enhance the development of large-scale applications by adding optional static types. It enables developers to catch errors early through type-checking, improving code reliability and maintainability. TypeScript transpiles to plain JavaScript, ensuring compatibility with existing JavaScript libraries and runtime environments. It offers powerful features like interfaces, enums, generics, and advanced type inference, which help in structuring and organizing code more effectively. With its support for modern JavaScript features and seamless integration with popular frameworks and libraries, TypeScript has become a preferred choice for many developers looking to build robust, scalable, and maintainable applications.

3.2 Assignments

The assignments had various sections designed to test the training knowledge and demonstrate the implementation of specific logics and features within other projects. The primary purpose of these assignments was to ensure that I gained confidence and hands-on experience with these technologies.

```
space-finder-frontent > src > services > DataServices > DataService > reserveSpace
1 import { BatchGetCommand, S3Client } from "aws-cdk/client-v2";
2 import { AuthService } from "../AuthService";
3 import { DataStack, APIStack } from "../../space-finder/outputs.json";
4 import { SpaceEntry } from "../components/model/model";
5
6 const spacesUrl = APIStack.SpacesApiEndpoint36C4F386 + "spaces";
7
8 export class DataService {
9   private authService: AuthService;
10   private s3Client: S3Client;
11   private awsRegion = "ap-southeast-2";
12
13   constructor(authService: AuthService) {
14     this.authService = authService;
15   }
16
17   public reserveSpace(spaceId: string) {}
18   return spaceId;
19
20
21   public async getSpaces(): Promise<SpaceEntry[]> {
22     const getSpacesResult = await fetch(spacesUrl, {
23       method: "GET",
24       headers: {
25         Authorization: this.authService.getToken()
26       }
27     });
28     const getSpacesResultJson = await getSpacesResult.json();
29     return getSpacesResultJson;
30   }
31
32   public async createSpace(name: string, location: string, photo?: File) {
33     // console.log('calling create space!');
34     const space = {} as any;
35     space.name = name;
36     space.location = location;
37     if (photo) {
38       const uploadUrl = await this.uploadPublicFile(photo);
39       space.photoUrl = uploadUrl;
40     }
41   }
42 }
```

Figure 3.4: A file snap from Front-End Directory

```
space-finder > src > infra > stacks > LambdaStack > constructor > actions
export class LambdaStack extends Stack {
  // public readonly helloLambdaIntegration: LambdaIntegration
  public readonly spaceLambdaIntegration: LambdaIntegration
  constructor(scope: Construct, id: string, props: LambdaStackProps) {
    super(scope, id, props)
  }

  const spaceLambda = new NodejsFunction(this, "SpaceLambda", {
    runtime: Runtime.NODEJS_18_X,
    handler: "handler",
    entry: `join(__dirname, '..', '..', 'services', 'spaces', 'handler.ts')`,
    environment: {
      TABLE_NAME: props.spaceTable.tableName
    }
  })

  //updating the IAM policies
  // helloLambda.addToRolePolicy(new PolicyStatement({
  //   effect: Effect.ALLOW,
  //   actions: [
  //     's3:ListAllMyBuckets',
  //     's3:ListBucket'
  //   ],
  //   resources: ["*"] //bad practice
  // })
  spaceLambda.addToRolePolicy(new PolicyStatement({
    effect: Effect.ALLOW,
    resources: [props.spaceTable.tableArn],
    actions: [
      'dynamodb:PutItem',
      'dynamodb:Scan',
      'dynamodb:GetItem',
      'dynamodb:UpdateItem',
      'dynamodb:DeleteItem'
    ]
  })
})
```

Figure 3.5: A file snap from Back-End Directory

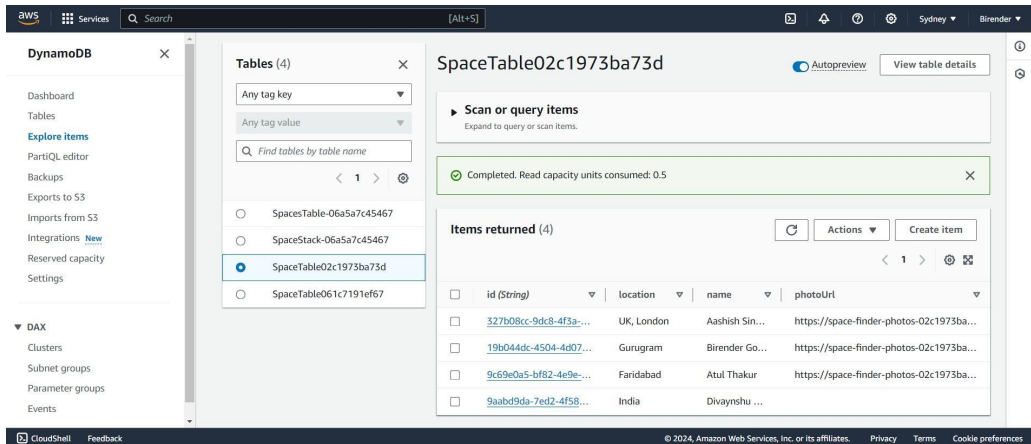


Figure 3.6: DynamoDB Structure

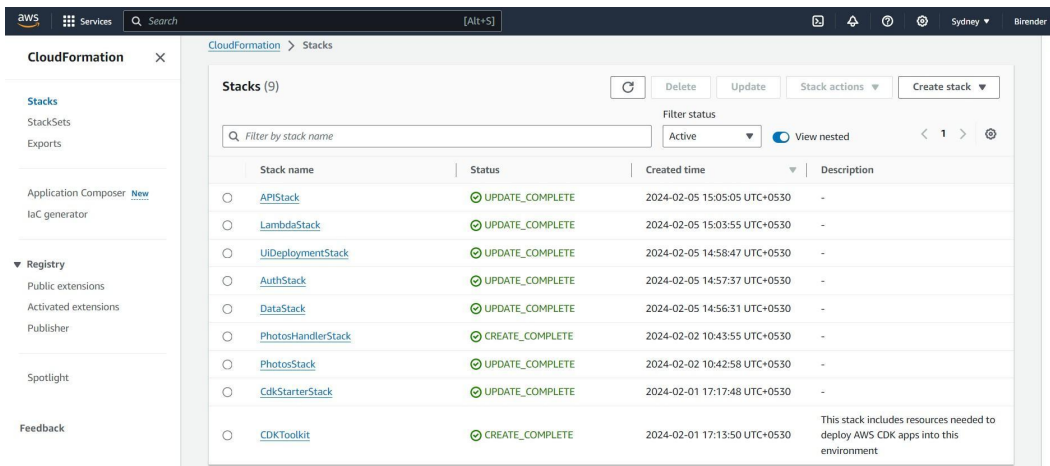


Figure 3.7: Stack Management on CloudFormation

3.3 Project: People Chime Official

During my internship, I developed and deployed the People Chime Official website, now live on the internet. The frontend is built using React TSX, while the backend leverages AWS, with DynamoDB managing the database. This project facilitates interactions between students, employees, and the company's official services. It features two distinct panels: one for requesters (students/employees) and one for administrators. The admin panel empowers administrators to oversee and manage the entire website efficiently. This comprehensive solution showcases my ability to integrate and implement advanced technologies in a professional setting.

3.3.1 Landing Page

Below are the snaps of the Landing Page of People Chime Official Website

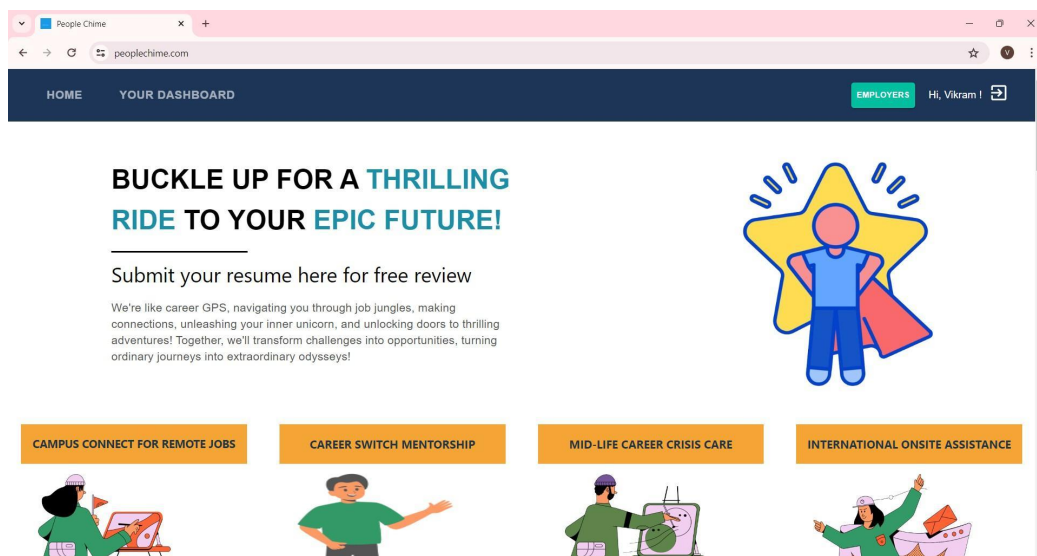


Figure 3.8: Landing Page - Part 1

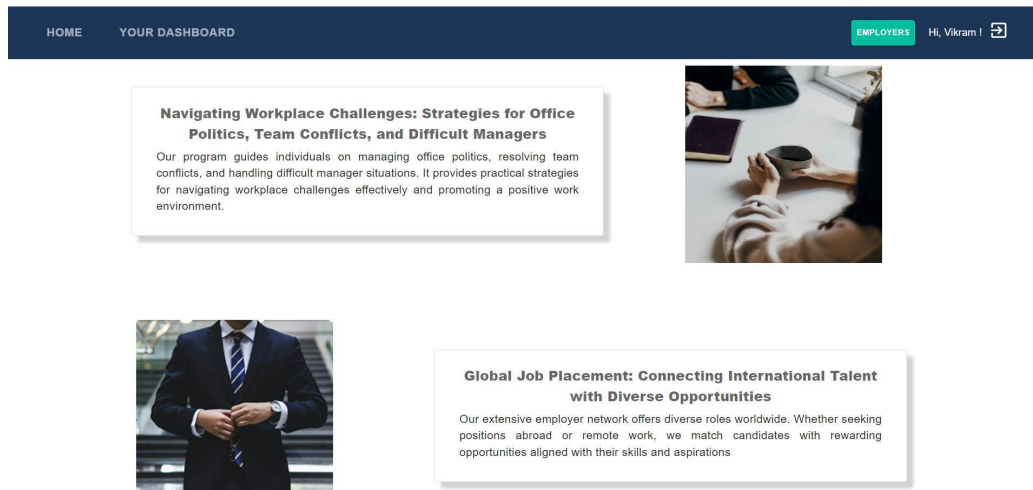


Figure 3.9: Landing Page - Part 2

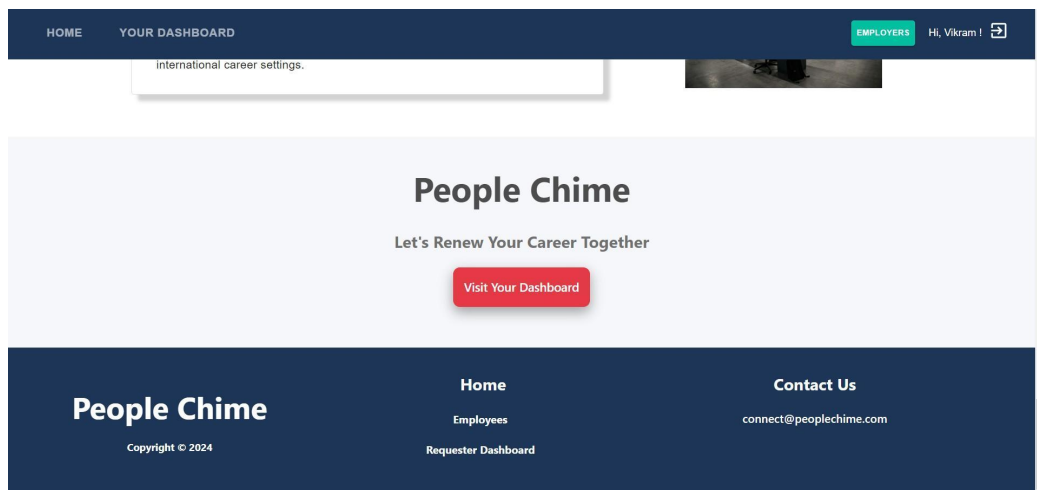


Figure 3.10: Landing Page - Part 3

3.3.2 Employers Page

In the employers page, the employees can check the hiring and the services for employers and using "GET IN TOUCH" button, they can contact us.

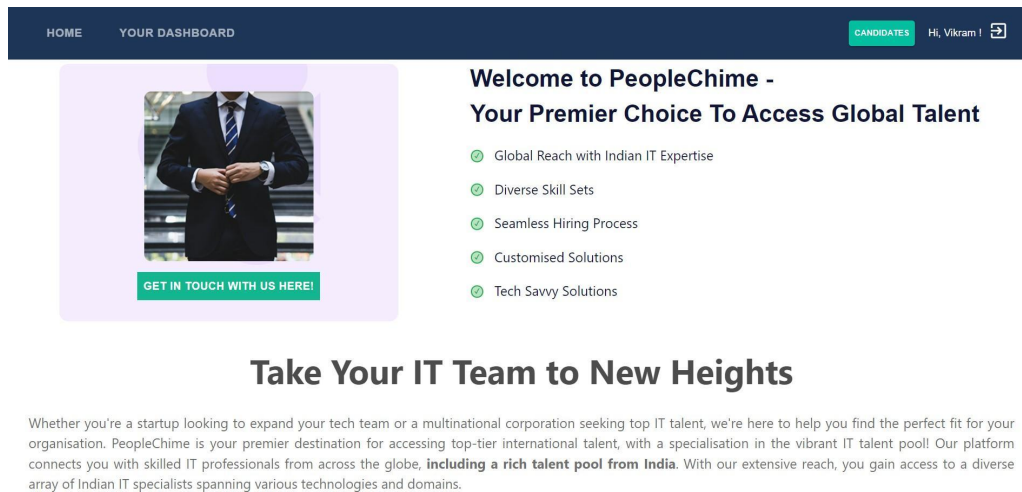


Figure 3.11: Employers Page

The screenshot displays the 'GET IN TOUCH WITH US HERE' contact form. The header is consistent with the previous page. The form is centered on a white background. It includes five input fields: 'Your Name', 'Company Name', 'Company Email', and 'Contact Number' (which has a dropdown for country code, currently showing '+91'). Below these is a larger 'Purpose' text area. At the bottom, there are two blue buttons: 'SUBMIT YOUR DETAILS' and 'BACK TO HOME PAGE'.

Figure 3.12: Contact Form

3.3.3 Student Request Forms

In this website, we have four main services:

1. Campus Connect fro Remote Jobs
2. Career Switch Mentorship
3. Mid-Life Crisis Care
4. International Onsite Assistance

CAMPUS CONNECT FOR REMOTE JOBS

Attach Your Resume

Choose File No file chosen

Pick the plan that best suits you

Resume Review

₹-999

Free

Resume Review

FREE

☒ Selected

Job Assistance

₹-999

Free

Job Assistance

FREE

☒ Selected

Carrer Fabrication

₹-3000

₹ 999

Career Fabrication
Resume Tailoring and Journey Weaving

☐ Select

Remote Job Career Counseling

₹-9000

₹ 4999

Remote Job Career Counseling
Expert-Designed Mock Tests and Interviews

☐ Select

Special Remarks

SUBMIT

Figure 3.13: Campus Connect for Remote Jobs : Request Form

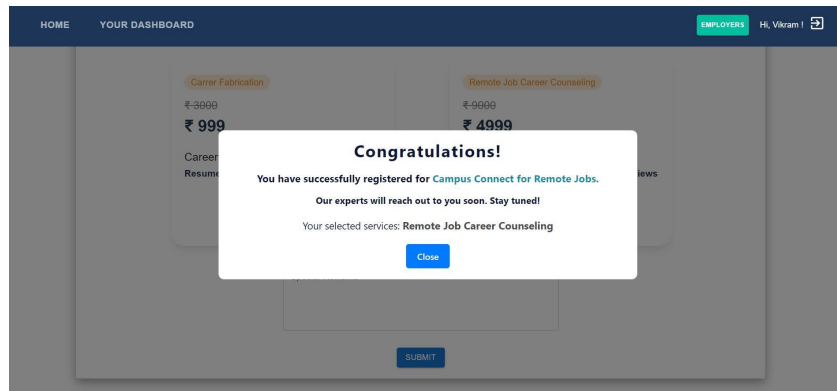


Figure 3.14: Pop-Up after form Submission

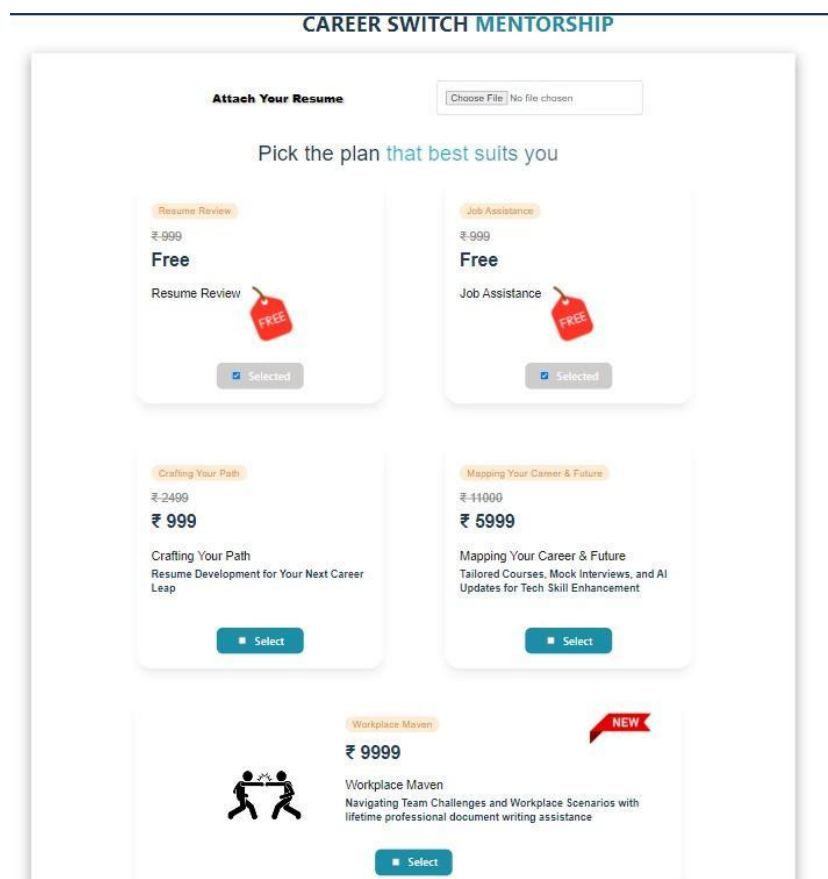


Figure 3.15: Career Switch Mentorship Page

Similarly, Mid-Life Career Crisis Care and International Online Assistance has their respective forms and the students can visit the forms and submit their requests if they want by selecting appropriate pricing plan.

3.4 Outcomes

To show the outputs, we have two different panels. One is for student which is the requester dashboard where all the submitted requests by the students will be shown to them. Another one is Admin Panel which is only shown to the admins for the maintenance of website and to manage student's requests.

3.4.1 Requester Dashboard

In Requester Dashboard, the user can check the status for all types of request. Also, each type consists of four toggles. These are Resume Review, Resume Development, Mock Tests and Mock Interviews. According to there selected plans, the status and data will be displayed.

The screenshot displays the 'Campus Connect For Remote Jobs' dashboard. The top navigation bar includes 'HOME', 'YOUR DASHBOARD', and a user profile section with 'EMPLOYERS', 'Hi, Vikram!', and a logout icon. The left sidebar contains a 'Check Your Request' section with links to 'Campus Connect for Remote Jobs', 'Career Switch Mentorship', 'Mid-Life Career Crisis Care', and 'International Onsite Assistance'. The main content area shows a table with request details: 'Date of Review' (2024-06-05), 'Selected Services' (Remote Job Career Counseling), 'Your Notes at time of Request Submission', and 'Resume submitted by user' with a 'DOWNLOAD YOUR RESUME' button. Below this is a tabbed interface with 'Resume Review' selected, showing 'Review Status' (Reviewed), 'Reviewed Resume' (with a 'DOWNLOAD REVIEWED RESUME' button), 'Previous ATS Score' (40), and 'New ATS Score' (41). Other tabs include 'Resume Development', 'Mock Tests', and 'Mock Interviews'.

Campus Connect For Remote Jobs	
Date of Review	2024-06-05
Selected Services	Remote Job Career Counseling
Your Notes at time of Request Submission	
Resume submitted by user	DOWNLOAD YOUR RESUME
Resume Review Resume Development Mock Tests Mock Interviews	
Review Status	Reviewed
Reviewed Resume	DOWNLOAD REVIEWED RESUME
Previous ATS Score	40
New ATS Score	41

Figure 3.16: Dashboard : When the request has been reviewed



Figure 3.17: Dashboard : When the request has not reviewed

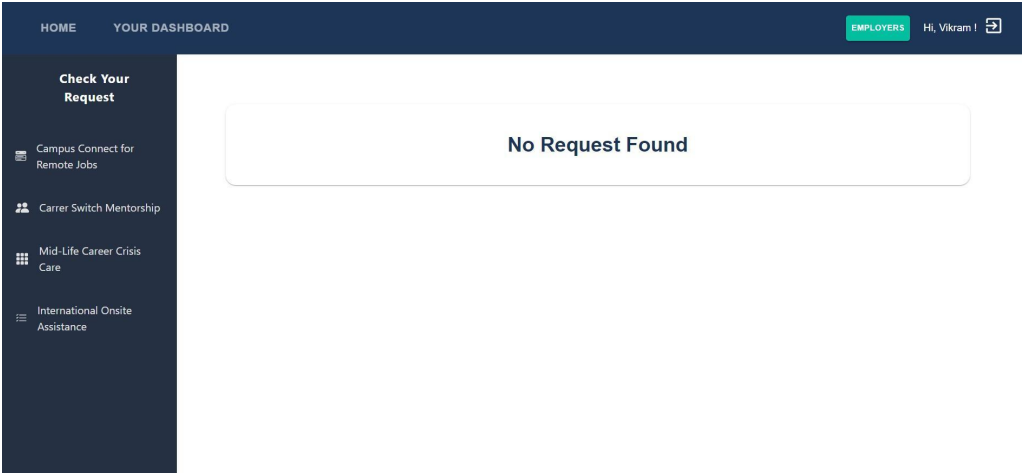


Figure 3.18: Dashboard : When the user has not submitted any request

3.4.2 Admin Panel

The Admin Panel, which is the reviewer dashboard, is only visible to the admin groups. It has two major parts: Resume-Review and Employers- Contact-Details. Admin can switch between these two to check the requests received from students or employers. Back to Resume Review Section, their

HOMEYOUR DASHBOARDREVIEWER DASHBOARDEMPLOYERSHi, Birender !

Resume-Review

Employers-Contact-Details

PENDING

REVIEWED

Review Requests

Username	Date of Request	Expected Date of Review	Customer's Selected Services	Requester Notes	Reviewer Notes	Status	ACTIONS
google_1105...	2024-05-24	2024-06-07	Basic	Hy! Please review my res...		Pending	CLICK TO EDIT
google_1167...	2024-05-23	2024-06-06	Basic	Review my resume		Pending	CLICK TO EDIT
google_1031...	2024-06-05	2024-06-19	Resume Review, Job Assistance			Pending	CLICK TO EDIT
google_1031...	2024-06-05	2024-06-19	Mapping Your Career & Future			Pending	CLICK TO EDIT

Figure 3.19: Resume Review: All Types of Submitted Request Here

HOMEYOUR DASHBOARDREVIEWER DASHBOARDEMPLOYERSHi, Birender !

Resume-Review

Employers-Contact-Details

Employers Contact Details

Date of Request	Name of Employer	Contact Number	Company Name	Company Email Id	Purpose
2024-06-03	01-June-Testing	914579584630	LMF Web Solutions	try@test.data	Hy
2024-05-10	Birender Singh	918597525046	People Chime	bs@happy.com	
2024-05-08	Birender	91123	People Chime	heelo@india.test	
2024-05-06	Test 1	919813765284	Google	google@test.com	
2024-05-18	Hey !	917849356204	Test !	hey@test.com	

Figure 3.20: Employers-Contact-Details: Check Contact Details

is a sub-toggle which toggles between the Pending Requests and the Reviewed Requests. Initially, by default, it is on Pending which can be seen in Figure 3.19 where all the pending requests has been shown. Now when we click on "REVIEWED", then all the reviewed requests will be shown. In case of pending requests, there is an action tab, which we can click to edit and further do the review/revamp for the submitted requests.

When the reviewer will click on "Click to Edit" button, then they are navigated to a form, from where they can download the requester resume, make the required changes, update the new file, and add some notes to the requester that can help them to improve their resume. Other than this, they can also update the ATS scores, interview series and mock tests series too. Figure 3.22 shows the form UI and how it works.

The screenshot displays the 'REVIEWER DASHBOARD' with a navigation bar containing 'HOME', 'YOUR DASHBOARD', and 'REVIEWER DASHBOARD'. The 'EMPLOYERS' tab is active, showing 'Hi, Birender !'. Below the navigation bar, there are two tabs: 'Resume-Review' (selected) and 'Employers-Contact-Details'. A toggle switch is present with 'PENDING' and 'REVIEWED' options, where 'REVIEWED' is selected. The main content area is titled 'Review Requests' and contains a table with the following data:

Username	Customer's Selected Services	Requester Notes	Reviewer Notes	Status
91a33daa-00...	Professional		Hi Maria, Thanks for shari...	Reviewed
google_1142...	Basic		Hi Soham, Thanks for sha...	Reviewed
google_1031...	Remote Job Career Counseling		Here are some sample pa...	Reviewed
google_1043...			best cv ever :D	Reviewed

Figure 3.21: Switch to "REVIEWED" button to check Reviewed Requests

HOMEYOUR DASHBOARDREVIEWER DASHBOARDEMPLOYERSHi, Birender

Requester Notes

Hi! Please review my resume :)

DOWNLOAD CV UPLOADED BY USER

Reviewer Notes

Reviewer Notes

ATS Scores

Previous ATS Score

New ATS Score

Choose Reviewed File

Choose File

No file chosen

Upload New CV, if any

Choose File

No file chosen

SUBMIT YOUR REVIEW

Figure 3.22: Review Request Page



Success!

Review Updated!

Figure 3.23: Status after submitting the review - Message

HOMEYOUR DASHBOARDREVIEWER DASHBOARDEMPLOYERSHi, Birender

Check Your Request

Campus Connect for Remote Jobs

Carrer Switch Mentorship

Mid-Life Career Crisis Care

International Onsite Assistance

Campus Connect For Remote Jobs

Date of Review2024-06-06

Selected ServicesBasic

Your Notes at time of Request SubmissionHi! Please review my resume :)

Resume submitted by user

DOWNLOAD YOUR RESUME

Resume Review

Resume Development

Mock Tests

Mock Interviews

Review StatusReviewed

Reviewed Resume

DOWNLOAD REVIEWED RESUME

Previous ATS Score50

New ATS Score49

Reviewer NoteHi! Thank You for connecting! We have checked your request and updated your CV. Please download your updated CV. Thank you :)

Figure 3.24: Data Display in Requester Dashboard

3.5 Compatibility Testing

This website is running seamlessly in different environments, including various devices, applications, operating systems, browsers, and network environments. It is verified that this website is capable of running on different hardware, operating systems, applications, network environments, or devices having different screens including mobiles, tablets, and many laptops.

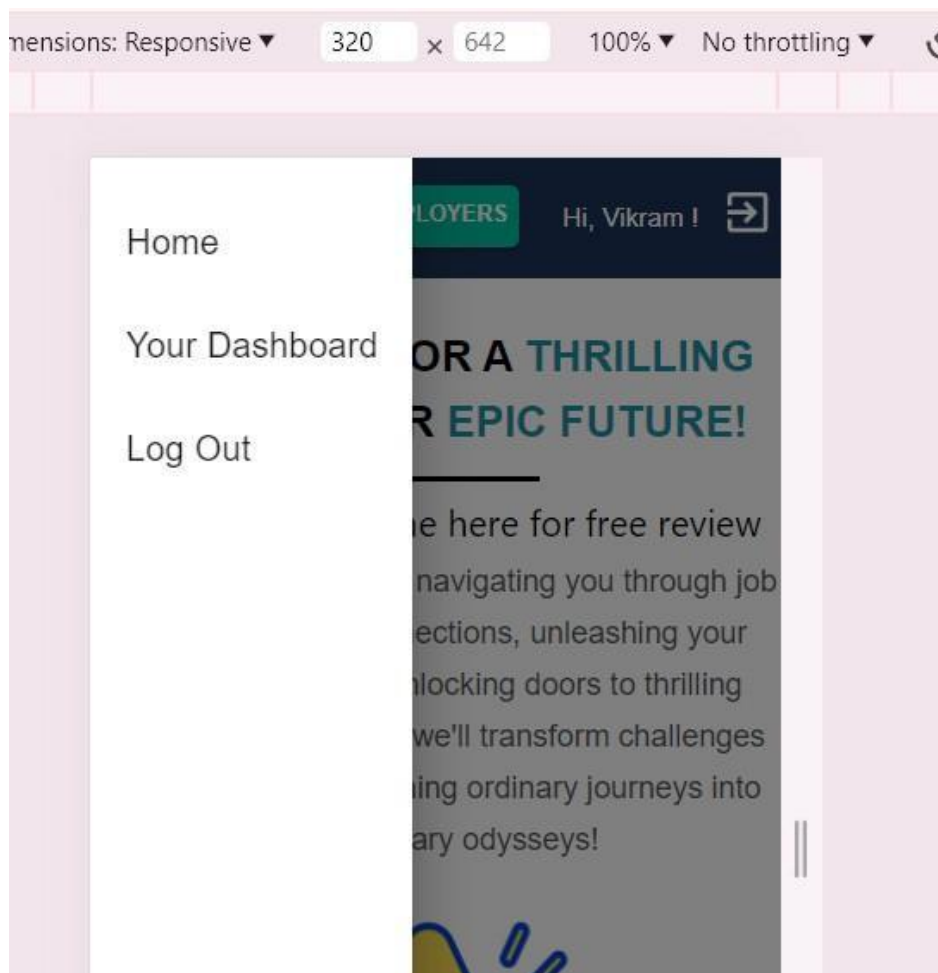


Figure 3.25: Mobile View in Different Browsers after Login

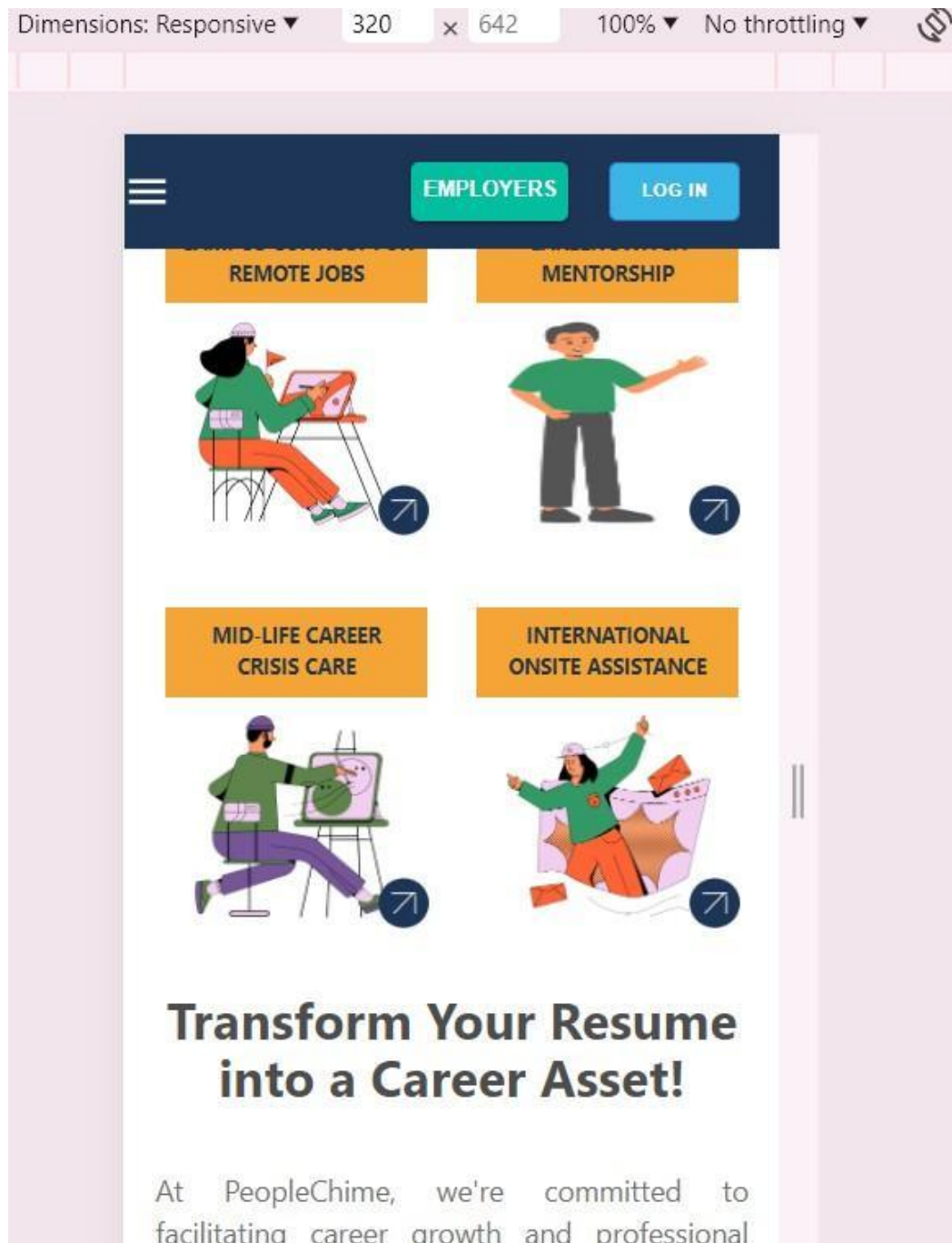


Figure 3.26: Mobile View in Different Browsers after Logout

Chapter 4

Challenges & Learning

4.1 Challenges

I faced some challenges during the course of my Internship and that too mainly during the Assignment and Project phase as in the training phase it was mostly a learning period and the doubts were well handled by the seniors and Mentors. Some of them are as follow:

1. Understanding Complex Codebases: I often need to familiarize myself with large, existing codebases, which was very overwhelming. Understanding the architecture, coding standards, and the logic of previously written code requires time and effort.
2. Adapting to Company Culture: Integrating into the company culture and understanding the workflow, communication channels, and team dynamics was challenging for me as I was new to the professional environment.
3. Managing Time Effectively: Balancing multiple tasks, such as coding, attending meetings, and learning new technologies was difficult. I conclude that I need to develop strong time management skills to handle

their responsibilities efficiently.

4. Learning New Technologies: I was supposed to work with tools and technologies they were unfamiliar with me. Quickly learning and adapting to these new technologies is crucial for the success in the role of SDE and it was really very challenging for me.
5. Handling Feedback and Iteration: Receiving and acting on constructive feedback was a challenging task. We should learn to handle feedback positively and iteratively improve our work based on the suggestions provided by our mentors and peers.

4.2 Learnings

According to my internship experience, People Chime, India offered me a positive work culture and courteous personnel at all levels. The instructors and managers are knowledgeable in their subjects and treat everyone fairly. Every activity, no matter how difficult or simple, requires a lot of teamwork, and the mood is always peaceful and welcoming. Because of the excellent communication and support available, there is a lot of room for self-improvement. Interns were well treated and educated, and all of our questions and concerns about the training or the firms were addressed. All in all, People Chime was a great place for a fresher to start career and also for a corporate to boost their career. It has been a great experience to be an intern in such a reputed organization as I not only enriched my technical knowledge on the Software Development concepts but even learned the work culture and ethical aspects of Corporate Career. People Chime India offered me full-time role for SDE-1 and now I am officially contributing to the team in this capacity, and I couldn't be more excited about the journey ahead.

Chapter 5

Conclusion

After completing my internship, I had been exposed to both scientific and corporate working life. My internship experience in software development engineering has been an invaluable opportunity to apply theoretical knowledge in a practical setting and gain hands-on experience in this rapidly evolving field. Throughout the internship, I encountered several challenges and worked diligently to overcome them, thereby enhancing my technical skills, problem-solving abilities, and professional growth.

Effective communication with stakeholders played a vital role in the success of my internship. By actively engaging with team members, supervisors, and other relevant individuals, I was able to seek feedback, clarify project objectives, and contribute to collaborative discussions. This experience honed my interpersonal and communication skills, which are crucial for thriving in a team-oriented work environment.

In conclusion, my internship in software development engineering has been a transformative experience. The challenges I encountered have shaped me into a more resilient, adaptable, and skilled practitioner in this field. I am grateful for the opportunity to work on real-world projects, contribute to the organization's goals, and further my knowledge in software development and

object-oriented concepts.

Moving forward, I will continue to build upon the lessons learned during this internship, applying them to future endeavors. I am confident that the skills and experiences gained will serve as a solid foundation for my career in software development and logic building, enabling me to tackle complex challenges and make significant contributions to the field. I look forward to utilizing the knowledge and skills acquired during this internship to drive innovation and create meaningful impact in future web and app-driven projects.

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