



## **Pathfinder: A Tag-Based Career and Training Matching Platform**

A Research Presented  
to the Faculty of School of Architecture, Computing, and Engineering  
University of Saint Louis Tuguegarao

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of the Requirements for the Degree  
Bachelor of Science in Information Technology

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## **DEDICATION**

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## ACKNOWLEDGEMENT

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## ABSTRACT

The prevailing issue of skills mismatch in the labor market creates significant barriers for job seekers, particularly unemployed youth, who struggle to access relevant training and validate their competencies against employer demands. To address these challenges, this study developed Pathfinder, a web-based career and training-matching application utilizing the Rapid Application Development (RAD) model to ensure adaptability to user feedback and operational standards. The system features a unique Career-Training Matching Engine that links applicant career goals with specific training tags. The web application was evaluated by 34 end-users using the USE (Usefulness, Satisfaction, and Ease of Use) Questionnaire and 13 IT experts using ISO/IEC 25010 software quality standards, with data analyzed using weighted means. The results demonstrated an overall rating of "Strongly Agree" (4.55) from end-users and "Agree" (4.07) from experts, confirming that Pathfinder successfully provides a centralized, zero-cost platform that empowers the workforce and bridges the gap between education and employment.

**Keywords:** *Career-Training Matching, Rapid Application Development, Skills Mismatch, Web Application*

## INTRODUCTION

The global landscape of hiring is undergoing a transformation, shifting away from a system that prioritizes educational credentials toward one that values demonstrable competency. This "skills-first" paradigm prioritizes knowledge and abilities over formal degrees; a change designed to expand talent pools and improve how people are matched to jobs [1]. This transition mirrors economic changes over the last half-century, where the demand for competencies such as communication, leadership, and problem-solving has risen alongside a decline in demand for physical labor [2]. Despite these shifts, the hiring process still filled with conflicts. Employers struggle to identify the right talent, often relying on ambiguous and overstuffed job postings that fail to articulate precise requirements. Qualified candidates often get discouraged and preemptively exclude themselves from the application process [3]. This issue is particularly acute in developing economies like the Philippines, which has a documented history of labor mismatch where workers are frequently over-skilled or under-skilled, lacking the requisite competencies for their current roles [4].

When the workforce disconnects from market needs, vulnerable populations suffer the most, facing career trajectories defined by lower lifetime earnings and reduced job satisfaction [4]. On a macroeconomic scale, this skills mismatch serves as a primary driver of productivity loss; evidence suggests that optimally aligning the supply of skills with demand would result in significantly lower unemployment [5]. Statistical data confirms the severity of this structural gap. Approximately 35% of workers in OECD countries are mismatched by qualification [5]. In the Philippines, the situation is critical; studies regarding Technical Vocational and Livelihood (TVL) graduates in Butuan City revealed a mismatch incidence of 64%, indicating a severe failure to align educational specialization with employment outcomes [6]. Furthermore, national data indicates that youth unemployment rates have reached 13.5%, more than double the national average, highlighting the persistent difficulty entry-level candidates face in meeting specific skill requirements [7].

While digital platforms function as primary intermediaries in the labor market, they often present significant barriers to entry rather than solutions. Accessing the high-quality training necessary to bridge skill gaps is often financially prohibitive. For instance, platforms like LinkedIn Learning operate on a subscription model costing between \$19.99 and \$39.99 per month [8]. While some corporations subsidize

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these costs for employees, this pricing structure effectively locks out unemployed youth and low-income job seekers who lack such institutional support [9]. Additionally, although public workforce development programs exist, they often struggle to connect participants to high-quality "opportunity occupations" that offer living wages, prioritizing instead immediate, lower-quality "in-demand" roles [10].

Existing workforce technologies, such as machine learning-based career guidance systems, have demonstrated viability in offering tailored career suggestions based on academic performance and interests [11]. However, a critical research gap remains regarding the convergence of functional specificity and economic accessibility. Current platforms often fail to provide a standardized, automated linkage between employer skill demands and cost-free skill acquisition pathways. There is a distinct need for systems that enhance "skill signaling", explicitly linking required KSAs to recognized credentials, to assist candidates in understanding which skills yield labor market value [3]. Furthermore, many firms that claim to remove degree requirements fail to alter their actual hiring behavior, often because they lack the internal processes to validate skills without educational proxies [12].

To address these deficits, this study aims to develop "Pathfinder," a web-based application designed to centralize career opportunities and free training programs relevant to the localized labor market [7]. The specific objectives include implementing a matching mechanism to systematically link training programs to career opportunities and streamlining administrative processes, such as document submission and interview scheduling. This study is significant as it provides a direct economic intervention by curating zero-cost resources, thereby promoting equity. Moreover, enabling a genuine skills-based hiring approach is mutually beneficial; research indicates that non-degreed workers hired into roles based on skills demonstrate a 10-percentage point higher retention rate and realize a 25% salary increase compared to their previous roles [12].

This research focuses on the localized labor market of Tuguegarao City, specifically targeting college students and job seekers [7]. The development utilizes the Rapid Application Development (RAD) methodology. RAD was selected for its emphasis on rapid prototyping and iterative user feedback, ensuring an accelerated deployment timeline and allowing for the development of high quality web application that can adapt to evolving user requirements while minimizing development costs [13][14].

## Research Objectives

The study aims to develop a career and training-matching web application that automatically matches the target career selected by the applicant with training posts that have similar tags. The system will be created using the RAD model or Rapid Application Development model.

Specifically, it aims to:

1. Evaluate the developed system based on selected ISO/IEC 25010 software quality characteristics such as
  - A. Functional Suitability
  - B. Compatibility
  - C. Usability
  - D. Security
  - E. Portability
2. Assess the users' perception of the system's effectiveness using the USE (Usefulness, Satisfaction, and Ease of Use) Questionnaire.

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## Significance of the Study

The study addresses the need for a centralized platform to access different organizations' training programs that increase job prospects in a competitive job market. By combining various training programs and career opportunities into a user-friendly web application, Pathfinder empowers college students and job seekers to find relevant resources based on their career goals. Organizations also benefit from increased visibility for their training programs and career opportunities. It emphasizes the challenges individuals face in navigating multiple platforms and the need for greater visibility of training offerings.

## Related Works

### Use of Social Media in Disseminating Training and Career Opportunities

Nowadays, social media platforms are widely used for sharing information quickly. Through social media platforms like blogs, forums, video sharing, and online communities, organizations can advertise their training and career opportunities and reach their audiences immediately [15]. Platforms like Facebook and Twitter are no longer just social tools because they are now used to share job and career postings. For that reason, social media platforms allow people to access content from government sources, organizations, as well as career professionals, creating an inclusive experience for all [16]. Social media also plays a powerful role in long-term career development. Social networks help professionals grow their online presence, connect with mentors, and access valuable learning content. At the same time. These platforms allow organizations to directly promote training programs and career opportunities [17].

Platforms like Facebook, and Twitter are widely used for job and training searching, but many people still consider these platforms as personal spaces. Many respondents expressed discomfort with the idea of constantly managing their profiles for professional reasons, and they prefer to keep their personal and professional lives separate [18]. Also, these platforms are mainly used for personal and entertainment purposes. Hence, researchers proposed improvements for making job-related content more visible and accessible on the platform [19].

Although social media helps people access employment information, the dissemination of various content on these platforms poses a challenge for users trying to navigate job and training opportunities efficiently. Users often have to visit multiple pages or rely on chance encounters with posts, rather than having a centralized, user-friendly system dedicated to career and training development. In addition, while some platforms may help users discover training opportunities, and others may offer resume creation or certificates, these features are often separated across different websites or applications, leading users to jump between multiple websites or applications just to prepare for job applications, which can be confusing and time-consuming.

### Job Portals and Career Matching Platforms

On the other hand, job portals and career matching platforms are making the hiring and job search process efficient by utilizing effective and user-centered processes to enhance the connection between applicants and employers and replace traditional system when it comes to job searching with the use of

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optimized keyword searches, simple data inputs, and real-time data exchange to make the job searching to application process simpler for all [20].

PhilJobNet is an online platform created by the Philippine Department of Labor and Employment to make job searching easier for applicants and help employers find the right people faster. It works as a job and applicant matching system. Also, PhilJobNet offers helpful career resources, which are useful for students, job seekers regarding their career decisions [21].

CareerConnect is a website with built-in artificial intelligence and machine learning that connects job seekers to jobs suited to their skills and preferences and suggests appropriate applicants to hiring managers. CareerConnect also incorporates other features such as skill dashboards, live chat, multilingual support, resume support, and video interviews to enhance usability and accessibility [20].

On the other hand, Cultiv8me.ph focuses on interns and recent graduates. As opposed to general job portals, cultiv8me.ph has features that allow interns and graduates to file an internship, recommend career opportunities aligned with their chosen profession [22].

Another application is the Job Matcher Web Application, which uses filtering and recommender systems to make job recommendations more efficient [23].

Lastly, LinkedIn is a very popular job searching site connecting professionals and offering learning resources, as well. LinkedIn Learning is a subsidiary of LinkedIn, which offers courses created by organizations that purchased a learning hub license from them. However, it lacks access to free training programs from NGOs, government agencies, or smaller institutions [24].

These platforms demonstrate how digital job matching tools are not just helping people find jobs, but are actively supporting career growth, as well [25].

With that being said, job portals and career matching platforms lack integration with training or skill development resources that are crucial for enhancing an applicant's employability. These systems provide minimal to no support to users when it comes to skill development because they focus heavily on matching applicants with employers. Hence, this highlights the need for a unified platform that not only connects users with job opportunities but also empowers them to upskill and prepare through accessible training programs.

## Impact of Training Programs on Employment Outcomes

Vocational training programs are recognized as a critical medium to improve employability and address unemployment challenges. Mustajab and Irawan's research highlights the role of vocational training in equipping individuals with the necessary skills to adapt to evolving labor market demands. Their findings indicate a positive correlation between participation in training programs and improved employment outcomes [26].

In addition, Ullah and Asghar emphasize the importance of specialized training in improving job performance among office workers in educational institutions. Their study demonstrates that structured training boosts technical competencies. The insights from this research emphasize the need for

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organizations to implement training programs that align with employee needs, increasing workplace productivity [27].

Casalone and Baici further contextualize the impact of vocational training within the concept of public policy, particularly in Italy. Their findings suggest that the effectiveness of vocational training programs depends on the existing labor market conditions. It implies that well-designed training programs can improve youth employability when aligned with the evolving labor market demands. It highlights the importance of adaptive training programs focusing on immediate employment outcomes and empowering participants through skill development and networking opportunities with potential employers [28].

### **Efficacy and Structure of Rapid Application Development (RAD)**

Rapid Application Development (RAD) is a system development life cycle strategy designed to deliver higher quality systems at a faster pace than traditional life cycles. Unlike the rigid structure of the Waterfall model, RAD is an incremental approach that prioritizes rapid prototyping, structured techniques, and continuous user involvement over extensive upfront planning. The methodology is particularly effective for projects where technical and business requirements must be aligned through constant feedback, as it allows the project owner to review progress after each phase [29].

The structural model of RAD typically follows four distinct stages: Requirements Planning, User Design, Construction, and Transition (or Cutover). During the initial phases, the focus is on establishing a general understanding of business functions and defining the system scope through workshops. The subsequent User Design and Construction phases utilize prototyping tools to create visible models of the system, allowing users to validate requirements and suggest amendments early in the process. This "design-and-build" approach ensures that the resulting software is tuned to the actual needs of the end-users rather than theoretical specifications [30].

RAD offers distinct advantages for web-based application development. It facilitates the earlier realization of business benefits and ensures that capacity is utilized to meet urgent business needs. By utilizing component-based approaches and allowing for fast fundamental reviews, RAD enables easier adaptation to changing requirements [31]. Furthermore, comparative studies on computing graduation projects have indicated that projects managed via RAD can perform significantly better in providing extensive and elaborated documentation compared to those using Agile techniques, specifically scoring 13.33% higher in documentation quality in one case study. This balance of speed, user-centric design, and documentation makes RAD a suitable framework for developing platforms that require validation from multiple stakeholders, such as applicants and organizations [30].

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## METHODOLOGY

### Rapid Application Development (RAD)

Pathfinder was developed using the Rapid Application Development (RAD) model, which emphasizes rapid prototyping, continuous user involvement, and iterative refinement. RAD was selected due to the project's need for consistent validation from stakeholders such as applicants and organizations. This model allowed the developers to transform user requirements into working prototypes, gather real-time feedback, and revise system features dynamically.

### Requirements Planning Phase

In the requirements planning phase, the project proposal and initial concepts were presented to the target administrators of the web application. Requirements were gathered through interviews with representatives from the Department of Information and Communications Technology (DICT) Region II.

As the DICT serves as the primary target administrator for the web application, their specific operational standards were prioritized. During these meetings, administrators described their existing workflows, enabling the developers to validate requirements and align system functionalities with national standards and organizational processes.

### User Design Phase

During the user design phase, the developers translated the validated requirements into logical and visual designs. Two primary tools were utilized to ensure both the user experience and data integrity were addressed:

- **Figma** - Used to create detailed User Interface (UI) and User Experience (UX) prototypes, illustrating how distinct user roles: applicants, organizations, and administrators, would navigate the web application.
- **Lucidchart** - Used to design the database schema. This allowed developers to visualize entity relationships and ensure the data structure could support the complex queries required by the system.

### Construction Phase

Once the interface and database designs were finalized, development transitioned to the construction phase. The developers implemented the project using a modern web development stack designed for scalability and performance.

- Frontend: Vue.js and Tailwind CSS
- Backend: Laravel
- Database & Storage: PostgreSQL and Supabase

The development followed an iterative cycle, where modules were built, tested, and revised based on continuous feedback to ensure the stack components integrated seamlessly.

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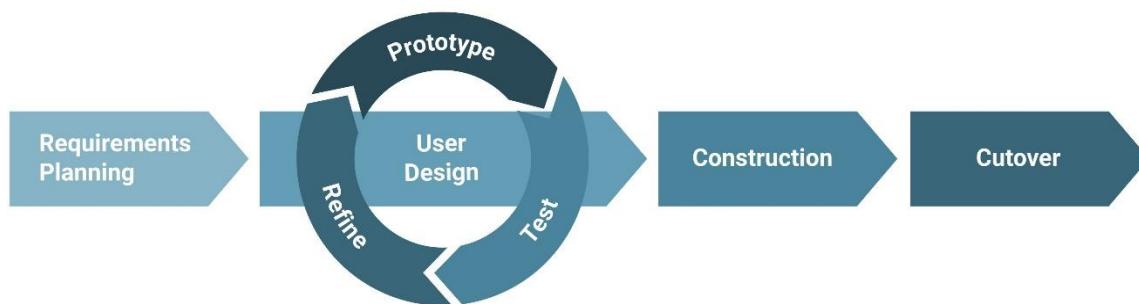
## Cutover Phase

In the cutover phase, the web application underwent rigorous testing and validation to ensure readiness for deployment. A crucial part of this phase involved presenting the system to a panel of distinct organizations to assess alignment with operational needs. These organizations included:

- Department of Information and Communications Technology (DICT) Region II
- Center for Digital Transformation (CDT) - USLT
- Technical Education and Skills Development Authority (TESDA) Region II

All inputs and recommendations from these organizations were synthesized and implemented. Following these refinements, the web application was deployed online using Render to ensure live accessibility. This deployment allowed for the final evaluation and presentation to the end-users in a live production environment.

## Process Model



**Figure 1: Rapid Application Development**

The Rapid Application Development (RAD) model serves as the ideal framework for developing Pathfinder because it prioritizes continuous user involvement and iterative refinement, which are essential for aligning the system with the diverse needs of applicants and organizations. As illustrated in the process model (Figure 1), the central "User Design" loop consisting of prototyping, testing, and refining enables the developers to validate requirements dynamically and incorporate real-time feedback before finalizing the code in the Construction phase. This approach not only ensures the application adheres to national operational standards but also accelerates the deployment timeline while minimizing development costs by identifying and resolving design flaws early in the lifecycle.

## Use Case Diagram

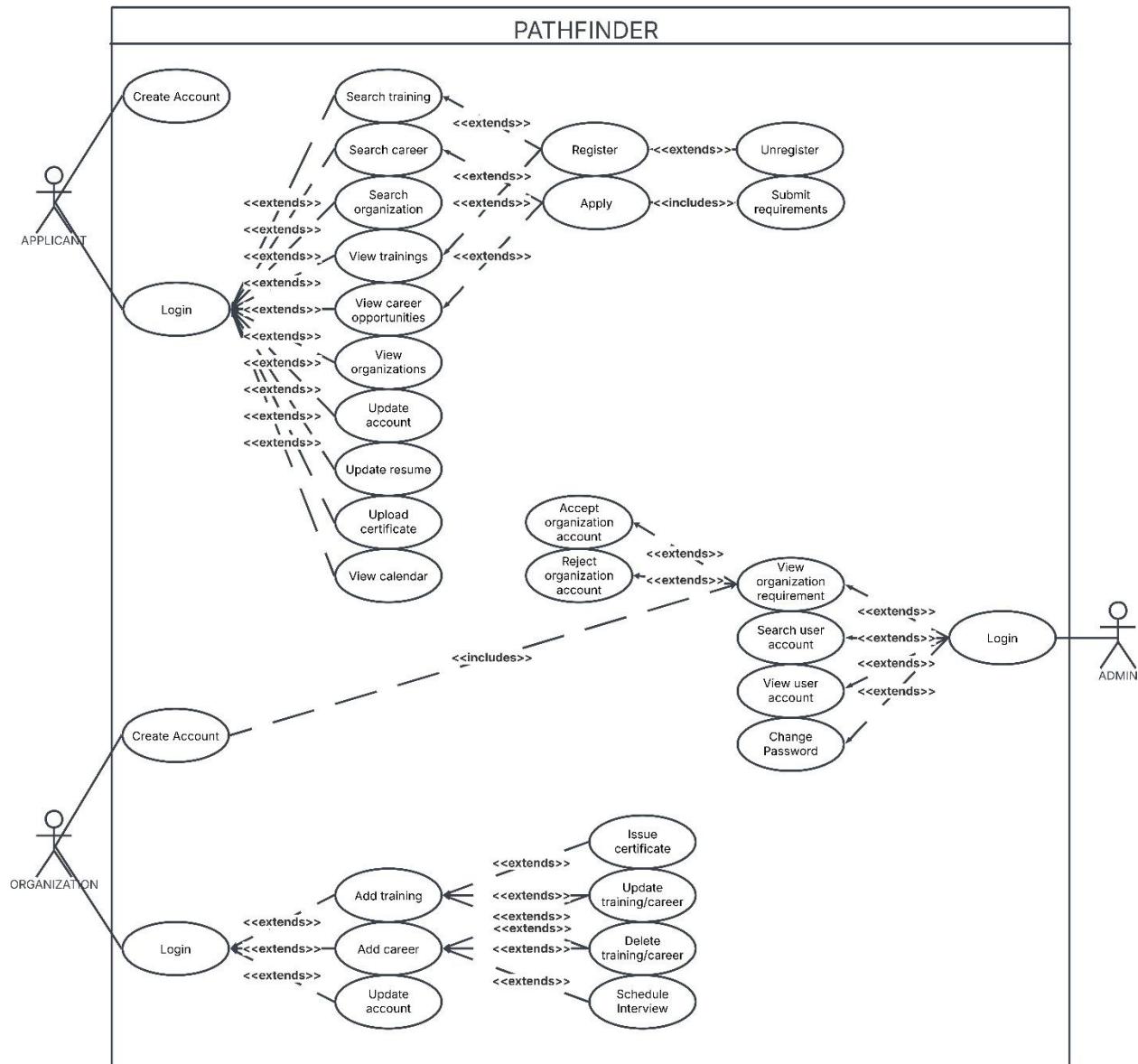
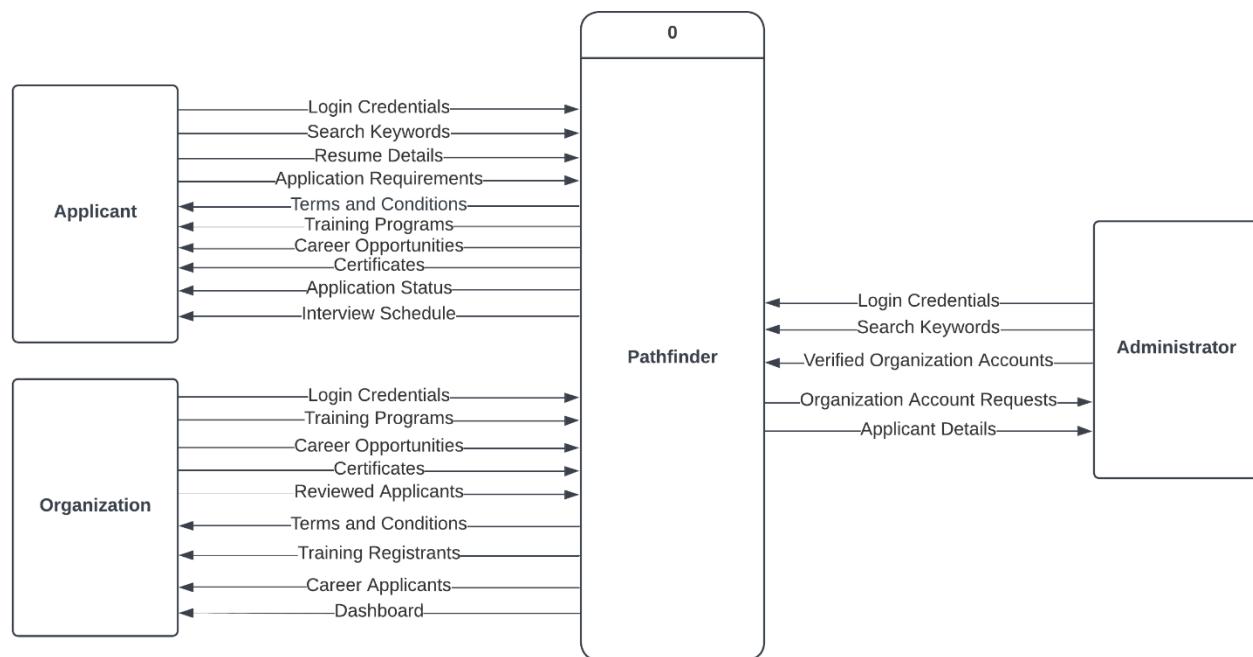


Figure 2: Use Case Diagram

Figure 2 shows the scope of the system and the relationship of each actor within the system. The researchers have identified 3 actors: the applicants, who can either be students or job seekers, the organizations, and the administrator, who contribute to the overall functionality of the system. The applicant and organization are required to create their accounts to be able to access the different features made available to them separately. On the other hand, the admin can immediately log in to the system to verify the registered organizations.

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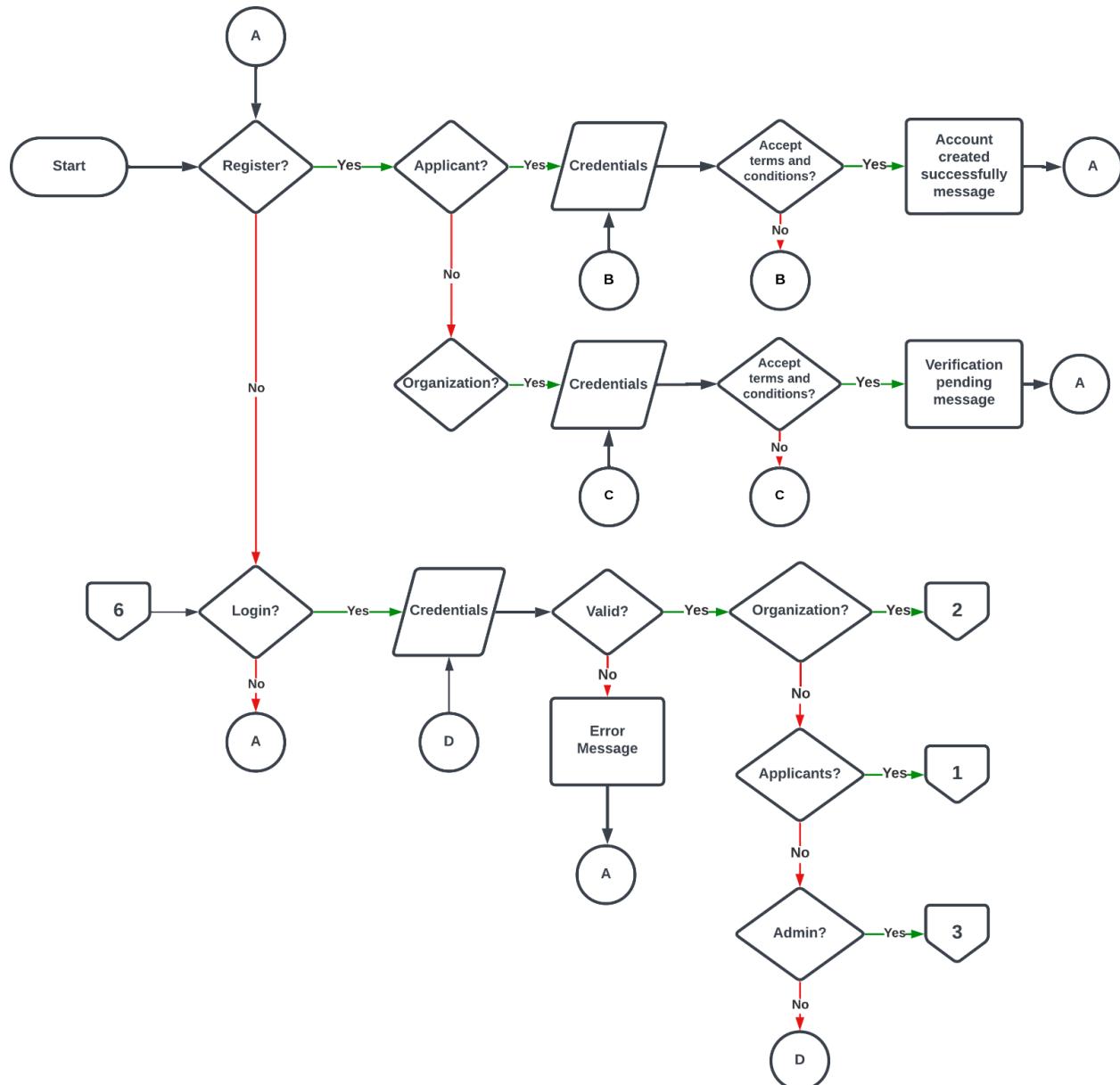
## Dataflow Diagram



**Figure 3: Data Flow Diagram**

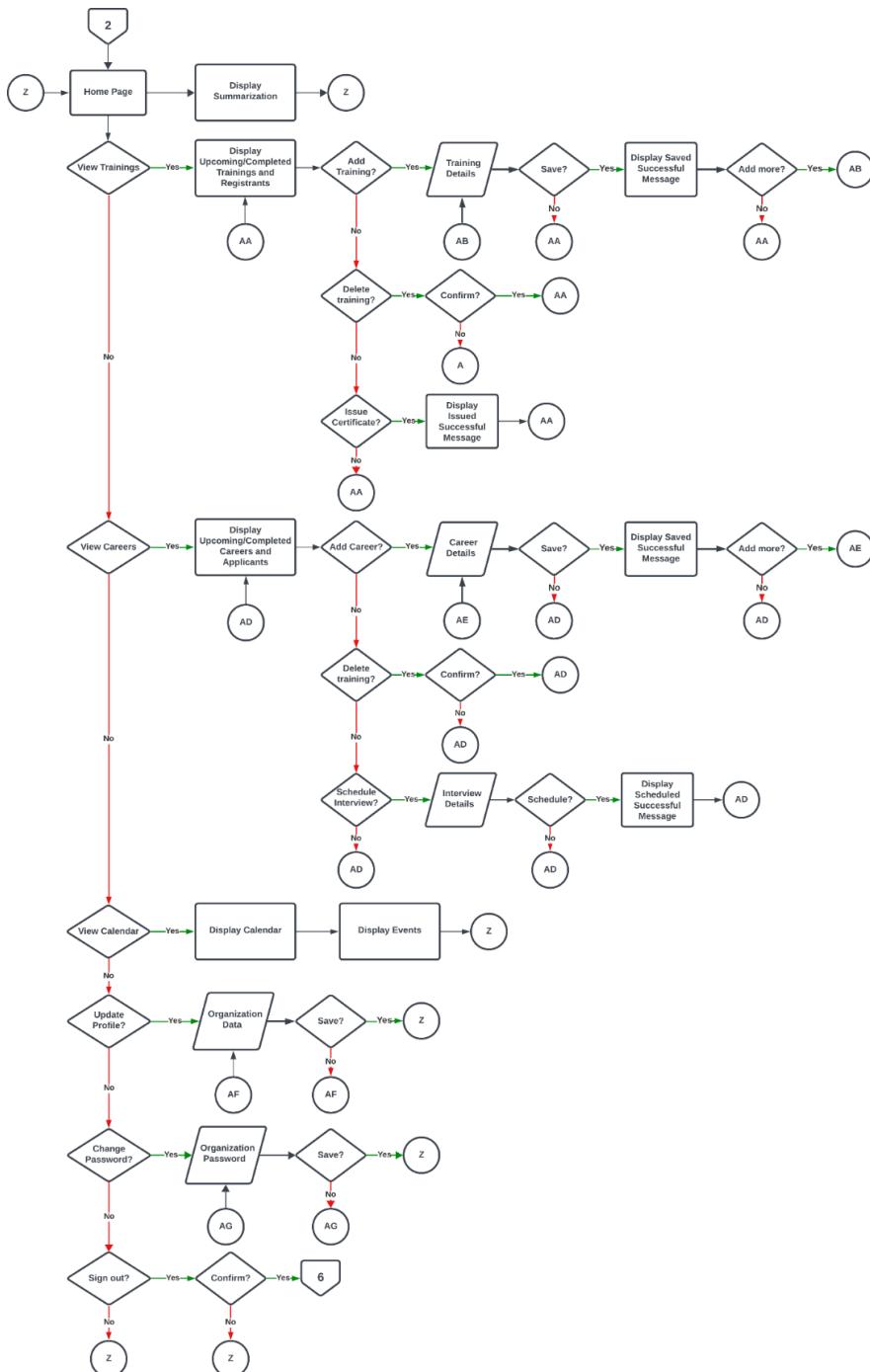
Figure 3 presents the Dataflow Diagram (DFD) for the web application. It visualizes the data exchange between three external entities: Applicant, Organization, and Administrator. The diagram details specific inputs from Applicants, such as search keywords, resume details, and application requirements, which result in outputs like training programs, interview schedules, and application status updates. Similarly, it maps the flow of Organization inputs including training programs and reviewed applicants and the system's feedback, such as dashboard analytics and registrant lists. The diagram highlights the administrative work, where "Organization Account Requests" flow to the Administrator, and "Verified Organization Accounts" flow back into the system, enforcing the security protocols mentioned in the study.

## Flowchart



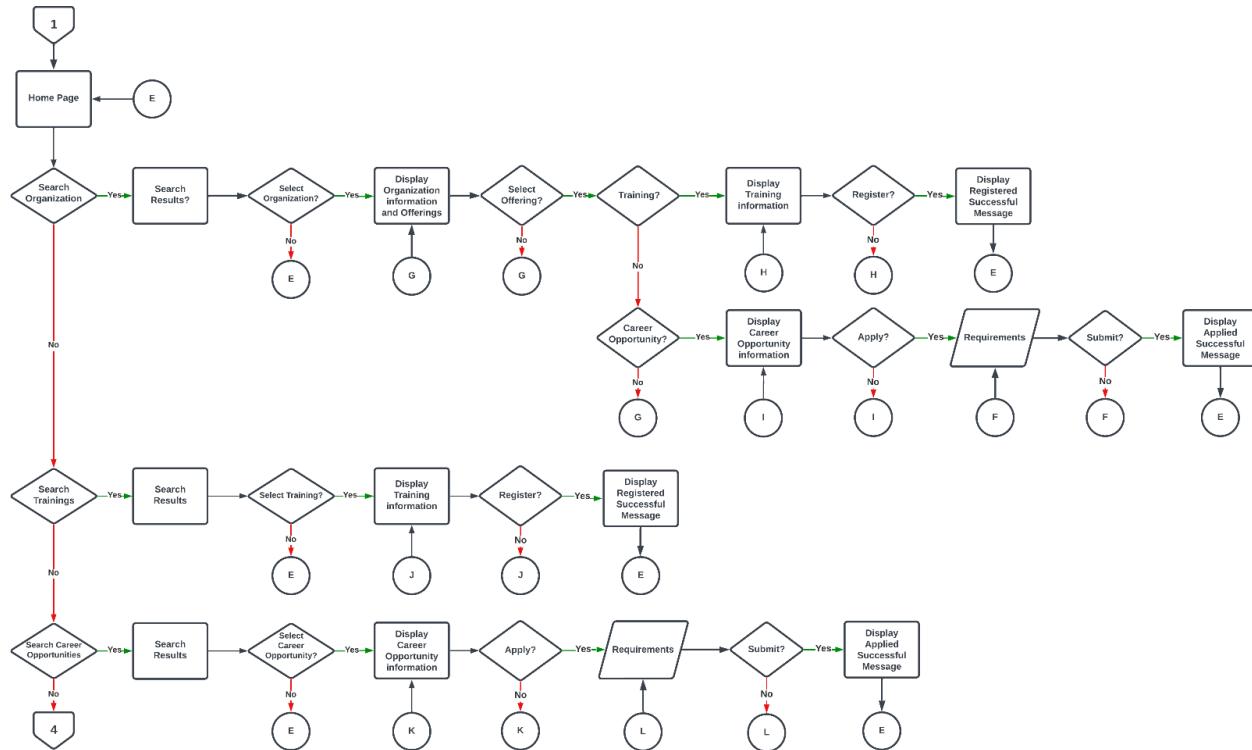
**Figure 4.1: Flowchart (Login or Register)**

Figure 4.1 shows the web application's access logic. It begins with a decision point separating new users from returning ones. A key security feature is highlighted in the registration branch: while Applicants receive an "Account created successfully" message immediately after accepting terms, Organizations receive a "Verification pending message," preventing immediate access until administrative approval. The login branch further routes authenticated users to three distinct interfaces based on their role: Applicant, Organization, or Administrator.



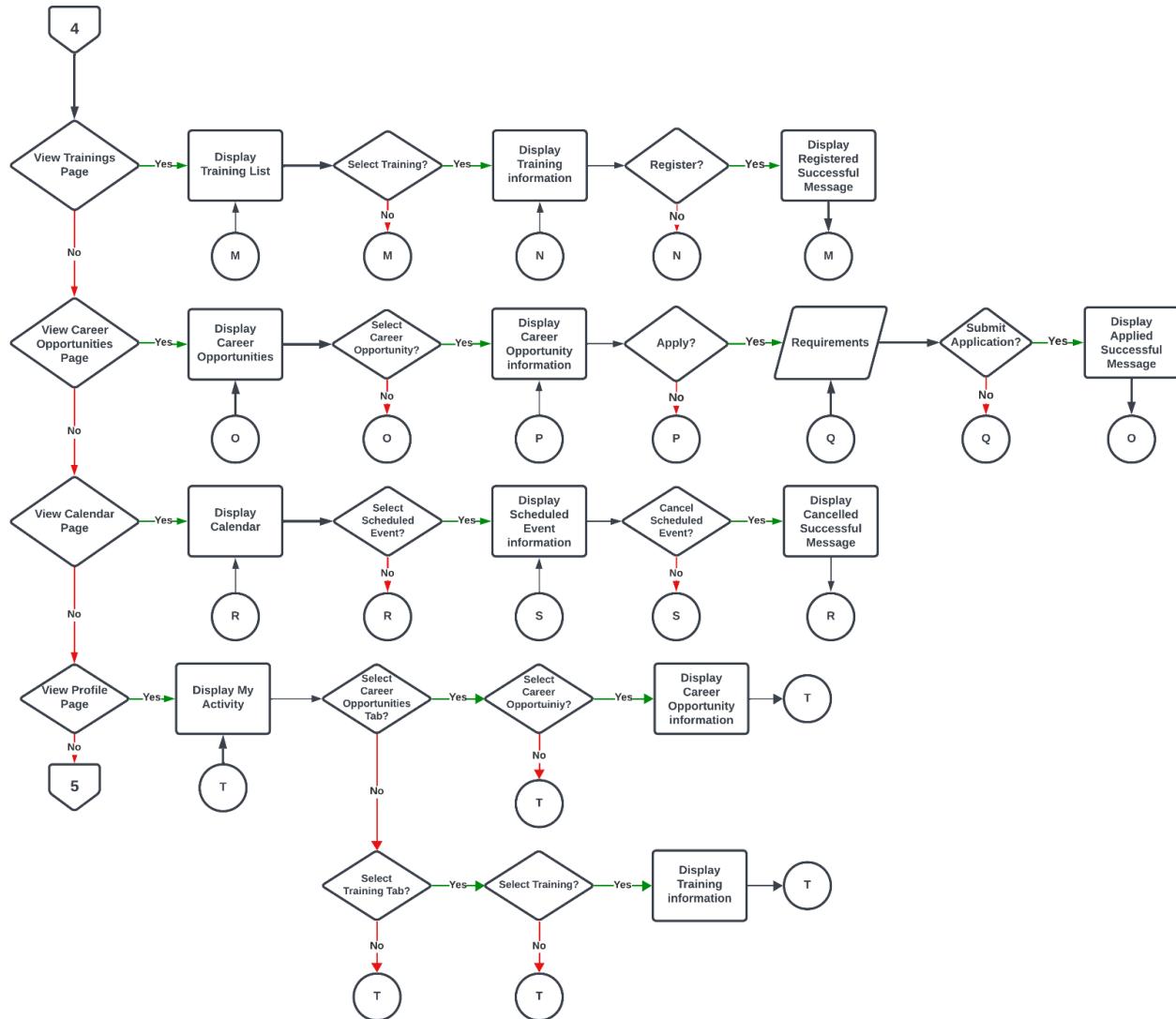
**Figure 4.2: Organization**

Figure 4.2 outlines the operational workflow for Organizations. It details the logic for managing the two primary resource types described in the objectives: Trainings and Careers. The flowchart visualizes the decision steps for adding, saving, or deleting training details and career opportunities. Additionally, it shows the unique post-interaction features available to organizations, such as issuing certificates for training participants and scheduling interviews for career applicants.



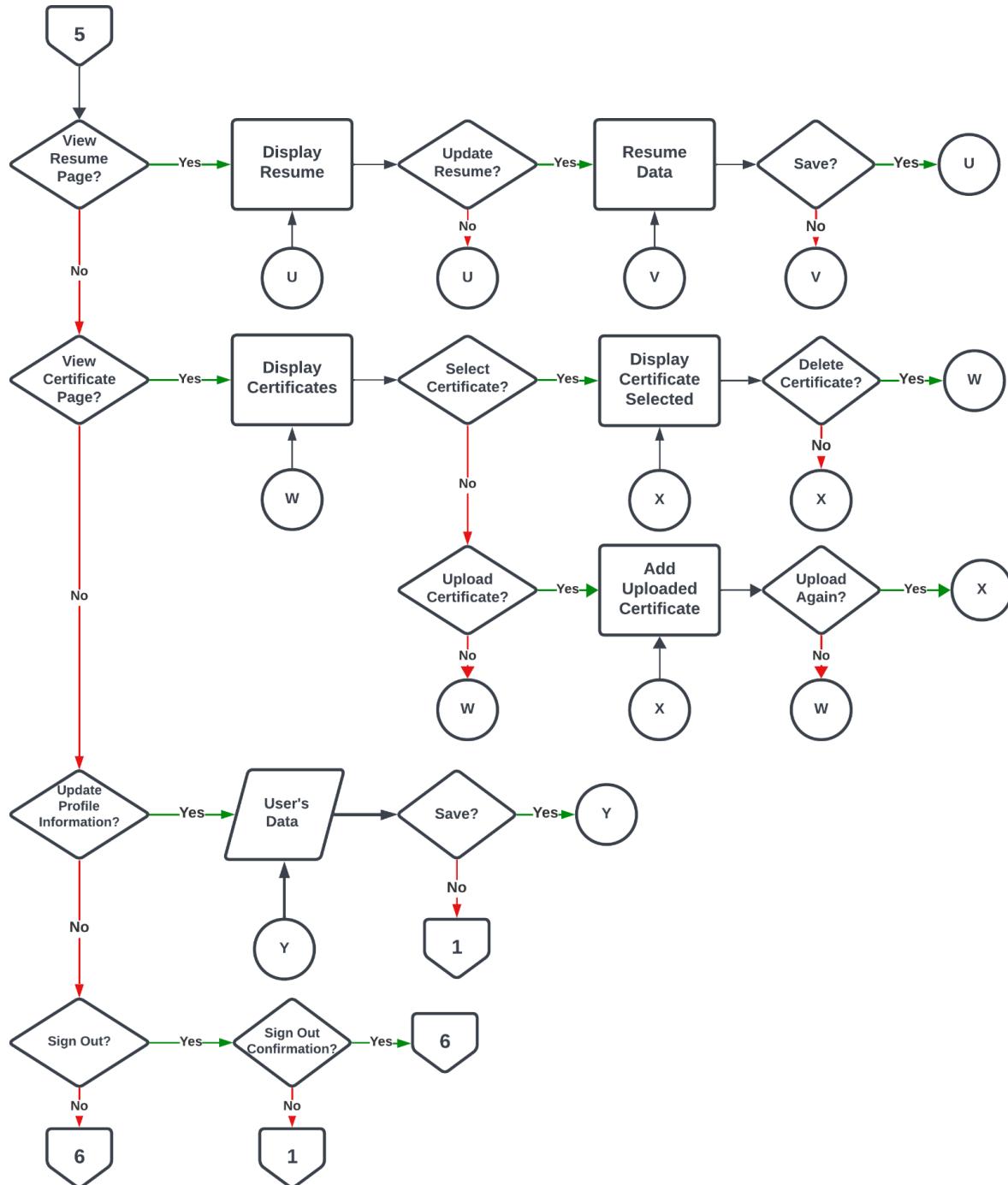
**Figure 4.3: Applicant (Search and Apply)**

Figure 4.3 illustrates the primary search and application logic for Applicants. It shows the workflow starting from the Home Page, leading to three distinct search paths: Search Organization, Search Trainings, and Search Career Opportunities. The diagram maps the applicant's journey from selecting a search result to displaying information, and finally, the decision nodes for "Register" (for trainings) or "Apply" (for careers), culminating in a successful submission message.



**Figure 4.4: Applicant (Browsing and Activity)**

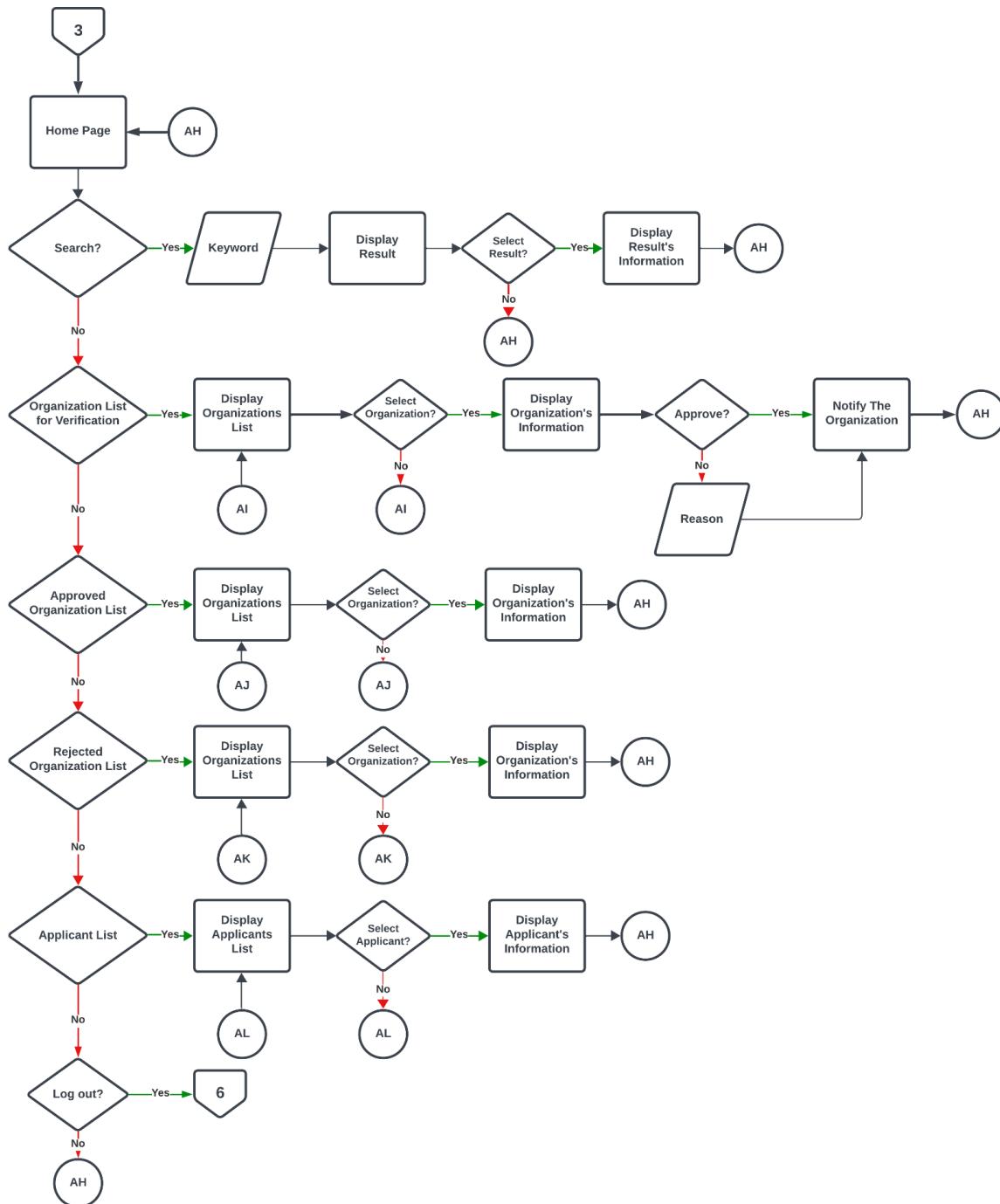
Figure 4.4 details the browsing and activity tracking features. It displays the logic for navigating specific view pages: View Trainings, View Career Opportunities, View Calendar, and View Profile. This figure highlights the system's ability to display scheduled events via the calendar and track user history through the "Display My Activity" process, allowing applicants to review the specific opportunities or trainings they have previously selected.



**Figure 4.5: Applicant (Profile and Documents)**

Figure 4.5 focuses on the document management and profile maintenance workflow. It visualizes the steps for the Resume and Certificate modules, allowing users to update data, upload new certificates, or delete existing ones. This workflow directly supports the system's objective to assist applicants by managing the credentials necessary for applications. It concludes with the option to update profile information or sign out.

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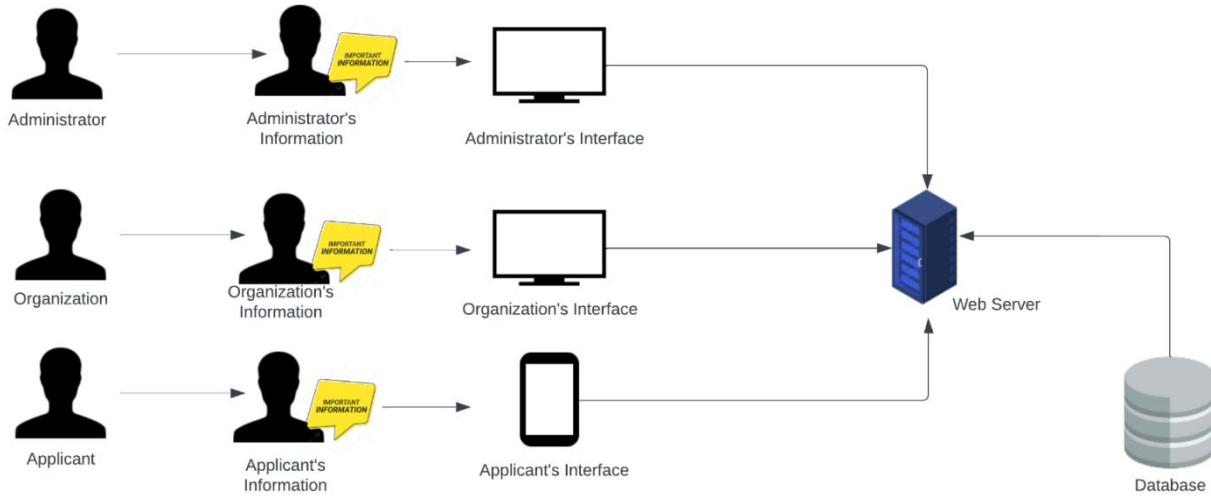


**Figure 4.6: Admin**

This figure defines the Administrator's oversight workflow. It centers on the Verification process, where the admin views the "Organization List for Verification" and decides to either Approve (triggering a notification to the organization) or Reject (requiring a reason). The flowchart also depicts the admin's ability to view lists of already approved or rejected organizations, as well as the complete list of registered applicants, ensuring total system monitoring.

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## System Architecture



**Figure 5: System Architecture**

The system architecture of the web application is shown in Figure 5. This helps ensure the web application is fulfilling its intended goal. The administrator module will be used to verify various organizations that register in the web application. Organizations can create their account, and the web application will require them to submit the necessary documents to validate that they are a legitimate organization that will provide training programs and career opportunities to applicants. Applicants can register, log in, and look for available training and careers. All these records and other records related to each other will be stored in a database.

## Evaluation Tool

The researchers utilized the Usefulness, Satisfaction, and Ease of Use (USE) Questionnaire by Arnold M. Lund to assess the system's usability. The factors included in the questionnaire are Usefulness, Ease of Use, Ease of Learning, and Satisfaction, which will determine the web application's usability.

In addition, the researchers utilized ISO 25010 to evaluate the quality of the system. The developed web application will be evaluated based on selected ISO/IEC 25010 software quality characteristics such as functional suitability, compatibility, usability, security, and portability. These characteristics will be used to identify if the web application achieved its objectives and delivered a quality performance.

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## Participants of the Study

The study involved two distinct groups of respondents to satisfy the specific objectives of the research: potential end-users for usability testing and IT experts for technical software quality assurance.

The first group consisted of 34 respondents representing the web application's primary target audience in the localized labor market of Tuguegarao City. This group comprised college students from the University of Saint Louis Tuguegarao (USLT) and active job seekers. These participants were selected to assess the web applications effectiveness using the USE (Usefulness, Satisfaction, and Ease of Use) Questionnaire.

CATEGORY OF RESPONDENTS	FREQUENCY
College Students (USLT)	21
Job Seekers	13
<b>TOTAL</b>	<b>34</b>

**Table 1: Distribution of End-User Respondents**

Table 1 presents the breakdown of the 34 end-user evaluators. Most of the respondents were college students (21), representing individuals preparing to enter the workforce, while the remaining participants were job seekers (13), representing individuals currently navigating the application process. These participants were tasked with navigating the features of Pathfinder, such as searching for training and career opportunities, to evaluate their perception of the web application's usability.

The second group consisted of 13 IT professionals selected to evaluate the technical aspects of the system based on ISO/IEC 25010 software quality characteristics. These experts were purposively selected from the partner organizations identified during the "Cutover Phase" of the development process: the Center for Digital Transformation (CDT-USLT), the Department of Information and Communications Technology (DICT) Region II, and the Technical Education and Skills Development Authority (TESDA) Region II.

SPECIALIZATION	FREQUENCY
Junior Programmer	4
IT Specialist	2
Project Development Officer I (e-Gov)	1
Senior Programmer	1
Database Admin	1
Programmer Trainee	1
Computer Maintenance Technologist II	1
Engineer I	1
Engineer III	1
<b>TOTAL</b>	<b>13</b>

**Table 2: Distribution of IT Expert by Specialization**

Table 2 details the profile of the 13 IT experts who validated the web application. The evaluators included 8 experts from the Center for Digital Transformation (CDT) at USLT, 4 experts from the DICT

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Region II, and 1 expert from TESDA Region II. The table further categorizes them by their specific specializations, ranging from Senior Programmers and Database Administrators to Engineers and Project Development Officers. This diverse range of technical expertise ensures that the web application was evaluated thoroughly across different technical domains, including database integrity, security protocols, and functional suitability.

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## RESULTS AND DISCUSSION

### Features and Functionalities

<

#### Create Account

Organization Logo (Optional)



Choose Logo

Accepted formats: JPEG, PNG, GIF, WebP (Max 5MB)

Organization Name\*

Enter organization name

0/100

Region\*

Select Region

Province\*

Select Region first

City/Municipality\*

Select Province first

Barangay\*

Select City/Municipality first

Street Address (Optional)

House/Building Number, Street Name

0/100

Website URL (optional)

Enter website URL

0/100

Email\*

Enter your email address

Phone Number

Enter 11-digit phone number

Upload PDF Requirement (Required) \*

Permits, Documents, etc.



Choose PDF File

Accepted format: PDF only (Max 10MB)

Password\*

Enter your password



\*Must be at least 8 characters, and include a number, a lowercase letter, and an uppercase letter.

Confirm Password\*

Re-enter your password



[Accept all terms and conditions.](#)

REGISTER

**Figure 6.1: Organization Registration Page**

The registration page for an organization account requires the organization to input the following fields: organization name, region, province, city/ municipality, barangay, email, password, and upload a PDF requirement for the verification of your credibility as an organization. It is only optional to upload a logo and input the street address, website URL, and phone number fields. The organization is also required to accept the terms and conditions before clicking the register button.

```

    public function o_register(Request $request)
{
    $validator = \Validator::make($request->all(), [
        'name'      => 'required|string|max:255',
        'location'  => 'nullable|string|max:255',
        'websiteURL' => 'nullable|string|max:255',
        'emailAddress'=> [
            'required',
            'email',
            'max:255',
            \Illuminate\Validation\Rule::unique('organization', 'emailAddress'),
            function ($attribute, $value, $fail) {
                if (\App\Models\Aplicant::where('emailAddress', $value)->exists()) {
                    $fail('The email has already been taken by an applicant.');
                }
            },
        ],
        'phoneNumber' => 'nullable|string|max:20',
        'password'   => 'required|string|min:8',
        'logoPath'   => 'nullable|string|max:500',
        'logo_directory' => 'nullable|string|max:500',
        'registrationRequirements' => 'required|string|max:500',
    ]);

    if ($validator->fails()) {
        \Log::error('Organization registration validation failed', [
            'errors' => $validator->errors()->toArray(),
            'input' => $request->all()
        ]);
        return response()->json([
            'message' => 'Validation failed',
            'errors' => $validator->errors()
        ], 422);
    }

    $verificationToken = Str::random(64);
    $organization = Organization::create([
        'name'      => $request->input('name'),
        'location'  => $request->input('location'),
        'websiteURL' => $request->input('websiteURL'),
        'emailAddress'=> $request->input('emailAddress'),
        'phoneNumber' => $request->input('phoneNumber'),
        'password'   => Hash::make($request->input('password')),
        'logo_directory' => $request->input('logoPath') ?? $request->input('logo_directory') ?? null,
        'registrationRequirements' => $request->input('registrationRequirements') ?? $request->input('RegistrationRequirements'),
        'adminID'    => $request->input('adminID'),
        'status'     => 'pending',
        'email_verification_token' => $verificationToken,
        'email_verified_at' => null,
    ]);

    $verificationUrl = url('/api/verify-email?token=' . $verificationToken . '&type=organization');
    $userName = $request->input('name');
    $userEmail = $request->input('emailAddress');
    $response = response()->json([
        'message' => 'Registration successful! Please check your email to verify your account.',
        'organization' => $organization,
        'email_sent' => true,
        'verification_url' => $verificationUrl,
        'verification_token' => $verificationToken,
    ], 201);
    if (function_exists('fastcgi_finish_request')) {
        fastcgi_finish_request();
    }
    try {
        \Log::info('Queueing verification email (organization)', [
            'email' => $userEmail,
        ]);
    }
}

```

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```

    >     ````SendVerificationEmailJob::dispatch(
        $userEmail,
        $verificationUrl,
        $userName,
        'organization',
        )->afterResponse();
    } catch (\Throwable $e) {
        \Log::error('Failed to dispatch verification email job', [
            'email' => $userEmail,
            'error' => $e->getMessage(),
        ]);
    }
}
return $response;
}

```

**Figure 6.2: Code Snippet for Organization Registration**



**Create Account**

First Name\*

Middle Name

Last Name\*

Region\*

Province\*

City/Municipality\*

Barangay\*

Street Address (Optional)

Email\*

Phone Number

Password\*  
 (Must be at least 8 characters, and include a number, a lowercase letter, and an uppercase letter.)

Confirm Password\*  
 (Must be identical to the password above.)

Accept all terms and conditions.

**REGISTER**

**Figure 6.3: Applicant registration page**

The registration page for an applicant account contains the following fields: first name, last name, region, province, city/municipality, barangay, email, and password. Providing a middle name, phone number, and street address is optional. After filling in all required fields, the applicant must check the box indicating acceptance of the stated terms and conditions, then click the Register button to successfully create an account. Once the account is created, the applicant must open their email and click Verify Email to log in.

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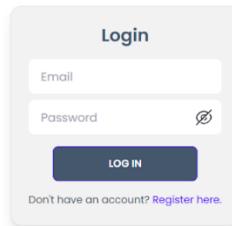
```

public function a_register(Request $request)
{
    $validator = \Validator::make($request->all(), [
        'firstName' => 'required|string|max:255',
        'lastName' => 'required|string|max:255',
        'middleName' => 'nullable|string|max:255',
        'address' => 'required|string|max:255',
        'emailAddress' => [
            'required',
            'email',
            'unique:applicant,emailAddress',
            function ($attribute, $value, $fail) {
                if (\App\Models\Organization::where('emailAddress', $value)->exists()) {
                    $fail('The email has already been taken by an organization.');
                }
            },
        ],
        'phoneNumber' => 'required|string|max:11',
        'password' => 'required|string|min:8',
    ]);
    if ($validator->fails()) {
        return response()->json([
            'status' => "error",
            'errors' => $validator->errors(),
        ], 422);
    }
    $verificationToken = Str::random(64);
    $applicant = Applicant::create([
        'firstName' => $request->firstName,
        'middleName' => $request->middleName,
        'lastName' => $request->lastName,
        'address' => $request->address,
        'emailAddress' => $request->emailAddress,
        'phoneNumber' => $request->phoneNumber,
        'password' => bcrypt($request->password),
        'api_token' => Str::random(60),
        'email_verification_token' => $verificationToken,
        'email_verified_at' => null,
    ]);
    $verificationUrl = url('/api/verify-email?token=' . $verificationToken . '&type=applicant');
    $userName = $request->firstName . ' ' . $request->lastName;
    $userEmail = $request->emailAddress;
    $response = response()->json([
        'status' => 'success',
        'message' => 'Registration successful! Please check your email to verify your account.',
        'user' => $applicant,
        'email_sent' => true,
        'verification_url' => $verificationUrl,
        'verification_token' => $verificationToken,
    ], 201);
    if (function_exists('fastcgi_finish_request')) {
        fastcgi_finish_request();
    }
    try {
        \Log::info('Queueing verification email (Applicant)', [
            'email' => $userEmail,
        ]);
        SendVerificationEmailJob::dispatch(
            $userEmail,
            $verificationUrl,
            $userName,
            'applicant'
        )->afterResponse();
    } catch (Throwable $e) {
        \Log::error('Failed to dispatch verification email job', [
            'email' => $userEmail,
            'error' => $e->getMessage(),
        ]);
    }
    return $response;
}

```

**Figure 6.4: Code Snippet for Applicant Registration**

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**Figure 6.5: Pathfinder - Login Page**

The login page for both the applicant and the organization. The user will need to input the email and password that they have used during their registration process.

```

public function login(Request $request)
{
    $request->validate([
        'emailAddress' => 'required|email',
        'password' => 'required|string|min:8',
    ]);
    $applicant = Applicant::where('emailAddress', $request->emailAddress)->first();
    if (!$applicant || !Hash::check($request->password, $applicant->password)) {
        return response()->json(['message' => 'Invalid credentials'], 401);
    }
    if (!$applicant->email_verified_at) {
        return response()->json([
            'message' => 'Please verify your email address before logging in. Check your inbox for the verification link.',
            'email_verified' => false,
        ], 403);
    }
    if (!$applicant->api_token) {
        $applicant->api_token = Str::random(60);
        $applicant->save();
    }
    return response()->json([
        'message' => 'Login successful',
        'user' => $applicant,
        'token' => $applicant->api_token,
    ]);
}

```

**Figure 6.6: Code Snippet for Applicant Login**

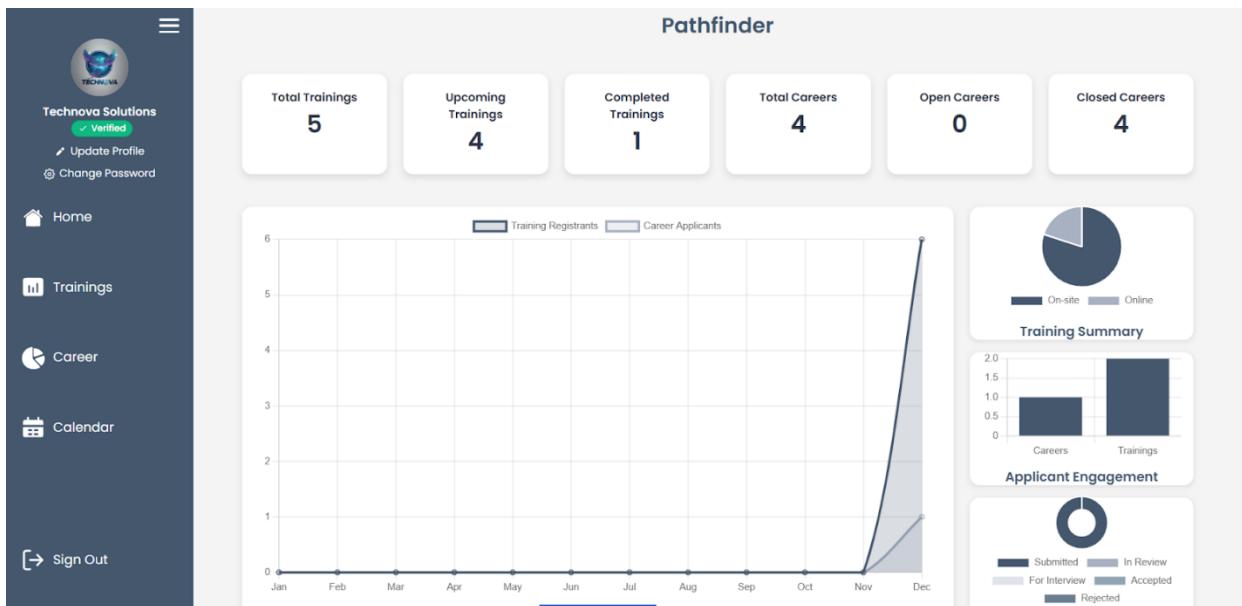
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```

public function login(Request $request)
{
    $request->validate([
        'emailAddress' => 'required|email',
        'password' => 'required|string|min:8',
    ]);
    $organization = Organization::where('emailAddress', $request->emailAddress)->first();
    if (!$organization || !Hash::check($request->password, $organization->password)) {
        return response()->json(['message' => 'Invalid credentials'], 401);
    }
    if (!$organization->email_verified_at) {
        return response()->json([
            'message' => 'Please verify your email address before logging in. Check your inbox for the verification link.',
            'email_verified' => false,
        ], 403);
    }
    if ($organization->status === 'rejected') {
        return response()->json([
            'message' => 'Your registration was rejected.',
            'reason' => $organization->rejectionReason
        ], 403);
    }
    if (!$organization->api_token) {
        $organization->api_token = Str::random(60);
        $organization->save();
    }
    return response()->json([
        'message' => 'Login successful',
        'organization' => $organization,
        'token' => $organization->api_token,
    ]);
}

```

**Figure 6.7: Code Snippet for Organization Login**



**Figure 6.8: Pathfinder Organization Dashboard**

The organization dashboard displays statistics for their career and training posts. On the left side of the screen, they will see the sidebar, which contains several buttons such as update profile, change password, home, training, career, calendar, and sign out.

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```

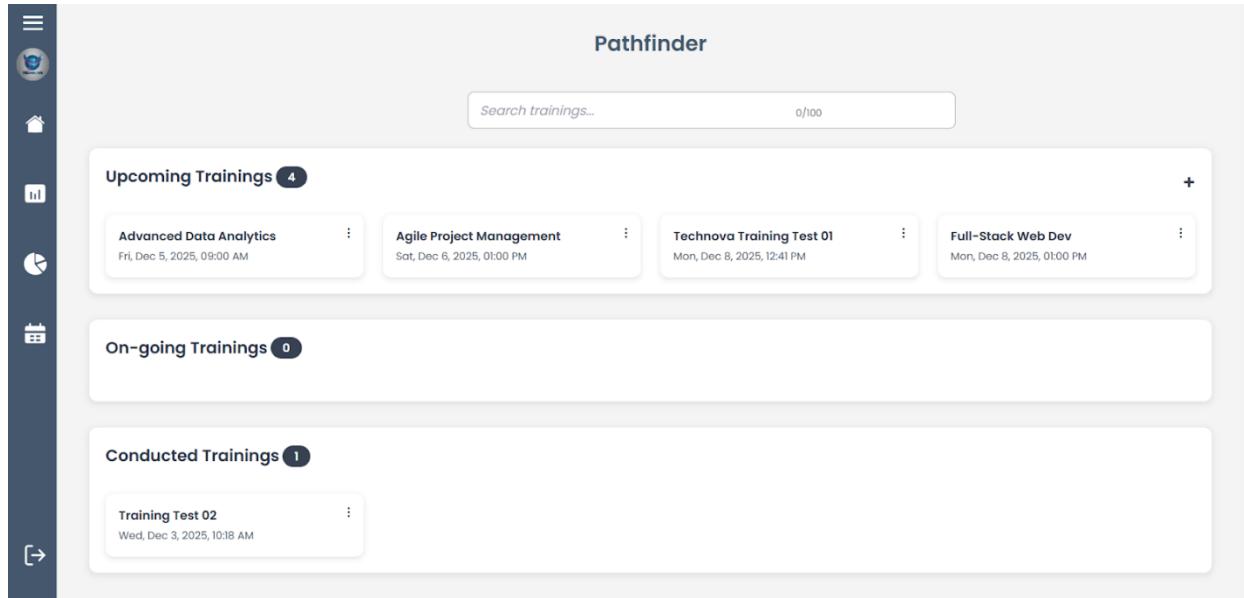
public function getChartData()
{
    $months = collect(range(1, 12))->map(function ($m) {
        return date("M", mktime(0, 0, 0, $m, 1));
    });
    $trainingRegistrants = collect(range(1, 12))->map(function ($month) {
        return DB::table('registrations')
            ->whereMonth('registrationDate', $month)
            ->count();
    });

    $careerApplicants = collect(range(1, 12))->map(function ($month) {
        return DB::table('applications')
            ->whereMonth('dateSubmitted', $month)
            ->count();
    });

    $trainingTypes = [
        'onsite' => DB::table('trainings')->where('mode', 'onsite')->count(),
        'online' => DB::table('trainings')->where('mode', 'online')->count(),
        'hybrid' => DB::table('trainings')->where('mode', 'hybrid')->count()
    ];
    $careerOutcomes = [
        'accepted' => DB::table('applications')->where('applicationStatus', 'accepted')->count(),
        'pending' => DB::table('applications')->where('applicationStatus', 'pending')->count(),
        'rejected' => DB::table('applications')->where('applicationStatus', 'rejected')->count(),
    ];
    return response()->json([
        'months' => $months,
        'trainingRegistrants' => $trainingRegistrants,
        'careerApplicants' => $careerApplicants,
        'trainingTypes' => $trainingTypes,
        'careerOutcomes' => $careerOutcomes,
    ]);
}

```

**Figure 6.9: Code Snippet for Chart Data**



Section	Training	Date	Time
Upcoming Trainings	Advanced Data Analytics	Fri, Dec 5, 2025	09:00 AM
	Agile Project Management	Sat, Dec 6, 2025	01:00 PM
	Technova Training Test 01	Mon, Dec 8, 2025	12:41 PM
	Full-Stack Web Dev	Mon, Dec 8, 2025	01:00 PM
Conducted Trainings	Training Test 02	Wed, Dec 3, 2025	10:18 AM

**Figure 6.10: Organization Training Page**

The training page allows them to post trainings and view those that are upcoming, ongoing, and conducted. The organization can also create new training posts by clicking on the plus(+) button located at the top right corner of the upcoming trainings section. Doing so will open a modal containing the fields that need to be filled out to post a training.

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**Post Training**

0/100

×

0/1000

**Select Dates**

📅
Add Date

**Tags**

0/50

Agile
API
CSS
Data Analytics
Data Processing
HTML
Kanban
React
...

Add Tag
◀
▶

Post

**Figure 6.11: Organization Training Page - Post Training Modal**

```

public function store(Request $request)
{
    $user = $request->user();
    if (!$user) {
        return response()->json(['message' => 'Unauthorized - no auth user found'], 401);
    }
    if (!isset($user->organizationID)) {
        return response()->json(['message' => 'Only organizations can create trainings'], 403);
    }
    $validated = $request->validate([
        'title' => 'required|string|max:255',
        'description' => 'required|string|max:255',
        'schedules' => 'sometimes|array|min:1',
        'schedules.*.schedule' => 'required_with:schedules|date_format:Y-m-d H:i',
        'schedules.*.end_time' => 'required_with:schedules|date_format:Y-m-d H:i',
        'schedules.*.mode' => 'required_with:schedules|string|in:On-Site,Online',
        'schedules.*.location' => 'nullable|string|max:255',
        'schedules.*.training_link' => 'nullable|url',
        'schedule' => 'required_without:schedules|date_format:Y-m-d H:i',
        'end_time' => 'required_without:schedules|date_format:Y-m-d H:i',
        'mode' => 'required_without:schedules|string|in:On-Site,Online',
        'location' => 'nullable|string|max:255',
        'training_link' => 'nullable|url',
        'tags' => 'nullable|array',
        'tags.*' => 'integer|exists:tag,tagID',
    ]);
    $training = Training::create([
        'title' => $validated['title'],
        'description' => $validated['description'],
        'organizationID' => $user->organizationID,
    ]);
}

```

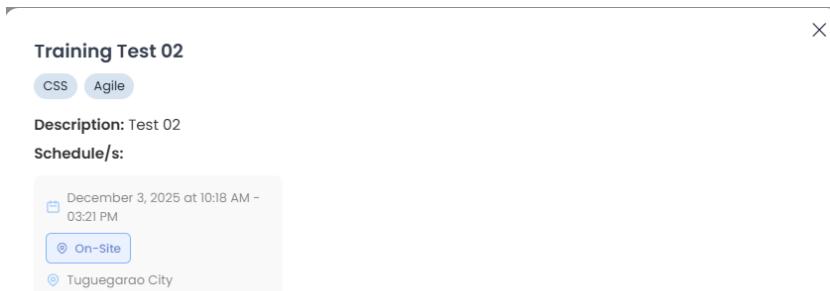
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```

$chedules = $validated['schedules'] ?? [];
if (empty($chedules) && isset($validated['schedule'])) {
    $chedules = [
        'schedule' => $validated['schedule'],
        'end_time' => $validated['end_time'],
        'mode' => $validated['mode'],
        'location' => $validated['location'] ?? null,
        'training_link' => $validated['training_link'] ?? null,
    ];
}
foreach ($chedules as $scheduleData) {
    TrainingSchedule::create([
        'trainingID' => $training->trainingID,
        'schedule' => $scheduleData['schedule'],
        'end_time' => $scheduleData['end_time'],
        'mode' => $scheduleData['mode'],
        'location' => $scheduleData['mode'] === 'On-Site' ? ($scheduleData['location'] ?? null) : null,
        'trainingLink' => $scheduleData['mode'] === 'Online' ? ($scheduleData['training_link'] ?? null) : null,
    ]);
}
if (!empty($validated['Tags'])) {
    $training->tags()->attach($validated['Tags']);
}
return response()->json([
    'message' => 'TRAINING CREATED SUCCESSFULLY!',
    'data' => $training->load(['organization', 'schedules', 'tags'])
], 201);
}

```

**Figure 6.12: Code Snippet for Posting a Training**



Registrants (1)						Refresh
Search by name, ID, or status...						
<input type="checkbox"/> CERTIFICATE TRACKING ID	FULL NAME	REGISTRATION DATE	STATUS	CERTIFICATE		
<input type="checkbox"/> 5	Jerald Bon Harris Agustin	Dec 03, 2025	Attended	<span style="background-color: #002B36; color: white; padding: 2px 5px;">Certificate Issued</span> <a href="#">View Certificate</a>		

Issue Certificates to Selected

**Figure 6.13: Training Modal with Registrant List**

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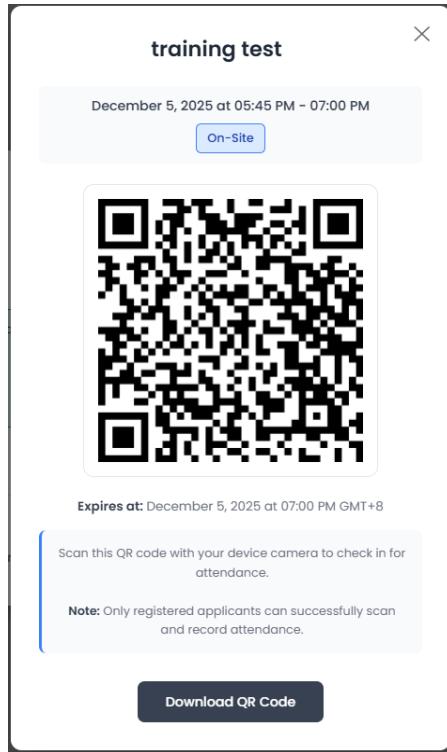


Figure 6.14: QR Modal

Figure 6.15: Attendance Check-in

Figure 6.13 illustrates the training modal, which displays the training details along with the list of registrants. In the certificate column, the Issue Certificate button is shown. However, it is only enabled when a registrant has scanned the QR code provided during the duration of the training. Once eligible, the registrant is directed to a page with required input fields, as shown in Figure 6.15. After completing these fields, the certificate can then be issued to the registrant.

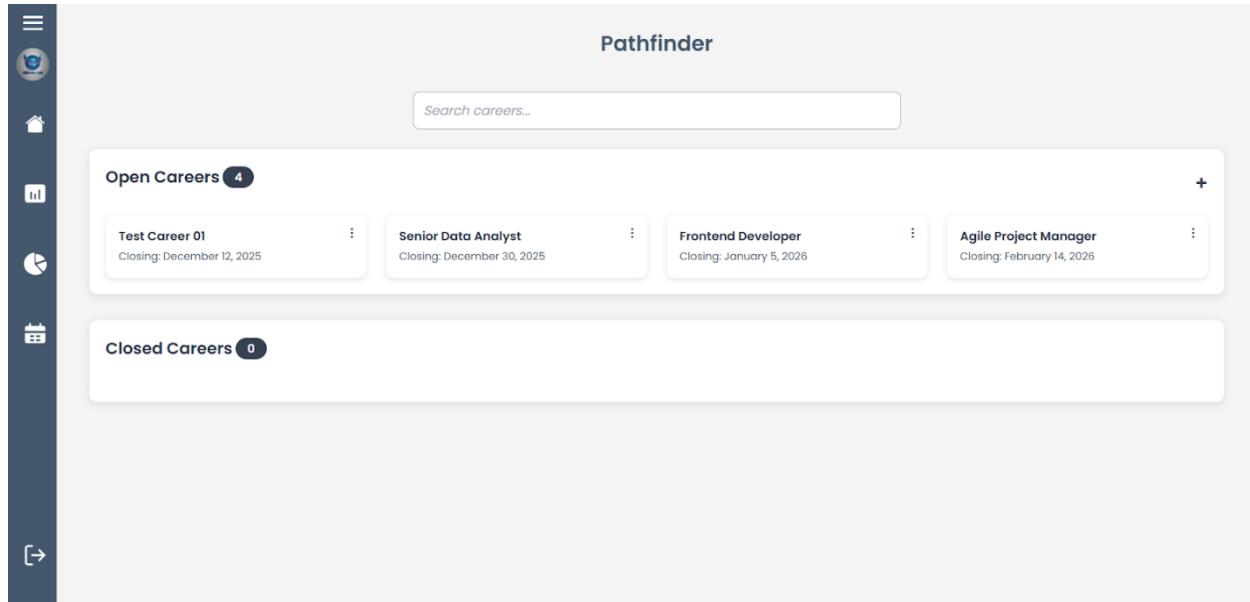
```

public function index(Request $request)
{
    $query = Training::with(['organization', 'tags', 'schedules']);
    $user = $request->user();
    if ($user && isset($user->organizationID)) {
        $query->where('organizationID', $user->organizationID);
    } elseif ($request->has('organizationID')) {
        $query->where('organizationID', $request->organizationID);
    }
    $trainings = $query->get();
    foreach ($trainings as $training) {
        foreach ($training->schedules as $schedule) {
            $this->autoGenerateQRForSchedule($schedule);
        }
    }
    return response()->json($trainings->map(function ($training) {
        return $this->formatTraining($training);
    }));
}

```

Figure 6.16: Code Snippet for the Generated QR

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**Figure 6.17: Organization Career Page**

The organization's career page allows the organization to view open and closed career opportunities, as well as post a new career opportunity.

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**Post Career**

Position  
0/100

Place of Assignment  
0/100

Details (required if no PDF)  
0/1000

Qualification Standard (required if no PDF)  
0/1000

**Attach PDF (optional)**

Choose File No file chosen

Accepted format: PDF up to 10MB.

**Posting Date**  
05/12/2025

**Closing Date**  
dd/mm/yyyy

**Tags**

Search or type a new tag...

Agile API CSS Data Analytics Data Processing HTML

Add Tag

Post

**Figure 6.18: Organization Career Page - Post Career Modal**

 <b>UNIVERSITY OF SAINT LOUIS</b> Tuguegarao City, Cagayan	<b>UNIVERSITY RESEARCH AND INNOVATION OFFICE</b> <b>RESEARCH PAPER</b>	Document No. Revision No. Effectivity Date	EOMS-FM-URI-006 01 February 12, 2025
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```

public function store(Request $request)
{
    $token = $request->bearerToken();
    $user = \App\Models\Organization::where('api_token', $token)->first()
        ?? \App\Models\Aplicant::where('api_token', $token)->first();
    if (!$user) {
        return response()->json(['message' => 'Unauthorized'], 401);
    }
    $validated = $request->validate([
        'position' => 'required|string|max:255',
        'placeOfAssignment' => 'required|string|max:255',
        'details' => 'nullable|string',
        'qualificationStandard' => 'nullable|string',
        'pdf_directory' => 'nullable|string|max:255',
        'postingDate' => 'required|date',
        'closingDate' => 'required|date',
        'trainingsAttendedPercentage' => 'nullable|integer|min:0|max:100',
        'Tags' => 'nullable|array',
        'Tags.*' => 'integer|exists:tag,TagID',
    ]);
    $pdfDirectory = !empty($validated['pdf_directory']) ? trim($validated['pdf_directory']) : null;
    $details = !empty($validated['details']) ? trim($validated['details']) : null;
    $qualificationStandard = !empty($validated['qualificationStandard']) ? trim($validated['qualificationStandard']) : null;
    if (!empty($pdfDirectory) && empty($details) && empty($qualificationStandard)) {
        return response()->json([
            'message' => 'Either details/qualification standard or PDF file must be provided.'
        ], 422);
    }
    $postingDateFormatted = Carbon::parse($validated['postingDate'])->format('Y-m-d');
    $closingDateFormatted = Carbon::parse($validated['closingDate'])->format('Y-m-d');
    $career = Career::create([
        'position' => $validated['position'],
        'placeOfAssignment' => $validated['placeOfAssignment'],
        'details' => $details,
        'qualificationStandard' => $qualificationStandard,
        'pdf_directory' => $pdfDirectory,
        'postingDate' => $postingDateFormatted,
        'closingDate' => $closingDateFormatted,
        'trainingsAttendedPercentage' => $validated['trainingsAttendedPercentage'] ?? null,
        'organizationID' => $user->organizationID ?? $user->id,
    ]);
    if (!empty($validated['Tags'])) {
        $career->tags()->attach($validated['Tags']);
    }
    return response()->json([
        'message' => 'CAREER POSTED SUCCESSFULLY!!!',
        'data' => $career,
        'tags' => $validated['Tags']
    ], 201);
}

```

Figure 6.19: Code Snippet for Posting a Career Opportunity

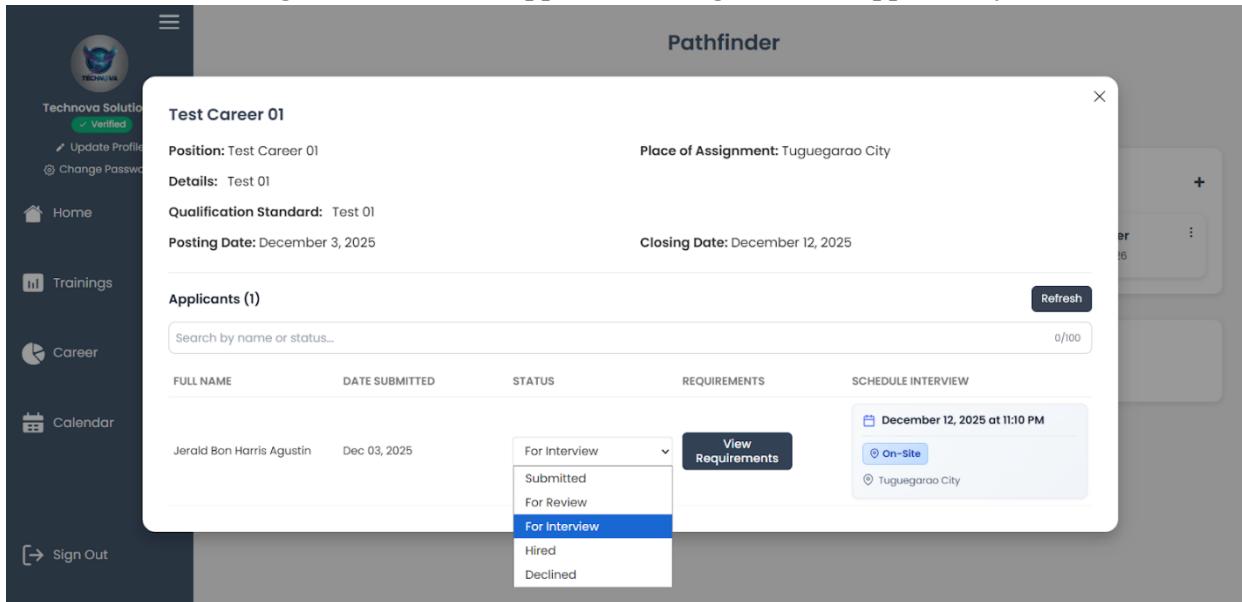


Figure 6.20: Career Modal with Applicant List

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When a career post is clicked, a modal opens displaying the career's details and the list of applicants for that position. The organization can change an applicant's status by selecting from the available options: submitted, for review, for interview, or hired/declined. Selecting the for interview status opens another modal that allows the user to schedule the interview, as shown in Figure 6.20.

X

### Update Interview Schedule for Jerald Bon Harris Agustin

Date & Time:



On-Site    Online

Location:

Tuguegarao City

Email CC:

cc@example.com

Email Body:

Include message details for the applicant

Update Schedule

Cancel

**Figure 6.21: Schedule Interview Modal**

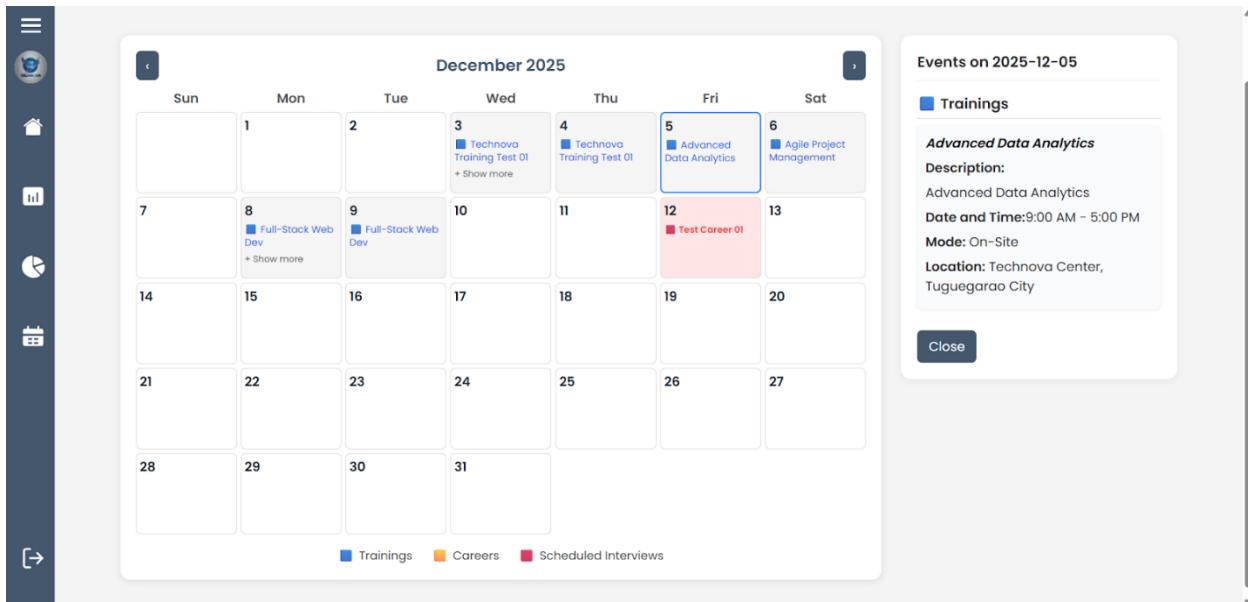
 <p><b>UNIVERSITY OF SAINT LOUIS</b> Tuguegarao City, Cagayan</p>	<p><b>UNIVERSITY RESEARCH AND INNOVATION OFFICE</b></p> <hr/> <p><b>RESEARCH PAPER</b></p>	<p>Document No. <b>EOMS-FM-URI-006</b></p> <p>Revision No. <b>01</b></p> <p>Effectivity Date <b>February 12, 2025</b></p>
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```

public function updateStatus(Request $request, $applicationID)
{
    $user = $request->user();
    if (!$user || !$user instanceof \App\Models\Organization)) {
        return response()->json(['message' => 'Unauthorized - Organization access required'], 401);
    }
    $application = Application::with(['applicant', 'career.organization'])->find($applicationID);
    if (!$application) {
        return response()->json(['message' => 'Application not found'], 404);
    }
    $career = \App\Models\Career::where('careerID', $application->careerID)
        ->where('organizationID', $user->organizationID)
        ->first();
    if (!$career) {
        return response()->json(['message' => 'Access denied'], 403);
    }
    $validated = $request->validate([
        'status' => 'required|in:submitted,for review,for interview,hired,declined',
        'date' => 'nullable|date',
        'overwrite' => 'nullable|boolean',
        'body' => 'nullable|string',
    ]);
    $timestamp = isset($validated['date'])
        ? Carbon::parse($validated['date'])
        : null;
    $application->applicationStatus = $validated['status'];
    $this->recordApplicationStage(
        $application,
        $validated['status'],
        $timestamp,
        $request->boolean('overwrite', false)
    );
    $application->save();
    return response()->json([
        'message' => 'Status updated successfully',
        'data' => $application,
    ]);
}

```

**Figure 6.22: Code Snippet for Updating an Applicant's Status**



The screenshot shows a monthly calendar for December 2025. The days of the week are labeled from Sunday to Saturday. Specific events are marked on the calendar:

- December 3: Technova Training Test 01 (blue square)
- December 4: Technova Training Test 01 (blue square)
- December 5: Advanced Data Analytics (blue square)
- December 6: Agile Project Management (blue square)
- December 8: Full-Stack Web Dev (blue square)
- December 9: Full-Stack Web Dev (blue square)
- December 12: Test Career 01 (red square)

A modal window is open for December 5th, displaying the following details:

**Events on 2025-12-05**

**Trainings**

**Advanced Data Analytics**

**Description:** Advanced Data Analytics

**Date and Time:** 9:00 AM – 5:00 PM

**Mode:** On-Site

**Location:** Technova Center, Tuguegarao City

**Close**

**Figure 6.23: Organization Calendar Page**

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The calendar page allows the organization to view the events they have scheduled, which are displayed on the day of their implementation for training posts. For career posts, they will see the day on which an interview has been scheduled.

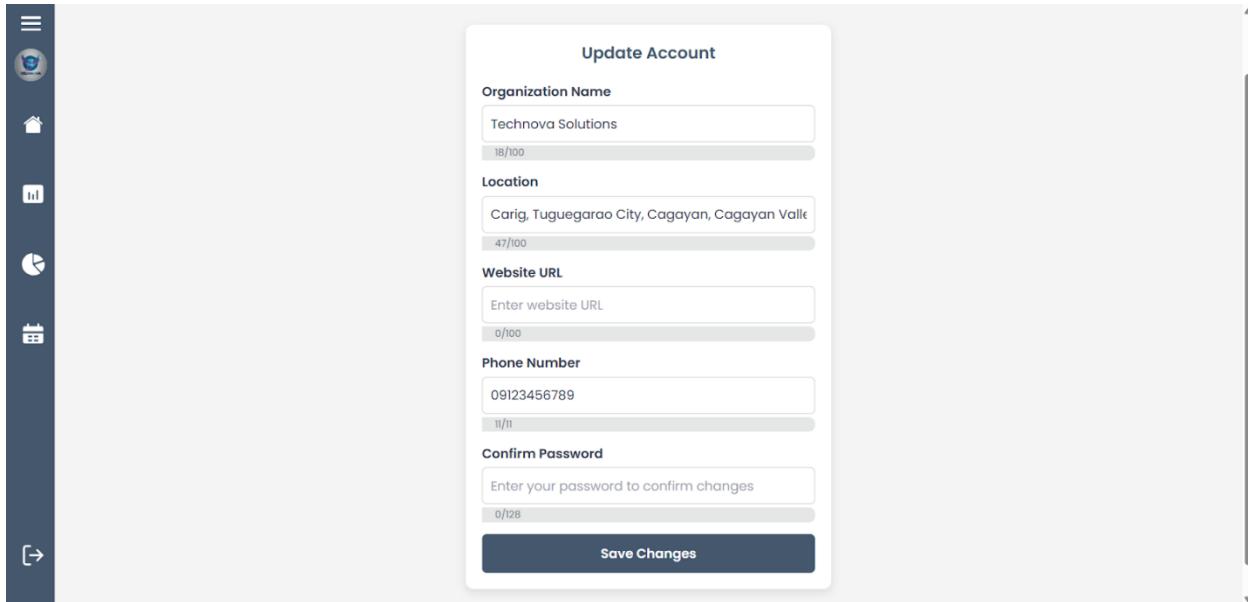
```

public function getApplicantsByCareer(Request $request, $careerID)
{
    $user = $request->user();
    if (!$user || !$user instanceof \App\Models\Organization) {
        return response()->json(['message' => 'Unauthorized - Organization access required'], 401);
    }
    $career = \App\Models\Career::where('careerID', $careerID)
        ->where('organizationID', $user->organizationID)
        ->first();
    if (!$career) {
        return response()->json(['message' => 'Career not found or access denied'], 404);
    }
    $applications = Application::with('applicant')
        ->where('careerID', $careerID)
        ->get()
        ->map(function($app) {
            $applicantName = 'Unknown';
            if ($app->applicant) {
                $applicantName = trim(($app->applicant->firstName ?? '') . ' ' . ($app->applicant->lastName ?? ''));
                if (empty($applicantName)) {
                    $applicantName = 'Unknown';
                }
            }
            $formatDate = function($date, $format) use ($app) {
                if (!$date) return null;
                if ($date instanceof Carbon || $date instanceof \DateTime) {
                    return $date->format($format);
                }
                if (is_string($date)) {
                    try {
                        $carbon = Carbon::parse($date);
                        return $carbon->format($format);
                    } catch (Exception $e) {
                        Log::warning("Failed to parse date in ApplicationController", [
                            'date' => $date,
                            'applicationID' => $app->applicationID ?? null,
                            'error' => $e->getMessage()
                        ]);
                    }
                    return $date;
                }
            }
            return null;
        });
    return [
        'id' => $app->applicationID,
        'applicantID' => $app->applicantID,
        'name' => $applicantName,
        'dateSubmitted' => $formatDate($app->dateSubmitted, 'M d, Y'),
        'status' => $app->applicationStatus ? strtolower($app->applicationStatus) : 'submitted',
        'requirement_directory' => $app->getAttribute('requirement_directory'),
        'interviewSchedule' => $formatDate($app->interviewSchedule, 'Y-m-d H:i:s'),
        'interviewMode' => $app->interviewMode,
        'interviewLocation' => $app->interviewLocation,
        'interviewLink' => $app->interviewLink,
    ];
}
return response()->json($applications);
}

```

**Figure 6.24: Code Snippet for Fetching Applications with Scheduled Interviews**

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The screenshot shows a mobile application interface for updating organization account settings. On the left is a vertical navigation bar with icons for home, dashboard, reports, calendar, and user profile. The main content area has a title 'Update Account'. It contains five input fields: 'Organization Name' (Technova Solutions, 18/100), 'Location' (Carig, Tuguegarao City, Cagayan, Cagayan Valley, 47/100), 'Website URL' (Enter website URL, 0/100), 'Phone Number' (09123456789, 11/11), and 'Confirm Password' (Enter your password to confirm changes, 0/128). A large blue 'Save Changes' button is at the bottom.

**Figure 6.25: Organization Account Settings**

The organization account setting page contains the organization name, location, website URL, phone number, and a save changes button. On this page, they can change the organization name, location, website URL, and phone number as long as they input their current password.

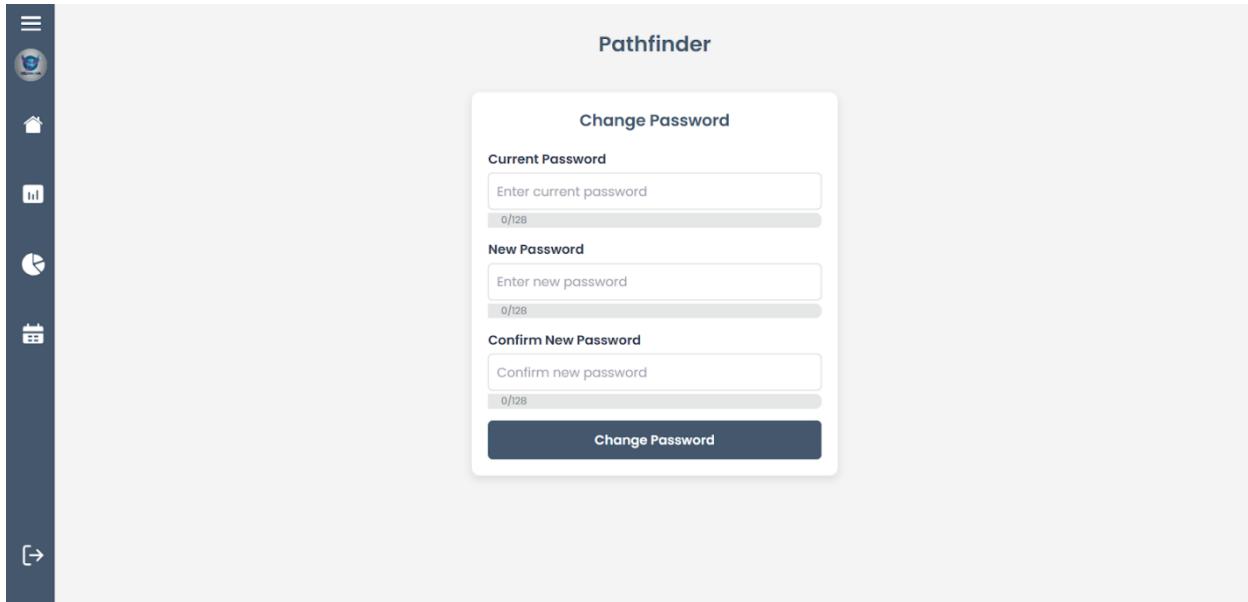
```

const updateAccount = async () => {
  const token = localStorage.getItem("token");
  if (!token) {
    showToast("Please log in again.", "error");
    router.push({ name: "OrgLogin" });
    return;
  }
  if (!form.value.organizationConfirmPassword) {
    showToast("Please enter your password to confirm changes.", "error");
    return;
  }
  try {
    const updatePayload = {
      organizationName: form.value.organizationName,
      location: form.value.organizationLocation,
      websiteURL: form.value.organizationWebsiteURL,
      phoneNumber: form.value.organizationPhoneNumber,
      confirmPassword: form.value.organizationConfirmPassword,
    };
    const response = await axios.put(
      import.meta.env.VITE_API_BASE_URL + "/organization/update",
      updatePayload,
      {
        headers: {
          Authorization: `Bearer ${token}`,
          "Content-Type": "application/json"
        }
      }
    );
    if (response.data.message) {
      showToast("Profile updated successfully!", "success");
      form.value.organizationConfirmPassword = "";
      await getOrgDetails();
    }
  } catch (error) {
    console.error("Error updating profile:", error);
    const errorMessage = error.response?.data?.message || "Failed to update profile. Please check your password and try again.";
    showToast(errorMessage, "error");
  }
};

```

**Figure 6.26: Code Snippet for Updating Organization Account**

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**Figure 6.27: Organization Change Password Page**

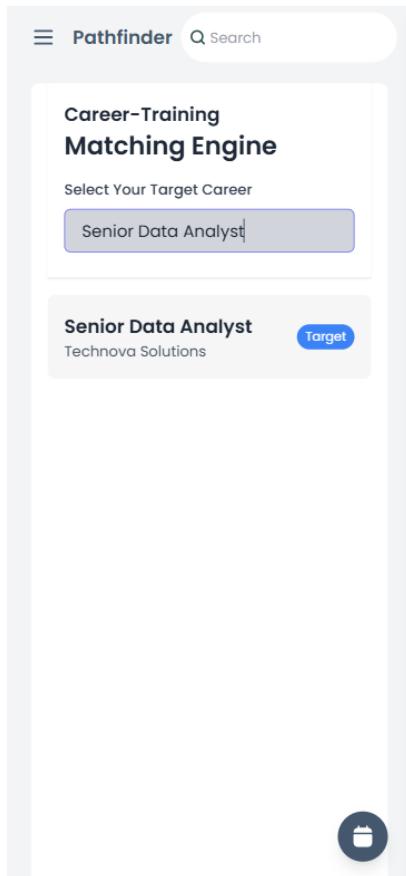
The change password page contains three input fields: current password, new password, and confirm new password. To successfully change their password, the organization must correctly enter their current and new passwords, then click the Change Password button to proceed.

```

const changePassword = async () => {
  const token = localStorage.getItem("token");
  if (!token) {
    showToast("Please log in again.", "error");
    router.push({ name: "orglogin" });
    return;
  }
  if (form.value.newPassword !== form.value.confirmPassword) {
    showToast("New password and confirmation do not match.", "error");
    return;
  }
  if (form.value.newPassword.length < 8) {
    showToast("New password must be at least 8 characters long.", "error");
    return;
  }
  try {
    const response = await axios.post(
      import.meta.env.VITE_API_BASE_URL + "/organization/change-password",
      {
        currentPassword: form.value.currentPassword,
        newPassword: form.value.newPassword,
        newPassword_confirmation: form.value.confirmPassword,
      },
      {
        headers: {
          Authorization: `Bearer ${token}`,
          "Content-Type": "application/json"
        }
      }
    );
    if (response.data.message) {
      showToast("Password changed successfully!", "success");
      // Clear form
      form.value.currentPassword = "";
      form.value.newPassword = "";
      form.value.confirmPassword = "";
    }
  } catch (error) {
    console.error("Error changing password:", error);
    const errorMessage = error.response?.data?.message || "Failed to change password. Please check your current password and try again.";
    showToast(errorMessage, "error");
  }
};
  
```

**Figure 6.28: Code Snippet for Changing the Password**

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**Figure 6.29: Pathfinder Home Page**

The applicant's homepage contains the career-training matching engine, sidebar, and the topbar. The career-training matching engine allows the applicants to select their target career. The target career will be displayed along with the careers with similar tags. The target career is then matched with training with similar tags that will help the applicants to be more qualified for the career.

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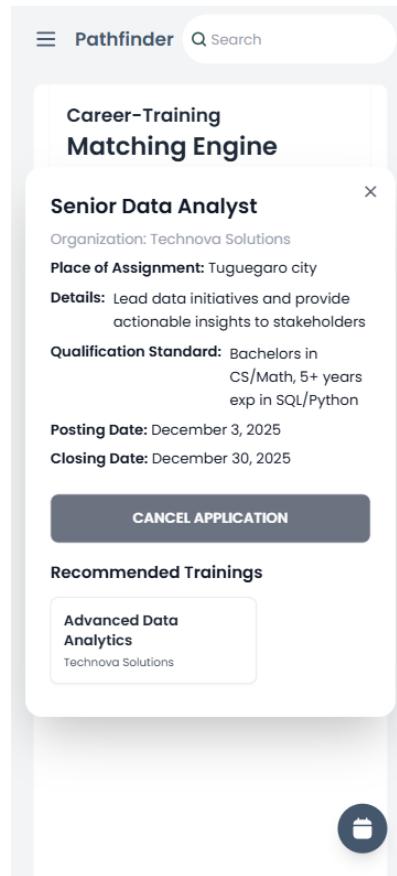


Figure 6.30: Pathfinder Target Career Modal

```

public function getCareerWithRecommendations($careerID)
{
    try {
        Log::info('Career ID: ' . $careerID);
        $results = DB::select('SELECT * FROM sp_getrecommendedcareers_bytags(?)', [$careerID]);
        if (empty($results)) {
            return response()->json([
                'career' => null,
                'recommended_trainings' => []
            ]);
        }
        $careerInfo = $results[0];
        $trainings = [];
        if (count($results) > 1) {
            $trainings = array_slice($results, 1);
        }
        return response()->json([
            'career' => $careerInfo,
            'recommended_trainings' => $trainings
        ]);
    } catch (\Exception $e) {
        return response()->json([
            'error' => 'Failed to load career recommendations',
            'message' => $e->getMessage()
        ], 500);
    }
}

```

Figure 6.31: Code Snippet for Career-Training Matching Engine

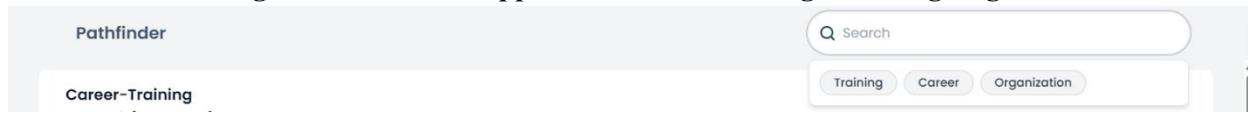


Figure 6.32: Pathfinder Top Bar

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The top bar contains the name of the system, Pathfinder, and the search bar, which contains three filters: career, training, and organization.

```

public function search(Request $request)
{
    $searchTerm = $request->input('search', '');
    $filterType = trim($request->input('filterType', ''));
    $subFilter = trim($request->input('subFilter', ''));

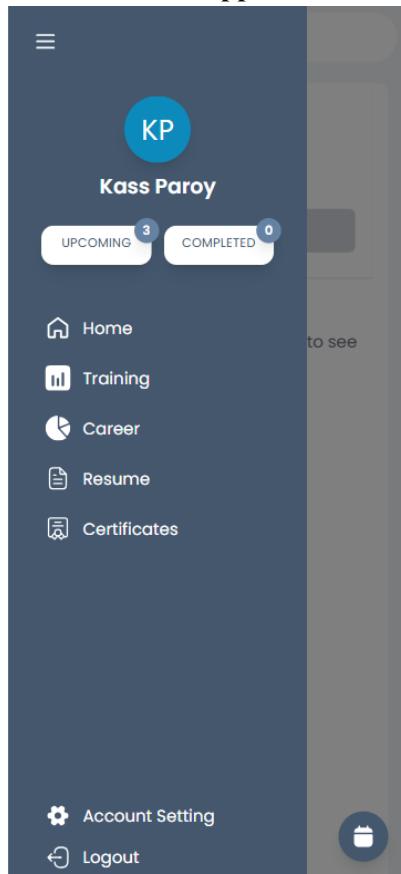
    if ($filterType === null || $filterType === '') {
        $filterType = 'all';
    }

    try {
        $results = DB::select('SELECT * FROM sp_search_content(?, ?, ?)', [
            $searchTerm,
            $filterType,
            $subFilter
        ]);

        return response()->json([
            'success' => true,
            'filterType' => $filterType,
            'count' => count($results),
            'results' => $results,
            'message' => count($results) > 0
                ? 'Search results retrieved successfully.'
                : 'No results found.'
        ]);
    } catch (\Exception $e) {
        return response()->json([
            'success' => false,
            'message' => 'Error executing search: ' . $e->getMessage()
        ], 500);
    }
}

```

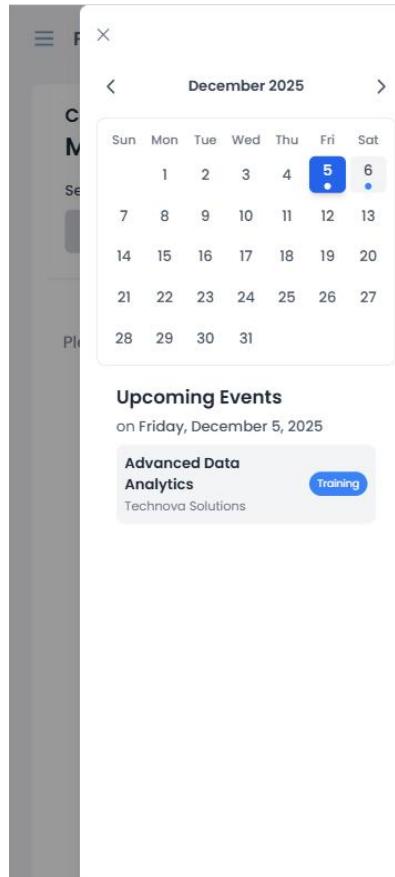
**Figure 6.33: Code Snippet for Search Bar**



**Figure 6.34: Pathfinder Sidebar**

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The sidebar contains multiple buttons that will lead you to specific pages, such as the profile page, training page, career page, resume editor page, certificates page, account settings, and you can also access the logout button.



**Figure 6.35: Pathfinder Calendar Sidebar**

The calendar sidebar, which displays the registered training on the day of its implementation and the applied career on the day of its scheduled interview. The applicant can click on the days with a blue circle to check the events scheduled on that day.

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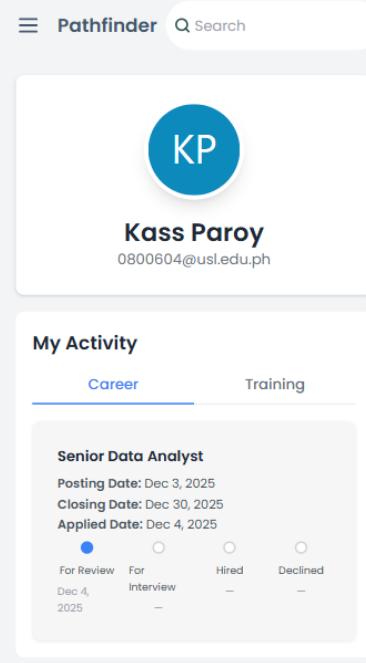
```

public function getUserEvents($applicantID)
{
    $applicantID = (int) $applicantID;
    $connection = DB::connection('pgsql');
    $trainings = $connection->table('registration')
        ->join('training', 'registration.trainingID', '=', 'training.trainingID')
        ->join('trainingschedule', 'training.trainingID', '=', 'trainingschedule.trainingID')
        ->leftJoin('organization', 'training.organizationID', '=', 'organization.organizationID')
        ->where('registration.applicantID', $applicantID)
        ->whereRaw("LOWER(COALESCE(registration.\"registrationStatus\", registration.registrationStatus, 'registered')) <> 'cancelled'")
        ->select(
            'training.trainingID as trainingID',
            'training.title as title',
            'training.description as description',
            DB::raw("TO_CHAR(trainingschedule.schedule, 'YYYY-MM-DD') as date"),
            DB::raw("TO_CHAR(trainingschedule.schedule, 'HH24:MI:SS') as time"),
            'trainingschedule.mode as mode',
            'trainingschedule.location as location',
            'trainingschedule.trainingLink as trainingLink',
            DB::raw("COALESCE(organization.name, 'Unknown') as organization"),
            'trainingschedule.attendance_key as attendance_key',
            DB::raw("TO_CHAR(trainingschedule.end_time, 'YYYY-MM-DD HH24:MI:SS') as end_time"),
            DB::raw("TO_CHAR(trainingschedule.generated_at, 'YYYY-MM-DD HH24:MI:SS') as qr_generated_at"),
            DB::raw("TO_CHAR(trainingschedule.attendance_expired_at, 'YYYY-MM-DD HH24:MI:SS') as attendance_expired_at"),
            'trainingschedule.trainingscheduleID as trainingScheduleID',
            'registration.registrationID as registrationID',
            DB::raw("'training' as type")
        )
        ->get();
}
$careers = $connection->table('application')
->join('career', 'application.careerID', '=', 'career.careerID')
->leftJoin('organization', 'career.organizationID', '=', 'organization.organizationID')
->where('application.applicantID', $applicantID)
->whereRaw("LOWER(COALESCE(application.\"applicationStatus\", application.applicationStatus, '')) = 'scheduled for interview'")
->whereNotNull('application.interviewSchedule')
->select(
    'career.careerID as careerID',
    'career.position as title',
    'career.details as details',
    'career.qualificationStandard as qualificationStandard',
    'career.placeofAssignment as placeofAssignment',
    DB::raw("TO_CHAR(application.interviewSchedule, 'YYYY-MM-DD') as date"),
    DB::raw("TO_CHAR(application.interviewSchedule, 'HH24:MI:SS') as time"),
    'application.interviewMode as mode',
    'application.interviewLocation as interviewLocation',
    'application.interviewLink as interviewLink',
    DB::raw("TO_CHAR(career.\"closingDate\", 'YYYY-MM-DD') as deadlineOfSubmission"),
    DB::raw("COALESCE(organization.name, 'Unknown') as organization"),
    DB::raw("'career' as type")
)
->get();
$events = $careers->merge($trainings)->sortBy('date')->values();
return response()->json(['events' => $events]);
}

```

**Figure 6.36: Code Snippet for Upcoming Events Displayed on the Calendar**

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**Kass Paroy**  
0800604@usl.edu.ph

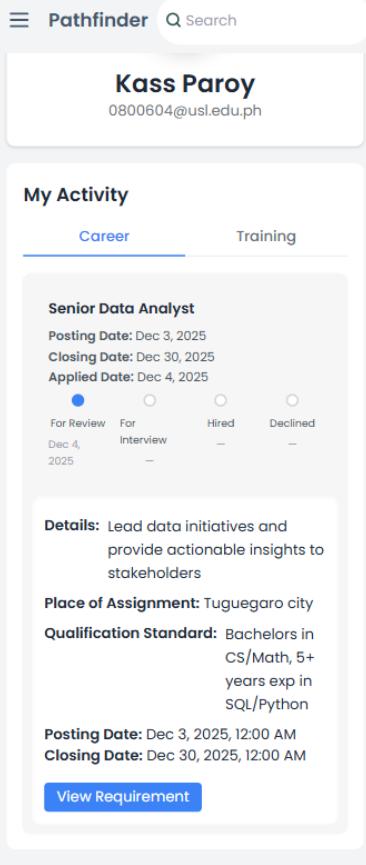
**My Activity**

**Career** **Training**

**Senior Data Analyst**

Posting Date: Dec 3, 2025  
Closing Date: Dec 30, 2025  
Applied Date: Dec 4, 2025

For Review	For Interview	Hired	Declined
Dec 4, 2025	—	—	—



**Kass Paroy**  
0800604@usl.edu.ph

**My Activity**

**Career** **Training**

**Senior Data Analyst**

Posting Date: Dec 3, 2025  
Closing Date: Dec 30, 2025  
Applied Date: Dec 4, 2025

For Review	For Interview	Hired	Declined
Dec 4, 2025	—	—	—

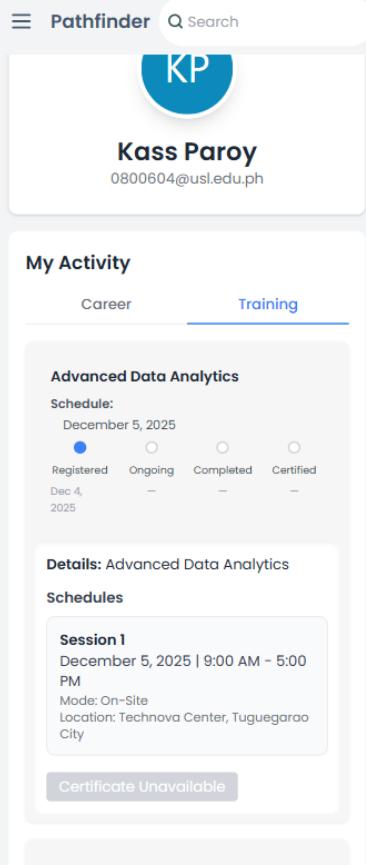
**Details:** Lead data initiatives and provide actionable insights to stakeholders

**Place of Assignment:** Tuguegarao city

**Qualification Standard:** Bachelors in CS/Math, 5+ years exp in SQL/Python

**Posting Date:** Dec 3, 2025, 12:00 AM  
**Closing Date:** Dec 30, 2025, 12:00 AM

**View Requirement**



**Kass Paroy**  
0800604@usl.edu.ph

**My Activity**

**Career** **Training**

**Advanced Data Analytics**

Schedule:  
December 5, 2025

Registered	Ongoing	Completed	Certified
Dec 4, 2025	—	—	—

**Details:** Advanced Data Analytics

**Schedules**

**Session 1**  
December 5, 2025 | 9:00 AM – 5:00 PM  
Mode: On-Site  
Location: Technova Center, Tuguegarao City

**Certificate Unavailable**

**Figure 6.37: Profile Page**

**Figure 6.38: Career Tab**

**Figure 6.39: Training Tab**

The profile page displays the user's activities, containing two tabs, the career tab and the training tab, each presenting the respective career and training events for which the user has applied or registered. These tabs also display the status of each event.

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```

async function fetchActivitiesDirectly() {
  const savedUser = localStorage.getItem("user");
  if (!savedUser) return;
  const user = JSON.parse(savedUser);
  applyUserProfile(user);
  try {
    const token = localStorage.getItem("token");
    const headers = token ? { Authorization: `Bearer ${token}` } : {};
    const [registrationsRes, applicationsRes] = await Promise.all([
      axios.get(
        `${import.meta.env.VITE_API_BASE_URL}/registrations`,
        { headers }
      ),
      axios.get(
        `${import.meta.env.VITE_API_BASE_URL}/applications`,
        { headers, params: { applicantID: user.applicantID } }
      ),
    ]);
    const normalizedTrainings = (registrationsRes.data || [])
      .map(normalizeTraining)
      .filter(Boolean);
    const normalizedCareers = (applicationsRes.data || [])
      .map(normalizeCareer)
      .filter(Boolean);
    trainingActivities.value = normalizedTrainings;
    careerActivities.value = normalizedCareers;
    upcomingCount.value = normalizedTrainings.filter((a) =>
      ["registered", "upcoming"].includes(a.status?.toLowerCase())
    ).length;
    completedCount.value = normalizedTrainings.filter(
      (a) => a.status?.toLowerCase() === "attended"
    ).length;
    if (normalizedTrainings.length > 0 && normalizedCareers.length === 0) {
      activeTab.value = "training";
    } else if (normalizedCareers.length > 0 && normalizedTrainings.length === 0) {
      activeTab.value = "career";
    }
  } catch (error) {
    console.error("Error fetching registrations/applications:", error);
  }
}

```

**Figure 6.40: Code Snippet for Fetching Applied Career Opportunities and Registered Trainings**

```

function getCurrentStepIndex(activity) {
  const statusRaw = activity?.status || "";
  const status = statusRaw.toLowerCase();
  const steps = getStatusSteps(activity).map((s) => s.key.toLowerCase());
  if (activity?.type === "training") {
    const normalized = status.replace(/\[s\]-+/g, "");
    const registeredIdx = steps.indexOf("registered");
    if (normalized) return registeredIdx;
    if (normalized.includes("cert")) {
      return steps.indexOf("certified");
    }
    if (normalized.includes("complete") || normalized.includes("attend")) {
      return steps.indexOf("completed");
    }
    if (normalized.includes("ongoing")) {
      return steps.indexOf("ongoing");
    }
    if (normalized.includes("registr")) {
      return steps.indexOf("registered");
    }
    return registeredIdx;
  }
  const idx = steps.indexOf(status);
  if (idx !== -1) return idx;
  const appliedIdx = steps.indexOf("applied");
  const screenIdx = steps.indexOf("screen");
  const hiredIdx = steps.indexOf("hired");
  const declinedIdx = steps.indexOf("declined");
  if ((status.includes("accept") || status.includes("hire")) && hiredIdx !== -1) {
    return hiredIdx;
  }
  if ((status.includes("decline") || status.includes("reject")) && declinedIdx !== -1) {
    return declinedIdx;
  }
}

```

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```

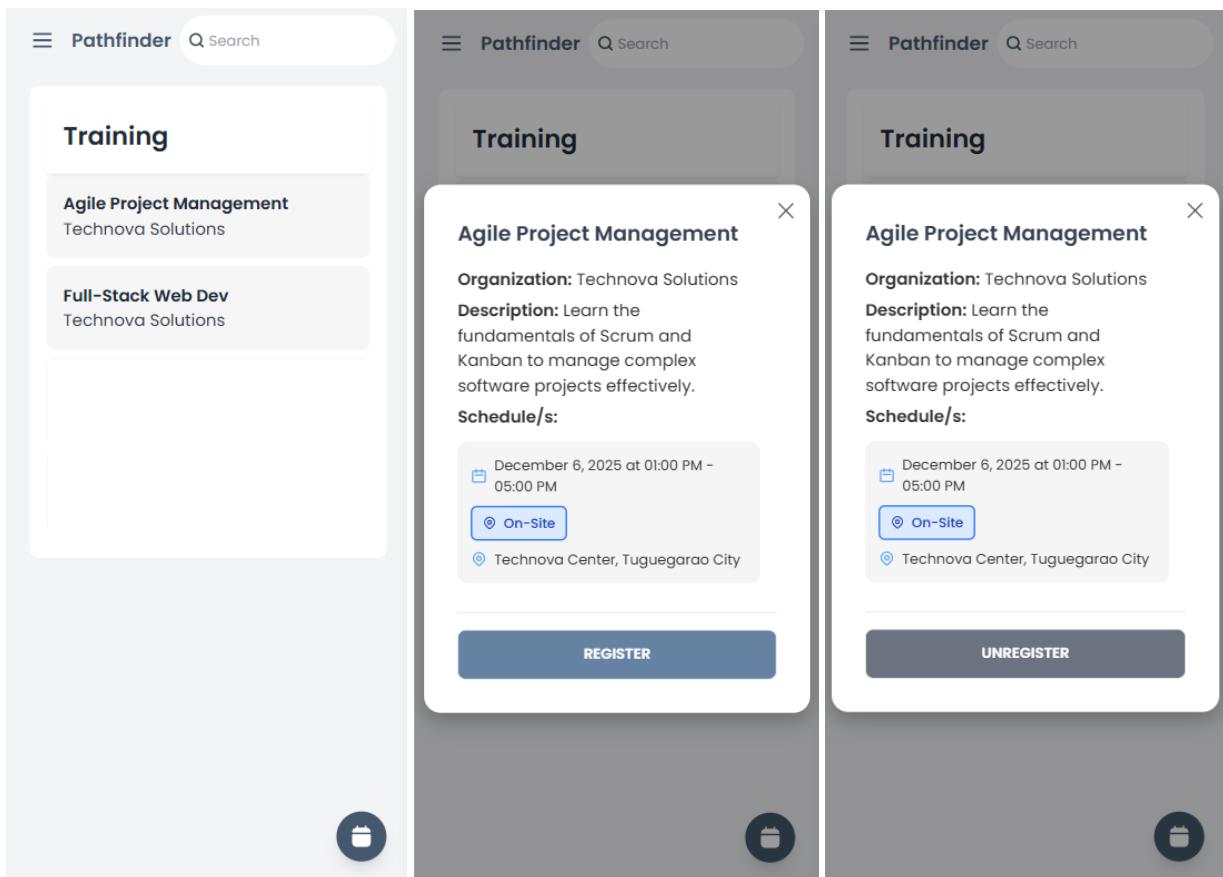
if (
    status.includes("interview") ||
    status.includes("screen") ||
    status.includes("pending")
) {
    if (screenIdx !== -1) return screenIdx;
}

if (
    status.includes("review") ||
    status.includes("submit") ||
    status.includes("appl")
) {
    if (appliedIdx !== -1) return appliedIdx;
}

return appliedIdx !== -1 ? appliedIdx : 0;
}

```

**Figure 6.41: Code Snippet for Event Status**



The figure consists of three side-by-side screenshots of a mobile application interface. All three screenshots show a header with the text "Pathfinder" and a search bar.

- Figure 6.42 (Left): Training Page**  
This screenshot shows a list of training events under the heading "Training". Two items are visible: "Agile Project Management" by Technova Solutions and "Full-Stack Web Dev" by Technova Solutions.
- Figure 6.43 (Middle): Training Modal-Register Button**  
This screenshot shows a detailed view of the "Agile Project Management" event. It includes the organization name, a description about learning Scrum and Kanban, and a schedule section. Below the schedule is a blue "REGISTER" button.
- Figure 6.44 (Right): Training Modal-Unregister Button**  
This screenshot shows the same event details as Figure 6.43, but the "REGISTER" button has been replaced by a "UNREGISTER" button. The background of the entire modal is grayed out.

**Figure 6.42:  
Training Page**

**Figure 6.43:  
Training Modal-Register Button**

**Figure 6.44:  
Training Modal-Unregister Button**

The training page allows the applicants to see all the latest trainings posted by the organizations. The applicants can view the details and register for the specific training. You can also unregister by clicking the unregister button.

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```

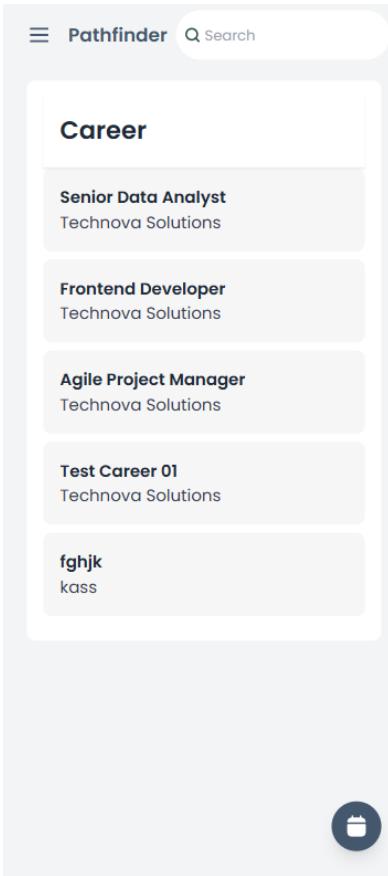
public function store(Request $request)
{
    $user = $request->user();
    if (!$user) {
        return response()->json(['message' => 'Unauthorized'], 401);
    }
    $validated = $request->validate([
        'trainingID' => 'required|exists:training,trainingID',
    ]);
    $trainingID = (int) $validated['trainingID'];
    $existing = Registration::where('applicantID', $user->applicantID)
        ->where('trainingID', $trainingID)
        ->first();
    if ($existing) {
        return response()->json([
            'message' => 'ALREADY REGISTERED FOR THIS TRAINING',
            'registrationID' => $existing->registrationID,
        ], 409);
    }
    $registration = Registration::create([
        'registrationDate' => Carbon::now(),
        'registrationStatus' => 'Registered',
        'certTrackingID' => null,
        'certGivenDate' => null,
        'trainingID' => $trainingID,
        'applicantID' => $user->applicantID,
    ]);
    $registration->recordStage('registered', Carbon::now(), true);
    $registration->save();
    return response()->json([
        'message' => 'REGISTRATION SUCCESSFUL!!!',
        'data' => $registration,
    ], 201);
}

public function destroy(Request $request, int $trainingID)
{
    $user = $request->user();
    if (!$user) {
        return response()->json(['message' => 'Unauthorized'], 401);
    }
    $registration = Registration::where('trainingID', $trainingID)
        ->where('applicantID', $user->applicantID)
        ->first();
    if (!$registration) {
        return response()->json(['message' => 'REGISTRATION NOT FOUND'], 404);
    }
    $registration->delete();
    return response()->json(['message' => 'REGISTRATION CANCELLED'], 200);
}

```

**Figure 6.55: Code Snippets for Registering and Unregistering for a Training**

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The screenshot shows a career page with a header 'Pathfinder' and a search bar. Below the header, there's a section titled 'Career' containing five job listings:

- Senior Data Analyst at Technova Solutions
- Frontend Developer at Technova Solutions
- Agile Project Manager at Technova Solutions
- Test Career 01 at Technova Solutions
- fghjk kass

**Figure 6.56:**  
Career Page

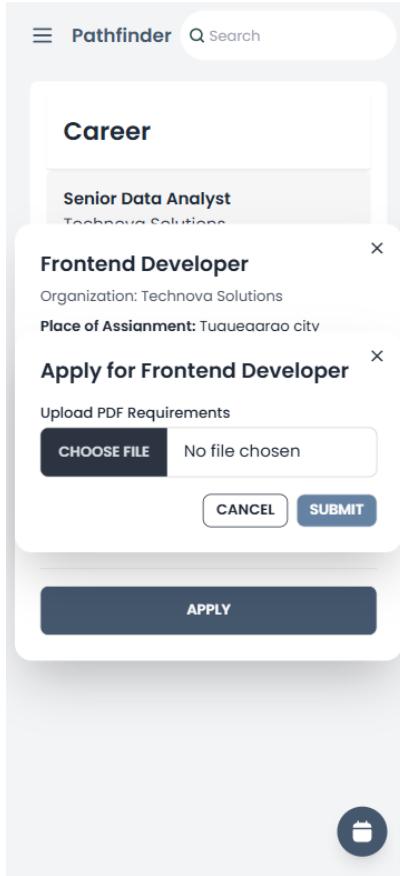


The screenshot shows a modal window for a 'Frontend Developer' position. The modal includes the following details:

- Frontend Developer**
- Organization: Technova Solutions
- Place of Assignment: Tuguegarao city
- Details: Build responsive web interfaces for our main e-commerce platform
- Qualification Standard: Proficient in React/Vue, HTML/CSS, 2+years exp.
- Posting Date: Dec 3, 2025, 8:00 AM
- Closing Date: Jan 5, 2026, 8:00 AM

At the bottom of the modal is a large blue 'APPLY' button.

**Figure 6.57:**  
Career Modal - Apply button



The screenshot shows a modal window for applying to a 'Frontend Developer' position. The modal includes:

- Frontend Developer
- Organization: Technova Solutions
- Place of Assianment: Tuuaeaaao city
- Apply for Frontend Developer
- Upload PDF Requirements
- CHOOSE FILE (button)
- No file chosen
- CANCEL
- SUBMIT

At the bottom of the modal is a large blue 'APPLY' button.

**Figure 6.58:**  
Submit Requirement Modal

The career page allows you to see all the career opportunities posted by the organizations. The applicant can click on a career opportunity to view the details and apply by clicking the Apply button shown in Figure 6.57 Upon clicking the apply button, it will open another modal (Figure 6.58), which will require the applicant to submit the consolidated PDF file for the requirements the organization wants to be submitted. By doing so, this will solidify the applicant's application for that specific career.

```

public function store(Request $request)
{
    error_log('==> APPLICATION STORE METHOD CALLED ==>');
    Log::info('==> APPLICATION STORE METHOD CALLED ==>', [
        'has_file' => $request->hasFile('requirement_directory'),
        'all_files' => array_keys($request->allFiles()),
        'careerID' => $request->input('careerID'),
        'method' => $request->method(),
        'url' => $request->fullUrl(),
        'content_type' => $request->header('Content-Type'),
    ]);
    try {
        $user = $request->user();
        if (!($user)) {
            Log::error('User is null in store method');
            return response()->json(['message' => 'Unauthorized'], 401);
        }
        if (!isset($user->applicantID)) {
            Log::error('User does not have applicantID', ['user_type' => get_class($user)]);
            return response()->json(['message' => 'User is not an applicant'], 403);
        }
        $validated = $request->validate([
            'careerID' => "required|exists:career,careerID",
            'requirement_directory' => 'nullable',
        ]);
        $careerID = (int) $validated['careerID'];
        $existing = Application::where('applicantID', $user->applicantID)
            ->where('careerID', $careerID)
            ->first();
        if ($existing) {
            return response()->json([
                'message' => 'ALREADY_APPLIED',
                'applicationID' => $existing->applicationID,
            ], 409);
        }
        $filePath = $request->input('requirement_directory');
        $hasFileUpload = $request->hasFile('requirement_directory');
        $requirementsPath = null;
        if ($hasFileUpload) {
            $file = $request->file('requirement_directory');
            Log::info('file received (direct upload)', [
                'name' => $file->getClientOriginalName(),
                'size' => $file->getSize(),
                'mime' => $file->getMimeType(),
            ]);
            try {
                $requirementsPath = $this->uploadRequirementToSupabase($file);
            } catch (\Exception $e) {
                Log::error('Failed to upload requirement to Supabase', [
                    'message' => $e->getMessage(),
                    'trace' => $e->getTraceAsString(),
                ]);
                return response()->json([
                    'message' => 'Failed to upload requirements.',
                    'error' => 'SUPABASE_UPLOAD_FAILED',
                ], 500);
            }
        } elseif ($filePath) {
            $requirementsPath = $filePath;
            Log::info('Using file path from Supabase upload', [
                'path' => $requirementsPath,
            ]);
        }
    }
}

```

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		Revision No. 01 Effectivity Date February 12, 2025

```

try {
    $app = Application::create([
        'requirement_directory' => $requirementsPath,
        'dateSubmitted' => Carbon::now(),
        'appliedDate' => Carbon::now(),
        'applicationStatus' => 'Submitted',
        'interviewSchedule' => null,
        'interviewMode' => null,
        'interviewLocation' => null,
        'interviewLink' => null,
        'careerID' => $careerID,
        'applicantID' => $user->applicantID,
    ]);
    $this->recordApplicationStage($app, 'submitted');
    Log::info('Application created successfully', [
        'applicationID' => $app->applicationID,
        'careerID' => $app->careerID,
        'applicantID' => $app->applicantID,
        'has_requirement' => !empty($requirementsPath),
    ]);
    return response()->json([
        'message' => 'APPLICATION SUBMITTED SUCCESSFULLY!!!',
        'data' => $app,
    ], 201);
} catch (\Illuminate\Database\QueryException $e) {
    Log::error('Database error creating application', [
        'error' => $e->getMessage(),
        'sql_state' => $e->getCode(),
        'careerID' => $careerID,
        'applicantID' => $user->applicantID,
    ]);
    return response()->json([
        'message' => 'Failed to submit application: Database error occurred.',
        'error' => 'DATABASE_ERROR',
    ], 500);
}
catch (\Illuminate\Validation\ValidationException $e) {
    Log::error('Validation error', [
        'errors' => $e->errors()
    ]);
    return response()->json([
        'message' => 'Validation failed',
        'errors' => $e->errors()
    ], 422);
}
catch (\Exception $e) {
    Log::error('Fatal error', [
        'message' => $e->getMessage(),
    ]);
    return response()->json([
        'message' => 'An error occurred: ' . $e->getMessage(),
        'error' => 'INTERNAL_SERVER_ERROR'
    ], 500);
}
}

```

**Figure 6.59: Code Snippet for Applying for a Career**

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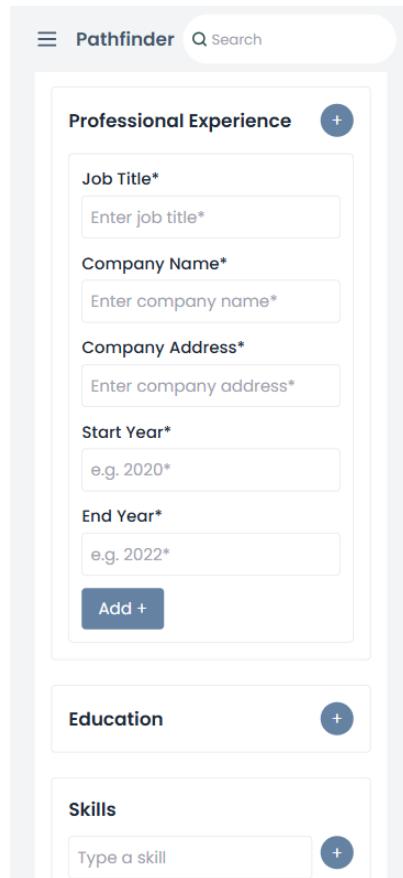
The screenshot shows the 'Pathfinder' interface with a 'Resume Editor' form. At the top, there's a header with a search bar and a navigation icon. The main form is titled 'Resume Editor' and contains the following fields:

- First Name: Kass
- Middle Name: (Blank)
- Last Name: Paroy
- Email: 0800604@usl.edu.ph
- Address: Ugac Norte, Tuguegarao City, Cagay
- Professional Link: URL (Field is empty)
- Professional Summary: (Large text area, currently empty)

**Figure 6.60: Pathfinder Resume Editor Page**

The resume editor page shown in Figure 6.60 allows the applicant to generate a resume by filling in the fields for each section. This page includes fields for first name, middle name, last name, phone number, email, and address, which reflect the information provided during registration. If any of these fields were left blank during registration, they will also appear blank on the resume page. The page also includes input fields for professional summary, professional link, professional experience, education, and skills.

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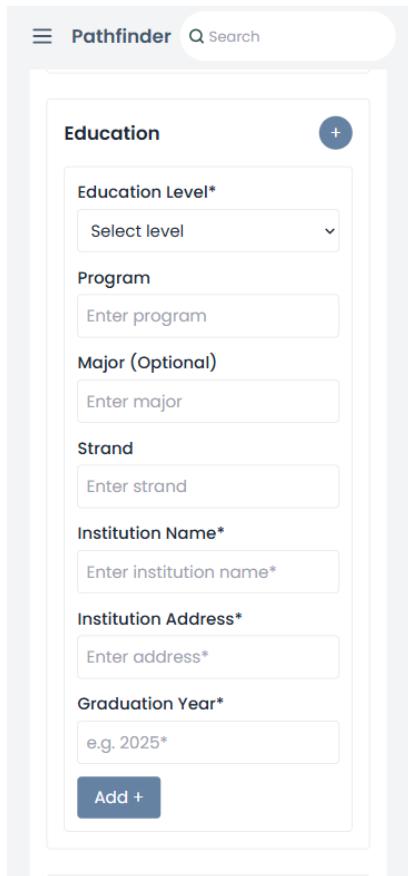


The screenshot shows the 'Pathfinder' resume editor interface. At the top, there's a navigation bar with three horizontal lines, the word 'Pathfinder', and a search icon. Below this is a header for 'Professional Experience' with a blue '+' button. The form contains five input fields: 'Job Title\*' (placeholder 'Enter job title\*'), 'Company Name\*' (placeholder 'Enter company name\*'), 'Company Address\*' (placeholder 'Enter company address\*'), 'Start Year\*' (placeholder 'e.g. 2020\*'), and 'End Year\*' (placeholder 'e.g. 2022\*'). A blue 'Add +' button is located at the bottom right of this section. Below it is another section header 'Education' with a blue '+' button. At the very bottom is a 'Skills' section with a blue 'Type a skill' input field and a blue '+' button.

**Figure 6.61: Resume Editor Page - Professional Experience**

Figure 6.61 shows the additional input fields the applicant has to fill when adding professional experience to their resume. The applicant will need to click the plus button and input the following job title, company name, company address, start year, and end year, then click the add button.

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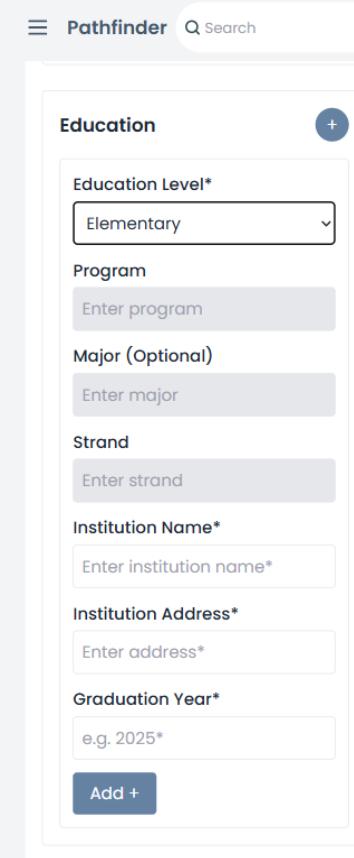
The screenshot shows a resume editor interface titled "Pathfinder". The main content area is a form for entering educational background information. The form is titled "Education" and includes the following fields:

- Education Level\***: A dropdown menu labeled "Select level".
- Program**: An input field labeled "Enter program".
- Major (Optional)**: An input field labeled "Enter major".
- Strand**: An input field labeled "Enter strand".
- Institution Name\***: An input field labeled "Enter institution name\*".
- Institution Address\***: An input field labeled "Enter address\*".
- Graduation Year\***: An input field labeled "e.g. 2025\*".

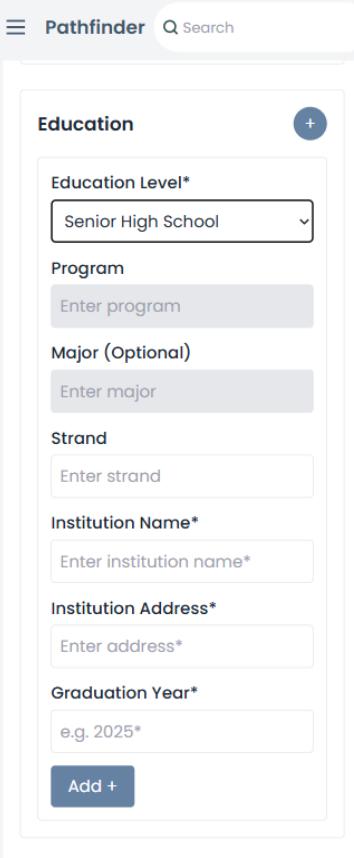
At the bottom right of the form is a blue button labeled "Add +".

**Figure 6.62: Resume Editor Page - Educational Background**

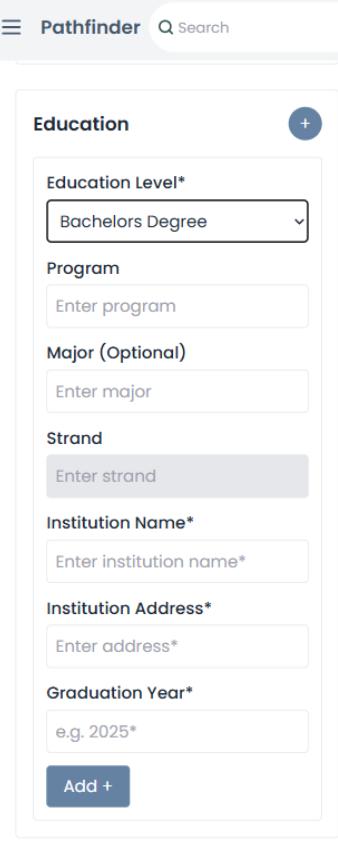
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**Figure 6.63**  
**Educational Background**  
**Elementary/ High school**



**Figure 6.64**  
**Educational Background**  
**Senior High School**



**Figure 6.65**  
**Educational background**  
**Bachelor's Degree/ Master's**  
**Degree/ Doctorate**

Figure 6.62 shows the additional input fields that vary depending on the selected educational level when adding an educational background. If the applicant selects elementary or high school, they are required to input the institution name, address, and graduation year (Figure 6.63). If the applicant selects senior high school, the input field for the strand becomes enabled (Figure 6.64). For the remaining educational level options, the applicant must fill in the program field along with the other required fields, except for the strand field, as shown in Figure 6.65. The major field is also enabled but remains optional. After entering all the information they want to include in the resume, the applicant can click the Download Resume button located at the bottom right of the page to open a modal that displays a preview of the resume to be downloaded.

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```

public function store(Request $request)
{
    $token = $request->bearerToken();
    $applicant = Applicant::where('api_token', $token)->first();
    if (!$applicant) {
        return response()->json(['message' => 'Unauthorized'], 401);
    }
    $validated = $request->validate([
        'summary' => 'nullable|string|max:10000',
        'professionalLink' => 'nullable|string|max:1000',
    ]);
    $professionalLink = $validated['professionalLink'] ?? '';
    if (strlen($professionalLink) > 1000) {
        $professionalLink = substr($professionalLink, 0, 1000);
    }
    $resume = Resume::updateOrCreate(
        ['applicantID' => $applicant->applicantID],
        [
            'summary' => $validated['summary'] ?? '',
            'professionalLink' => $professionalLink,
        ]
    );
    return response()->json($resume, 200);
}

```

**Figure 6.66: Code Snippet for Storing Professional Summary and Link**

```

public function store(Request $request)
{
    $validated = $request->validate([
        'educationLevel' => 'required|string|max:255',
        'program' => 'nullable|string|max:255',
        'major' => 'nullable|string|max:255',
        'strand' => 'nullable|string|max:255',
        'institutionName' => 'required|string|max:255',
        'institutionAddress' => 'nullable|string|max:1000',
        'graduationYear' => 'nullable|digits:4',
        'resumeID' => 'required|exists:resume,resumeID',
    ]);
    if (!empty($validated['graduationYear'])) {
        $validated['graduationYear'] = (int) $validated['graduationYear'];
    }
    $education = Education::create($validated);
    return response()->json($education, 201);
}

```

**Figure 6.67: Code snippet for storing educational background information**

```

public function store(Request $request)
{
    $token = $request->bearerToken();
    $applicant = Applicant::where('api_token', $token)->first();
    if (!$applicant) {
        return response()->json(['message' => 'Unauthorized'], 401);
    }
    $resume = Resume::where('applicantID', $applicant->applicantID)->first();
    if (!$resume) {
        return response()->json([
            'error' => 'Failed to add experience. Make sure you have a resume first.'
        ], 400);
    }
    \Log::info('Experience store request data', [
        'startYear' => $request->input('startYear'),
        'endYear' => $request->input('endYear'),
        'startYear_type' => gettype($request->input('startYear')),
        'endYear_type' => gettype($request->input('endYear')),
    ]);
    $startYear = $request->input('startYear');
    $endYear = $request->input('endYear');
    if (is_string($startYear) && is_numeric($startYear)) {
        $startYear = (int) $startYear;
    }
    if (is_string($endYear) && is_numeric($endYear)) {
        $endYear = (int) $endYear;
    }
    if (!is_int($startYear) || $startYear < 1900 || $startYear > 2099) {
        return response()->json([
            'message' => 'Start year must be a valid year between 1900 and 2099.'
        ], 422);
    }
    if (!is_int($endYear) || $endYear < 1900 || $endYear > 2099) {
        return response()->json([
            'message' => 'End year must be a valid year between 1900 and 2099.'
        ], 422);
    }
}

```

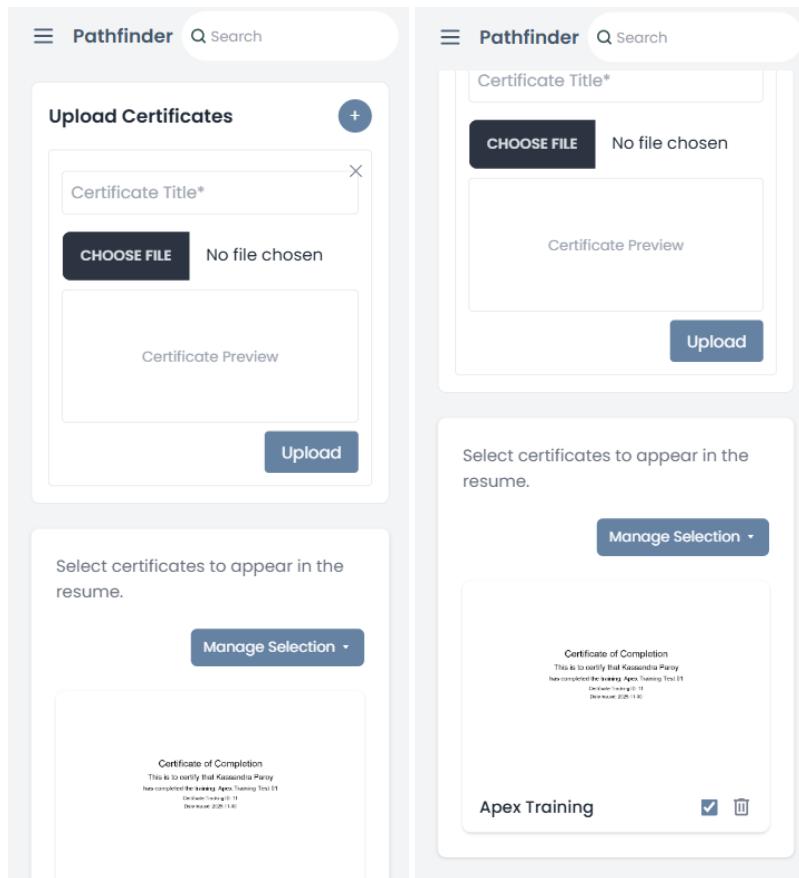
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```

if ($endYear < $startYear) {
    return response()->json([
        'message' => 'End year must be greater than or equal to start year.'
    ], 422);
}
$validated = $request->validate([
    'jobTitle' => 'required|string|max:255',
    'companyName' => 'required|string|max:255',
    'companyAddress' => 'required|string|max:255',
]);
$startDate = $startYear . '-01-01';
$endDate = $endYear . '-01-01';
$experience = ProfessionalExperience::create([
    'jobTitle' => $validated['jobTitle'],
    'companyName' => $validated['companyName'],
    'companyAddress' => $validated['companyAddress'],
    'startYear' => $startDate,
    'endYear' => $endDate,
    'resumeID' => $resume->resumeID,
]);
return response()->json($experience, 201);
}

```

**Figure 6.68: Code snippet for storing professional experience information**



The screenshot shows two side-by-side panels within the Pathfinder application interface.

**Left Panel:** Titled "Upload Certificates". It contains a "Certificate Title\*" input field, a "CHOOSE FILE" button with "No file chosen" text, a "Certificate Preview" area, and an "Upload" button at the bottom.

**Right Panel:** Titled "Pathfinder". It has a "Certificate Title\*" input field, a "CHOOSE FILE" button with "No file chosen" text, a "Certificate Preview" area, and an "Upload" button at the bottom. Below these is a section titled "Select certificates to appear in the resume." with a "Manage Selection" dropdown. It displays a list of certificates, each with a checkbox and a delete icon. One certificate card is visible, showing a thumbnail of a certificate document and the text "Certificate of Completion" and "Apex Training".

**Figure 6.69 Pathfinder - Certificates page**

As shown in Figure 6.69, the certificate page allows the applicant to upload certificates that they have obtained outside the system. The applicant will need to input the title of the training and select the image of the certificate to be uploaded, and click the upload button. The certificate page will also display the certificates issued by the organization for the training they have attended within the system. The checkbox found on the lower left of each certificate card indicates whether that certificate will be included

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in the certificate section of their resume. If the checkbox is checked, then the certificate title will be displayed, and if the checkbox is not checked, then it will not be displayed.

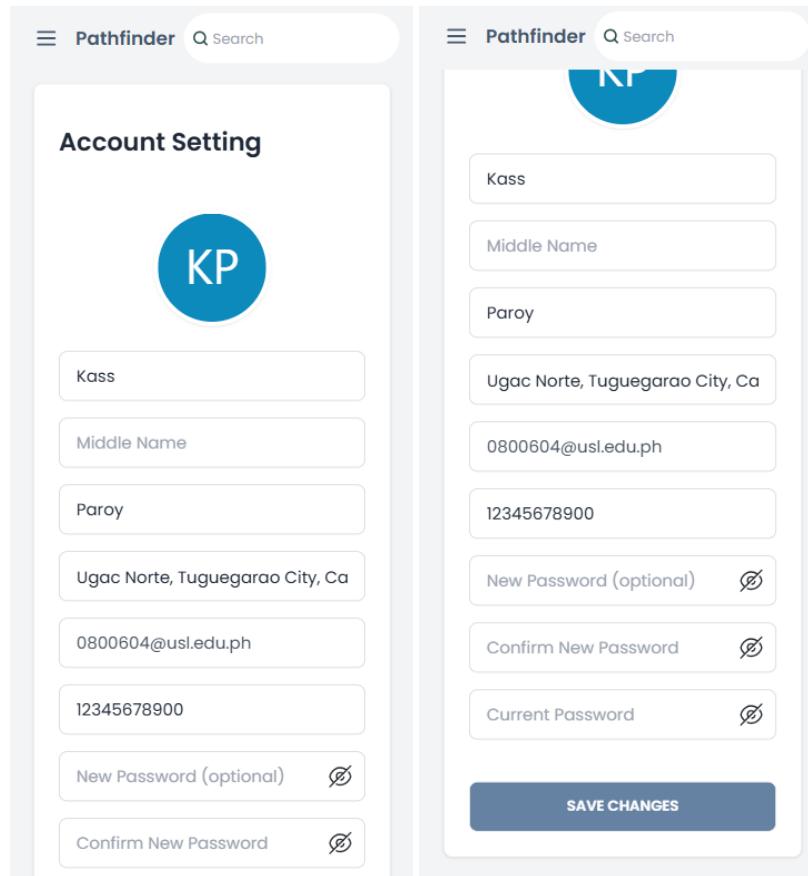
```

async function uploadCertificate(cert, index) {
  const token = localStorage.getItem("token");
  const savedUser = localStorage.getItem("user");
  const user = savedUser ? JSON.parse(savedUser) : null;
  if (!token || !user?.applicantID) {
    showToast("Please log in again.", "error");
    setTimeout(() => router.push({ name: "Login" }), 1500);
    return;
  }
  if (!cert.file) {
    showToast("Please select an image before uploading.", "error");
    return;
  }
  const allowedTypes = ['image/jpeg', 'image/jpg', 'image/png'];
  if (!allowedTypes.includes(cert.file.type)) {
    showToast("Please upload a JPEG or PNG image file.", "error");
    return;
  }
  const maxSize = 4 * 1024 * 1024;
  if (cert.file.size > maxSize) {
    showToast("File size must be less than 4MB.", "error");
    return;
  }
  const trimmedTitle = cert.title?.trim();
  if (!trimmedTitle) {
    showToast("Please enter a certificate title.", "error");
    return;
  }
  if (trimmedTitle.length > 255) {
    showToast("Certificate title must be 255 characters or less.", "error");
    return;
  }
  const formData = new FormData();
  formData.append("certificationName", trimmedTitle);
  formData.append("applicantID", user.applicantID.toString());
  formData.append("isSelected", "1");
  formData.append("certificate", cert.file);
  try {
    const response = await axios.post(
      import.meta.env.VITE_API_BASE_URL + "/certificates",
      formData,
      {
        headers: {
          Authorization: `Bearer ${token}`,
        },
      },
    );
  } catch (error) {
    console.error(error);
  }
}

```

**Figure 6.70: Code snippet for uploading a certificate**

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The screenshot shows the 'Account Setting' page of the Pathfinder system. At the top, there is a header with the text 'Pathfinder' and a search bar. Below the header, there is a large blue circular profile picture placeholder with the letters 'KP'. The main area contains several input fields for personal information:

- Kass (First Name)
- Middle Name
- Paroy (Last Name)
- Ugac Norte, Tuguegarao City, Ca (Address)
- 0800604@usl.edu.ph (Email Address)
- 12345678900 (Phone Number)
- New Password (optional) (Password Field with eye icon)
- Confirm New Password (Password Confirmation Field with eye icon)
- Current Password (Password Field with eye icon)

At the bottom right of the form is a large blue 'SAVE CHANGES' button.

**Figure 6.71 Pathfinder - Account setting**

On the lower part of the sidebar, the account setting button can be found(Figure 3.1.B). The account setting page shown in Figure 6.71 allows the applicant to change their personal information, including their password. The applicant can successfully change all the fields present except their email by correctly inputting their current password in the current password field. After that, they can now click the save changes button.

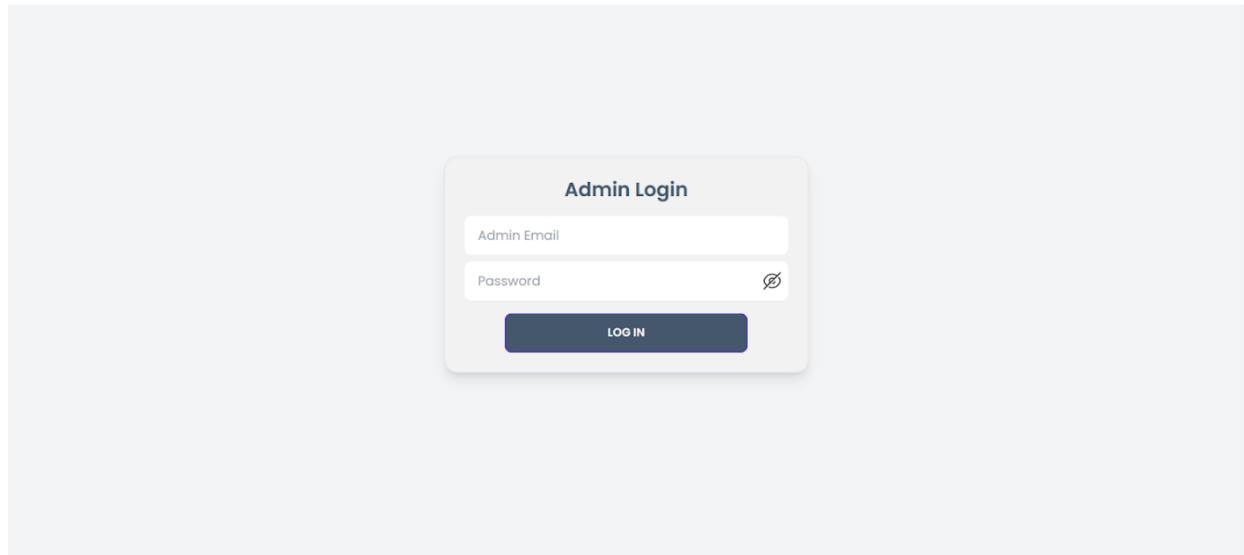
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```

public function update(Request $request)
{
    $token = $request->bearerToken();
    $applicant = Applicant::where('api_token', $token)->first();
    if (!$applicant) {
        return response()->json(['message' => 'Unauthorized'], 401);
    }
    $validated = $request->validate([
        'firstName' => 'nullable|string|max:255',
        'middleName' => 'nullable|string|max:255',
        'lastName' => 'nullable|string|max:255',
        'address' => 'nullable|string|max:255',
        'emailAddress' => 'nullable|email|max:255',
        'phoneNumber' => 'nullable|string|max:20',
        'displayPicture_directory' => 'nullable|string|max:255',
        // Accept DisplayPicture_directory for backward compatibility but normalize it
        'DisplayPicture_directory' => 'nullable|string|max:255',
    ]);
    $applicant->fill([
        'firstName' => $request->firstName ?? $applicant->firstName,
        'middleName' => $request->middleName ?? $applicant->middleName,
        'lastName' => $request->lastName ?? $applicant->lastName,
        'address' => $request->address ?? $applicant->address,
        'emailAddress' => $request->emailAddress ?? $applicant->emailAddress,
        'phoneNumber' => $request->phoneNumber ?? $applicant->phoneNumber,
    ]);
    $displayPicturePath = $request->input('displayPicture_directory') ??
        $request->input('DisplayPicture_directory');
    if ($displayPicturePath != null) {
        // Use setAttribute directly with the exact database column name (camelcase)
        // This ensures Laravel uses the correct column name, not DisplayPicture_directory
        $applicant->setAttribute('displayPicture_directory', $displayPicturePath);
    }
    $applicant->save();
    return response()->json([
        'message' => 'Profile updated successfully',
        'user' => $applicant->fresh() // Return fresh data from database
    ]);
}
...

```

**Figure 6.72: Code snippet for updating applicant account information**



**Figure 6.73: Admin login page**

Figure 6.73 shows the login page for the admin of the system. The admin needs to input their credentials to successfully log in to the system.

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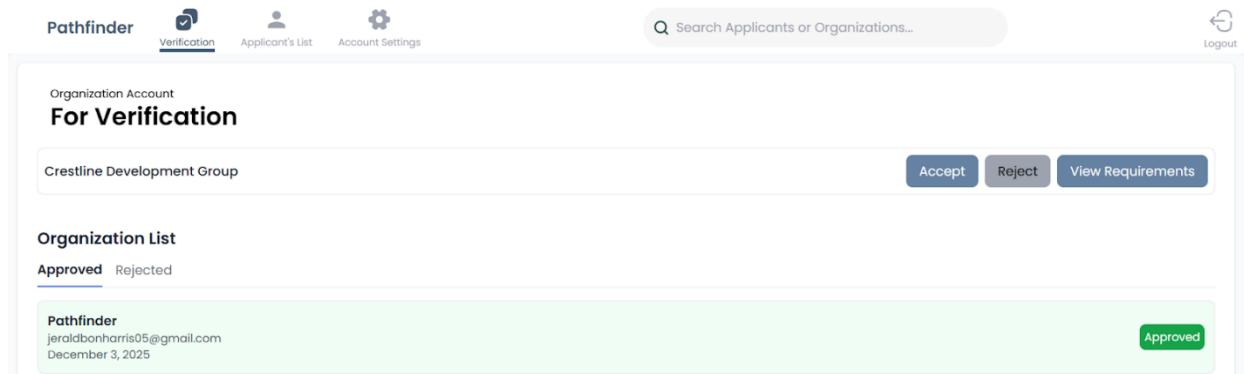
```

public function login(Request $request)
{
    $validator = Validator::make($request->all(), [
        'emailAddress' => 'required|email',
        'password' => 'required'
    ]);
    if ($validator->fails()) {
        return response()->json([
            'message' => 'Invalid login credentials.',
            'errors' => $validator->errors()
        ], 422);
    }
    $admin = Admin::where('emailAddress', $request->emailAddress)->first();

    if (!$admin) {
        return response()->json([
            'message' => 'Invalid email or password.'
        ], 401);
    }
    if (!Hash::check($request->password, $admin->password)) {
        return response()->json([
            'message' => 'Invalid email or password.'
        ], 401);
    }
    $token = $admin->createToken('adminToken')->plainTextToken;
    return response()->json([
        'message' => 'Admin login successful.',
        'admin' => [
            'adminID' => $admin->adminID,
            'name' => $admin->name,
            'location' => $admin->location,
            'websiteURL' => $admin->websiteURL,
            'emailAddress' => $admin->emailAddress,
            'role' => 'admin'
        ],
        'token' => $token
    ], 200);
}

```

**Figure 6.73: Code snippet for admin login**



The screenshot shows the 'Verification' tab selected in the top navigation bar. The main content area displays a section titled 'Organization Account For Verification' for 'Crestline Development Group'. Below this, there is an 'Organization List' section with tabs for 'Approved' (which is selected) and 'Rejected'. Under the 'Approved' tab, there is a single entry for 'Pathfinder' with an email address and a timestamp. To the right of this entry is a green 'Approved' button.

**Figure 6.74: Admin verification page - approved tab**

The verification page contains organization accounts that need to be verified. Before accepting or rejecting an organization, the admin first need to view the requirements submitted. Below the verification list are the organization lists for accepted and rejected organizations. The figure above shows the accepted tab.

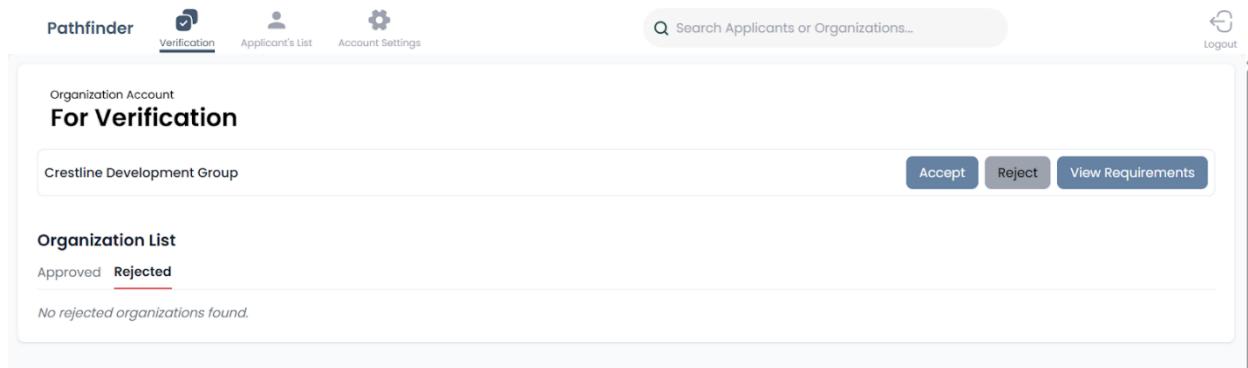
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```

async function acceptOrg(id) {
  try {
    const res = await axios.post(
      import.meta.env.VITE_API_BASE_URL + `/organization/${id}/approve`
    );
    organizations.value = organizations.value.filter((o) => o.organizationID !== id);
    const approvedOrg = res.data.organization; // adjust if your API returns the org details
    if (approvedOrg) {
      approvedOrganizations.value.push(approvedOrg);
    }
    if (selectedOrg.value?.organizationID === id) {
      selectedOrg.value = null;
    }
    showToast("Organization approved and email sent successfully!", "success");
  } catch (err) {
    console.error("Approval failed:", err.response?.data || err.message);
    showToast("Failed to approve organization or send email.", "error");
  }
}

```

**Figure 6.75: Code snippet for approving an organization**



The screenshot shows a web application interface for managing organization accounts. At the top, there's a navigation bar with links for 'Pathfinder', 'Verification' (which is active), 'Applicant's List', and 'Account Settings'. A search bar is also present. On the left, a sidebar displays 'Organization Account' and 'For Verification'. Below this, a section titled 'Crestline Development Group' shows status buttons for 'Accept', 'Reject', and 'View Requirements'. The main content area is titled 'Organization List' and has tabs for 'Approved' and 'Rejected' (which is currently selected). A message states 'No rejected organizations found.'

**Figure 6.76: Admin verification page - rejected tab**

Figure 6.76 shows the rejected tab, which will contain the rejected organizations.

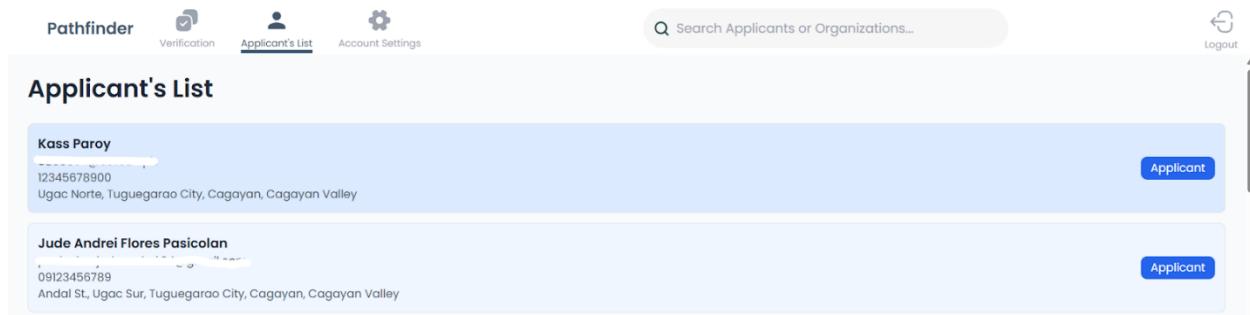
```

async function submitRejection() {
  if (!rejectReason.value.trim()) {
    showToast("Please enter a reason for rejection.", "error");
    return;
  }
  try {
    const res = await axios.post(
      import.meta.env.VITE_API_BASE_URL + `/organization/${rejectOrgID.value}/reject`,
      { reason: rejectReason.value }
    );
    const rejectedOrg = organizations.value.find(o => o.organizationID === rejectOrgID.value);
    organizations.value = organizations.value.filter(
      (o) => o.organizationID !== rejectOrgID.value
    );
    if (rejectedOrg) {
      rejectedOrg.rejectionReason = res.data.rejectionReason; // include reason from API
      rejectedOrganizations.value.push(rejectedOrg);
    }
    rejectModal.value = false;
    rejectReason.value = "";
    rejectOrgID.value = null;
    showToast("Organization rejected successfully.", "success");
  } catch (err) {
    console.error("Rejection failed:", err.response?.data || err.message);
    showToast("Failed to reject organization.", "error");
  }
}

```

**Figure 6.78: Code snippets for rejecting an organization**

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The screenshot shows the 'Applicant's List' section of the admin interface. It displays two entries:

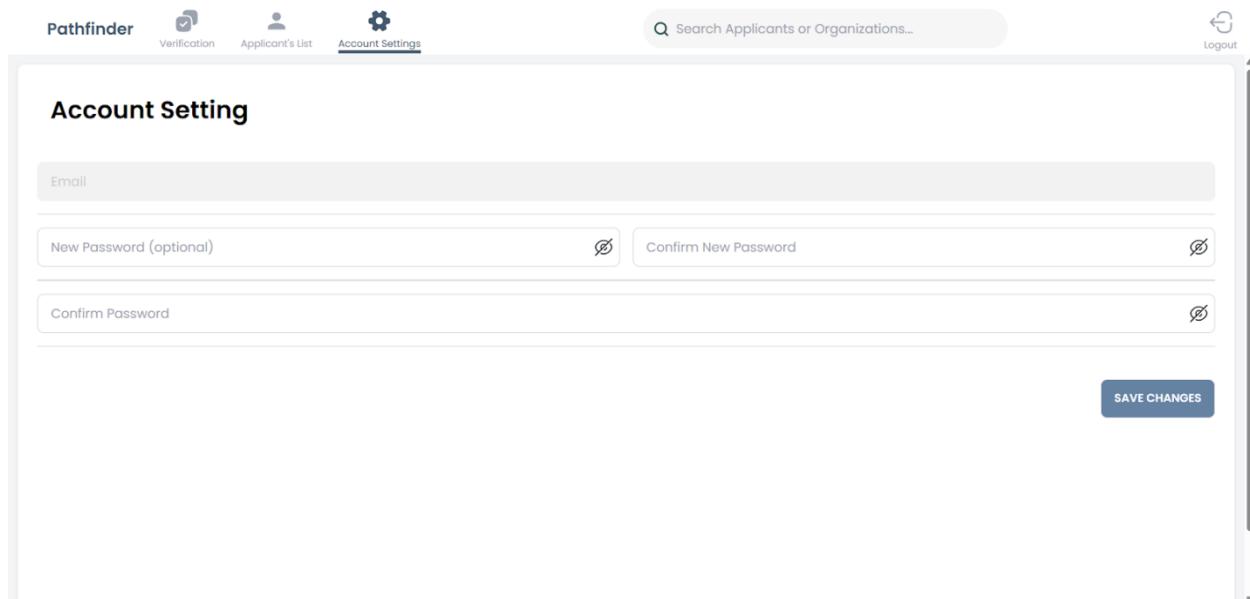
- Kass Paroy**: Address: 12345678900, Ugac Norte, Tuguegarao City, Cagayan, Cagayan Valley. Status: Applicant.
- Jude Andrei Flores Pasicolan**: Address: 09123456789, Andal St., Ugac Sur, Tuguegarao City, Cagayan, Cagayan Valley. Status: Applicant.

**Figure 6.79 Admin applicant's list**

The applicant list can be accessed by clicking the applicant list button located on the top bar. On this page, the admin can see the list of applicants who have registered in the system, as shown in Figure 6.79.

```
async function loadApplicants() {
  try {
    const res = await axios.get(import.meta.env.VITE_API_BASE_URL + "/admin/applicants");
    applicants.value = res.data;
  } catch (err) {
    console.error("Error loading applicants:", err);
  } finally {
    loading.value = false;
  }
}
```

**Figure 6.80: Code snippets for fetching the applicants' list**



The screenshot shows the 'Account Setting' page. It includes fields for:

- Email (disabled)
- New Password (optional) and Confirm New Password (disabled)
- Confirm Password (disabled)
- A 'SAVE CHANGES' button

**Figure 6.81: Admin Account setting**

The account settings page allows the admin to change their password by correctly inputting their new password in the confirm new password field and by inputting their current password in its respective

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field. After doing so, they can now successfully change their password by clicking on the save changes button.

```

public function update(Request $request)
{
    $admin = $request->user();
    $validator = Validator::make($request->all(), [
        'currentPassword' => 'required',
        'newPassword' => 'nullable|string|min:8',
        'confirmPassword' => 'nullable|same:newPassword',
    ]);
    if ($validator->fails()) {
        return response()->json([
            'message' => 'Validation failed.',
            'errors' => $validator->errors()
        ], 422);
    }
    if (!Hash::check($request->currentPassword, $admin->password)) {
        return response()->json([
            'message' => 'Current password is incorrect.'
        ], 401);
    }
    if ($request->newPassword) {
        if ($request->newPassword !== $request->confirmPassword) {
            return response()->json([
                'message' => 'New password and confirm password do not match.'
            ], 422);
        }
        $admin->password = Hash::make($request->newPassword);
        $admin->save();
    }
    return response()->json([
        'message' => 'Password updated successfully.',
        'admin' => [
            'adminID' => $admin->adminID,
            'name' => $admin->name,
            'location' => $admin->location,
            'websiteURL' => $admin->websiteURL,
            'emailAddress' => $admin->emailAddress,
            'role' => 'admin'
        ]
    ]);
}

```

**Figure 6.82: Code snippet for updating admin account**

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### Interpretation of Evaluation Results

To accurately interpret the data gathered from the respondents, the researchers established a specific range of means with corresponding verbal interpretations.

RANGE OF MEAN	VERBAL INTERPRATATION
4.21 – 5.00	Strongly Agree
3.41 – 4.20	Agree
2.61 – 3.40	Neutral
1.81 – 2.60	Disagree
1.00 – 1.80	Strongly Disagree

**Table 3: Likert Scale Verbal Interpretation**

Table 3 presents the 5-point Likert scale used to interpret the weighted means calculated from the evaluation instruments. A mean range of 4.21 to 5.00 indicates that the respondents "Strongly Agree" with the criteria, representing the highest level of approval. A range of 3.41 to 4.20 is interpreted as "Agree," signifying that the web application meets the criteria satisfactorily. Scores below 3.40 would indicate neutrality or dissatisfaction with the web application's performance.

CRITERIA	MEAN	VERBAL INTERPRETATION
Usefulness	4.63	Strongly Agree
Ease of Use	4.64	Strongly Agree
Ease of Learning	4.51	Strongly Agree
Satisfaction	4.43	Strongly Agree
<b>OVERALL MEAN</b>	<b>4.55</b>	<b>Strongly Agree</b>

**Table 4: Summary of USE Evaluation Results (End-Users)**

Table 4 details the assessment of the web application's usability by the 34 end-users (college students and job seekers). The results indicate an exceptionally positive reception, with an Overall Mean of 4.55, interpreted as Strongly Agree.

Among the criteria, Ease of Use received the highest rating (4.64), suggesting that the interface design specifically the navigation flows for searching careers and trainings was intuitive for the target audience. Usefulness followed closely (4.63), confirming that the respondents found the web application's core purpose of centralizing training and career opportunities highly relevant to their needs. Ease of Learning (4.51) and Satisfaction (4.43) were also rated as "Strongly Agree," implying that users could quickly master the web application functionalities without extensive instruction and were satisfied with their overall experience.

SOFTWARE QUALITY CHARACTERISTICS	MEAN	VERBAL INTERPRETATION
Functional Suitability	4.03	Agree
Compatibility	4.08	Agree
Usability	4.08	Agree
Security	4.00	Agree
Portability	4.15	Agree
<b>OVERALL MEAN</b>	<b>4.07</b>	<b>Agree</b>

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**Table 5: Summary of ISO 25010 Evaluation Results (IT Experts)**

Table 5 presents the technical evaluation conducted by 13 IT experts from CDT-USLT, DICT Region II, and TESDA Region II. The web application achieved an Overall Mean of 4.07, interpreted as Agree.

The highest-rated characteristic was Portability (4.15), indicating that the experts found the web application to be adaptable across different environments and devices. Compatibility and Usability both received a mean of 4.08, confirming that the web application functions well alongside other software and adheres to standard interface guidelines from a technical perspective. Functional Suitability (4.03) and Security (4.00) received the lowest scores but remained well within the "Agree" range. This suggests that while the web application successfully meets its specified requirements and security protocols such as the administrator verification workflow there may be room for further enhancement in these areas to reach the "Strongly Agree" threshold in future iterations.

## Conclusion

The Pathfinder web application was successfully constructed using the Rapid Application Development (RAD) model, which was selected to ensure the web application could adapt to the specific operational standards of the Department of Information and Communications Technology (DICT) Region II and Technical Education and Skills Development Authority (TESDA) Region II. The iterative nature of the RAD lifecycle, particularly the user design and cutover phases, allowed for the continuous validation of requirements against the constraints of a localized labor market. By utilizing a modern technology stack including Vue.js, Laravel, and PostgreSQL the web application achieved a stable and reliable deployment, transitioning successfully from a local development environment to a live production environment on Render.

The project successfully implemented all intended software modules designed to bridge the gap between skill acquisition and employment. Key features include the Career-Training Matching Engine, which automates the linkage between applicant's career goals and relevant training programs, and the Resume Editor, which streamlines document preparation. Furthermore, the system integrated critical administrative functionalities for organizations, such as the QR code-based attendance and certificate issuance system, effectively digitizing processes that were previously done manually.

The evaluation of the system demonstrated high levels of usability and technical quality. In the assessment involving 34 end-users, the web application achieved an overall mean rating of 4.55, interpreted as "Strongly Agree," with "Ease of Use" receiving the highest individual score of 4.64. This indicates that the interface design was highly intuitive for college students and job seekers. From a technical perspective, the evaluation by 13 IT experts yielded an overall mean of 4.07 ("Agree") based on ISO/IEC 25010 standards, with "Portability" scoring highest at 4.15, confirming the system's adaptability across different operational environments.

The system was validated against the standards of ISO/IEC 25010 and the USE (Usefulness, Satisfaction, and Ease of Use) model. The results confirm that Pathfinder is a significant improvement over existing disjointed platforms, as evidenced by the high satisfaction rates reported by the participants. While

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functional suitability and security received favorable ratings of 4.03 and 4.00 respectively, the validation process confirmed that the web application successfully met its objectives of providing a centralized, secure, and compatible platform for the target users, effectively replacing the need to navigate multiple websites for training and job applications.

Ultimately, this project addresses the critical economic challenge of skills mismatch in the localized labor market of Tuguegarao City. By providing a zero-cost, centralized platform that links skills-first training opportunities directly to career paths. Pathfinder empowers vulnerable populations specifically unemployed youth and low-income job seekers to enhance their employability without financial barriers. The deployment of this system serves as a functional intervention that not only assists individuals in navigating their career trajectories but also aids organizations and government bodies in efficiently distributing opportunities, fostering a more equitable and skilled workforce.

## Recommendation

Since research is a continual process of improvement, it is recommended that the current capabilities of Pathfinder be expanded to accommodate a broader range of educational and operational needs. First, the integration of a post-test feature is highly advised; this module would serve as a competency-based prerequisite for the issuance of certificates, ensuring that credentials represent acquired knowledge rather than solely attendance via QR codes. Additionally, while the current system focuses on free resources, incorporating a secure payment system would allow organizations to post paid, specialized training programs, thereby diversifying the opportunities available to users. Furthermore, given that the Department of Information and Communications Technology (DICT) Region II serves as the target administrator, the scope of the web application should be expanded beyond Tuguegarao City to cover the entire Region II, maximizing the web application's impact on the regional workforce.

For future technical iterations, researchers are encouraged to use this study as a foundation to enhance the intelligence of the Career-Training Matching Engine. Specifically, the integration of Artificial Intelligence (AI) and Natural Language Processing (NLP) is recommended to automate the categorization process. Instead of requiring organizations to manually select tags for their posts, an NLP model could analyze the text of career and training descriptions to identify and assign relevant tags automatically. This would significantly optimize the matching algorithm and reduce human error.

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## REFERENCES

- [1] Department of Labor and Employment (DOLE), “2019-EMP,” [ils.dole.gov.ph](https://ils.dole.gov.ph/employment/2019-emp), Oct. 17, 2021. Available: <https://ils.dole.gov.ph/employment/2019-emp>
- [2] M. Laukkarinen, “Social media as a place to see and be seen: Exploring factors affecting job attainment via social media,” *The Information Society*, vol. 39, no. 4, pp. 1–14, Apr. 2023, doi: <https://doi.org/10.1080/01972243.2023.2199418> Available: <https://www.tandfonline.com/doi/full/10.1080/01972243.2023.2199418>
- [3] LinkedIn, “Education Expensing | LinkedIn Learning,” *LinkedIn.com*, 2018. Available: <https://learning.linkedin.com/learningexpensing>
- [4] Organisation for Economic Co-operation and Development (OECD), “Empowering the Workforce in the Context of a Skills-First Approach: Practical considerations for a skills-first approach,” *OECD*, 2025. Available: [https://www.oecd.org/en/publications/empowering-the-workforce-in-the-context-of-a-skills-first-approach\\_345b6528-en/full-report/practical-considerations-for-a-skills-first-approach\\_88eb89d7.html](https://www.oecd.org/en/publications/empowering-the-workforce-in-the-context-of-a-skills-first-approach_345b6528-en/full-report/practical-considerations-for-a-skills-first-approach_88eb89d7.html)
- [5] T. Vaughan, “From Signals to Selection: Helping Employers Identify Talent with Skills-Based Hiring - Workcred Point of View,” *The ANSI Blog*, Aug. 25, 2025. Available: <https://blog.ansi.org/workcred/signals-helping-employers-skills-hiring/>
- [6] J. M. Autentico and G. Alerta, “INCIDENCE OF JOB MISMATCH AMONG TVL GRADUATES IN BUTUAN CITY, PHILIPPINES,” *PEOPLE: International Journal of Social Sciences*, vol. 6, no. 2, pp. 164–176, Jul. 2020, doi: <https://doi.org/10.20319/pijss.2020.62.164176>
- [7] Column, “LinkedIn Training Cost: The Ultimate Guide to Pricing (2025),” *Column*, Feb. 08, 2025. Available: <https://columncontent.com/linkedin-training-cost/>
- [8] Mrs. Siddoju Divya, Mrs. VNS Manaswini, “PERSONALIZED CAREER RECOMMENDATION SYSTEM USING MACHINE LEARNING,” *International Research Journal of Modernization in Engineering Technology & Science*, Aug. 2025, doi: <https://doi.org/10.56726/irjmets81658>
- [9] Kissflow, “Rapid Application Development (RAD) | Definition, Steps & Full Guide,” *kissflow.com*, Oct. 31, 2022. Available: <https://kissflow.com/application-development/rad/rapid-application-development/>
- [10] R. Naz and M. N. A. Khan, “Rapid Applications Development Techniques: A Critical Review,” *International Journal of Software Engineering and Its Applications*, vol. 9, no. 11, pp. 163–176, Nov. 2019, doi: <https://doi.org/10.14257/ijseia.2015.9.11.15>
- [11] R. Rathelot and T. van Rens, “Rethinking the skills gap,” *IZA World of Labor*, vol. 2, no. 391, 2023, doi: <https://doi.org/10.15185/izawol.391>
- [12] M. Sigelman, J. Fuller, and A. Martin, “Skills-Based Hiring: The Long Road from Pronouncements to Practice Employers are Dropping Degree Requirements But Are They Changing How They Actually Hire?,” Feb. 2024. Available: <https://www.hbs.edu/managing-the-future-of-work/Documents/research/Skills-Based%20Hiring.pdf>
- [13] New America, “What Works in Workforce Development?,” *New America*, 2019. Available: <https://www.newamerica.org/education-policy/briefs/what-works-in-workforce-development/>
- [14] A. P. Carnevale and N. Smith, “Workplace basics: the skills employees need and employers want,” *Human Resource Development International*, vol. 16, no. 5, pp. 491–501, Nov. 2020, doi: <https://doi.org/10.1080/13678868.2013.821267>
- [15] D. Oyighan and E. Okwu, “Social Media for Information Dissemination in the Digital Era,” *International Journal of Multidisciplinary Studies*, E, vol. IX, no. 1, pp. 1–21, 2024, Available: [https://chakdahacollege.ac.in/Journal/27/Pdf/Latest/apr24/10-9\(1\)-Diseiye%20Oyighan-1-21.pdf](https://chakdahacollege.ac.in/Journal/27/Pdf/Latest/apr24/10-9(1)-Diseiye%20Oyighan-1-21.pdf)

 <p>UNIVERSITY OF SAINT LOUIS Tuguegarao City, Cagayan</p>	UNIVERSITY RESEARCH AND INNOVATION OFFICE	Document No. Revision No.	EOMS-FM-URI-006 01
	RESEARCH PAPER	Effectivity Date	February 12, 2025

- [16] S. Safirussalim, M. Rizqi, and K. Ulfa, “SOCIAL MEDIA UTILIZATION IN INFORMATION DISSEMINATION EMPLOYMENT IN INDONESIA,” thejournalish.com, Aug. 2023, doi: 10.55314/tsg.v4i3.565
- [17] B. N. Kpakol and D. F. Miidom, “THE ROLE OF SOCIAL NETWORKS IN JOB SEARCH AND CAREER DEVELOPMENT,” Research Journal of Management Practice , vol. 4, no. 3, Mar. 2024, Available: <https://iardjournals.org/get/IJSSMR/VOL.%2010%20NO.%202%202024/THE%20ROLE%20OF%20SOCIAL%20NETWORKS%2052-62.pdf>
- [18] L. Gasparénienė, S. Matulienė, and E. Žemaitis, “OPPORTUNITIES OF JOB SEARCH THROUGH SOCIAL MEDIA PLATFORMS AND ITS DEVELOPMENT IN LITHUANIA,” Business: Theory and Practice, vol. 22, no. 2, pp. 330–339, Sep. 2021, doi: <https://doi.org/10.3846/btp.2021.11055>
- [19] “Value of facebook for job search: Languishing present to a lucrative future,” IEEE Conference Publication | IEEE Xplore, Jun. 01, 2019. <https://ieeexplore.ieee.org/abstract/document/663637>
- [20] Uday Singh Kushwaha, Sejal Asnani, Deshraj Singh Kushwaha, and A. Gupta, “A STUDY ON CAREERCONNECT: LINKING TALENTS FOR STREAMLINED AND EFFECTIVE JOB SEARCHES,” International Research Journal of Modernization in Engineering Technology and Science, vol. 6, no. 3, pp. 599–604, Jun. 2024, Available: [\(PDF\) A STUDY ON CAREERCONNECT: LINKING TALENTS FOR STREAMLINED AND EFFECTIVE JOB SEARCHES](#)
- [21] E. Cruz, “PhilJobNet | Jobs and LMI Portal,” philjobnet.gov.ph. <https://philjobnet.gov.ph/>
- [22] K. G. Boongaling, J. V. M. D. Rosario, H. I. F. Gampong, and C. P. P. Mendoza, “Cultiv8Me.PH – Business and Employment-Oriented Online Service System,” International Journal of Computing Sciences Research, vol. 8, pp. 2490–2504, Jan. 2024, Available: <http://stepacademic.net/ijcsr/article/view/476>
- [23] J. Mendez and Jehan Bulanadi, “Job matcher: A web application job placement using collaborative filtering recommender system,” ResearchGate, Jul. 13, 2020, Available: [\(PDF\) Job matcher: A web application job placement using collaborative filtering recommender system](#)
- [24] LinkedIn, “Introducing LinkedIn Learning, personalized eLearning for your organization,” Linkedin.com, 2019. <https://learning.linkedin.com/>
- [25] K. D. S. N M, and S. R. Gota, “Web-Based Career Portal for Efficient Job Search and Recruitment,” 2024 IEEE 4th International Conference on ICT in Business Industry & Government (ICTBIG), pp. 1–9, Dec. 2024, doi: <https://doi.org/10.1109/ictbig64922.2024.10911296>
- [26] D. Mustajab and A. Irawan, “The Effectiveness of Vocational Training Programs on Employment Outcomes,” Advances in Community Services Research, vol. 1, no. 2, pp. 37–46, Aug. 2023, doi: <https://doi.org/10.60079/acsr.v1i2.344>.Available:<https://advancesinresearch.id/index.php/ACSR/article/view/344>.
- [28] N. Ullah and U. Asghar, “Enhancing Job Performance through Specialized Training: The Role of Job Satisfaction and Motivation in College and University Office Worker,” vol. 5, no. 3, pp. 75–83, Sep. 2024, doi: <https://doi.org/10.55737/qjss.550837493> Available: <https://submissions.qlantic.com/index.php/qjss/article/view/493>
- [28] G. Casalone and E. Baici, “Education, Off-the-Job Vocational Training, and Early Employment Outcomes: Evidence from Italy,” Merits, vol. 3, no. 2, pp. 390–404, Jun. 2023, doi: <https://doi.org/10.3390/merits3020022> Available: <https://www.mdpi.com/2673-8104/3/2/22>
- [29] The Government of the Hong Kong Special Administrative Region of the People’s Republic of China, “Digital Policy Office,” Jul. 2024. Available: [https://www.digitalpolicy.gov.hk/en/our\\_work/digital\\_infrastructure/methodology/system\\_development/past\\_documents/rad/doc/g47a\\_pub.pdf](https://www.digitalpolicy.gov.hk/en/our_work/digital_infrastructure/methodology/system_development/past_documents/rad/doc/g47a_pub.pdf)

 <p>UNIVERSITY OF SAINT LOUIS Tuguegarao City, Cagayan</p>	UNIVERSITY RESEARCH AND INNOVATION OFFICE	Document No.	EOMS-FM-URI-006
	RESEARCH PAPER	Revision No.	01

- [30] F. Qudus Khan, S. Rasheed, M. Alsheshtawi, T. Mohamed Ahmed, and S. Jan, “A Comparative Analysis of RAD and Agile Technique for Management of Computing Graduation Projects,” *Computers, Materials & Continua*, vol. 64, no. 2, pp. 777–796, 2020, doi: <https://doi.org/10.32604/cmc.2020.010959>
- [31] G. U. Dilmini Rathnayaka and Kumara, “A Review of Software Development Methodologies in Software Engineering,” A Review of Software Development Methodologies in Software Engineering, vol. 4, no. 2020, 2020, Available: [https://ijariie.com/AdminUploadPdf/A\\_Review\\_of\\_Software\\_Development\\_Methodologies\\_in\\_Software\\_Engineering\\_ijariie12553.pdf](https://ijariie.com/AdminUploadPdf/A_Review_of_Software_Development_Methodologies_in_Software_Engineering_ijariie12553.pdf)

 <b>UNIVERSITY OF SAINT LOUIS</b> <small>Tuguegarao City, Cagayan</small>	<b>UNIVERSITY RESEARCH AND INNOVATION OFFICE</b> <hr/> <b>RESEARCH PAPER</b>	Document No. <b>EOMS-FM-URI-006</b> Revision No. <b>01</b> Effectivity Date <b>February 12, 2025</b>
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## APPENDICES

### USE Questionnaire

**Instructions for Respondents:** Please read each statement carefully and put a check (✓) in the box that corresponds to your answer. Use the following scale to indicate how strongly you agree or disagree:

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

### 1. USEFULNESS

Indicators	1	2	3	4	5
The web application provides functions that help me accomplish the specified tasks.					
The web application performs the tasks I expect it to do.					
The web application aligns with my actual needs.					
The web application reduces the time required to complete the specified tasks.					

### 2. EASE OF USE

Indicators	1	2	3	4	5
The web application allows me to complete tasks without unnecessary steps.					
The layout and arrangement of elements make interaction simple and efficient.					
The controls, menus, and buttons are clearly presented and easy to operate.					
Performing common actions requires minimal effort and feels straightforward.					

### 3. EASE OF LEARNING

Indicators	1	2	3	4	5
I was able to understand how to use the web application within a short period of time.					
The web application's structure makes it easy to remember how to perform tasks.					
New users can quickly learn the essential features without requiring extensive guidance.					
The interface and instructions help me develop proficiency with minimal trial-and-error.					

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#### 4. SATISFACTION

Indicators	1	2	3	4	5
My overall experience using the web application meets my expectations.					
I would be recommending the web application to others because of its quality and reliability.					
Using the system feels pleasant due to its design, responsiveness, and clarity.					
I feel confident performing tasks because the web application behaves predictably and consistently.					

#### ISO 25010 Questionnaire

**Instruction for Evaluators:** Please read each quality characteristics below and put a check (✓) in the box that corresponds to your assessment for each item. Use the scale:

1	2	3	4	5
Very Poor	Poor	Fair	Good	Excellent

#### 1. FUNCTIONAL SUITABILITY

Indicators		1	2	3	4	5
<b>Completeness</b>	The web application covers all the specified tasks and user objectives.					
<b>Correctness</b>	The web application provides the correct results with the needed degree of precision.					
<b>Appropriateness</b>	The web application facilitates the accomplishment of specified tasks and objectives.					

#### 2. COMPATIBILITY

Indicators		1	2	3	4	5
<b>Interoperability</b>	The web application can exchange information with other apps and use the information that has been exchanged.					

#### 3. USABILITY

Indicators		1	2	3	4	5
<b>Appropriateness</b>	Users can recognize whether the web application is appropriate for their needs.					
<b>Recognizability</b>						
<b>Learnability</b>	The web application enables users to learn easily how to use it with effectiveness.					
<b>Operability</b>	The web application is easy to operate, control, and appropriate to use.					
<b>User Error Protection</b>	The web application protects its users against making errors when using it.					

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User Interface Aesthetics	The web application's user interface enables pleasing and satisfying interactions for the users.					
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#### 4. SECURITY

	Indicators	1	2	3	4	5
<b>Confidentiality</b>	The web application ensures that data are accessible only to those authorized to have access.					
<b>Integrity</b>	The web application prevents unauthorized access to, or modification of, programs and data.					
<b>Authenticity</b>	The web application can prove the identity of a subject or resource as one claimed.					

#### 5. PORTABILITY

	Indicators	1	2	3	4	5
<b>Adaptability</b>	The web application can effectively and efficiently be adapted for different or evolving hardware, software or other operational environments.					

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## Literature Matrix

Author and Research Title	Keywords	Methods	Results
<b>DOLE (2021)</b>  2019-EMP	Employment, Labor Market, Credentials	Statistical Report	Shifts in hiring prioritize demonstrable competency over educational credentials.
<b>Laukkarinen, M. (2023)</b>  Social media as a place to see and be seen	Social Media, Job Attainment, Visibility	Qualitative Study / Review	Economic changes have increased demand for competencies like communication and leadership while physical labor demand declines.
<b>LinkedIn</b>  Education Expensing	Education Cost, Training, Corporate	Corporate Report	Employers struggle to identify talent; qualified candidates often exclude themselves due to ambiguous job postings.
<b>OECD (2025)</b>  Empowering the Workforce in the Context of a Skills-First Approach	Skills-First, Workforce, Policy	Policy Analysis / Report	Vulnerable populations suffer most from workforce disconnects; aligning skills supply with demand significantly lowers unemployment.
<b>Vaughan, T. (2025)</b>  From Signals to Selection	Skills-Based Hiring, Talent Identification	Analytical Review	Approximately 35% of workers in OECD countries are mismatched by qualification.
<b>Autentico, J. M. &amp; Alerta, G. (2020)</b>  Incidence of Job Mismatch Among TVL Graduates	Job Mismatch, TVL, Education	Survey / Case Study	Revealed a 64% mismatch incidence among graduates in Butuan City, indicating a failure to align specialization with employment.
<b>Column (2025)</b>  LinkedIn Training Cost	Training Cost, Pricing, Barriers	Market Research	High subscription costs (19.99–39.99/month) create financial barriers for unemployed youth and low-income seekers.
<b>Divya, S. &amp; Manaswini, V. (2025)</b>	Machine Learning, Career Guidance	System Development (ML)	Demonstrated viability in offering tailored career suggestions

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Personalized Career Recommendation System			based on academic performance and interests.
<b>Kissflow (2022)</b>  Rapid Application Development (RAD)	RAD, Prototyping, Methodology	Technical Guide	Defined RAD as a model prioritizing rapid prototyping and iterative feedback over rigid planning.
<b>Naz, R. &amp; Khan, M. (2019)</b>  Rapid Applications Development Techniques	RAD, Software Engineering, Review	Critical Review	RAD allows adaptation to evolving user requirements while minimizing development costs.
<b>Rathelot, R. &amp; van Rens, T. (2023)</b>  Rethinking the skills gap	Skills Gap, Labor Market, Matching	Economic Analysis	Existing platforms often fail to provide standardized, automated linkages between employer demands and cost-free skill acquisition.
<b>Sigelman, M. et al. (2024)</b>  Skills-Based Hiring	Retention, Salary, Hiring Practices	Comparative Analysis	Non-degreed workers hired on skills show a 10% higher retention rate and a 25% salary increase compared to previous roles.
<b>New America (2019)</b>  What Works in Workforce Development?	Workforce Development, Public Policy	Policy Brief	Public programs exist but struggle to connect participants to high-quality "opportunity occupations".
<b>Carnevale, A. P. &amp; Smith, N. (2020)</b>  Workplace basics: the skills employees need	Competencies, Employer Needs	Literature Review	Cited in context of RAD selection in text, likely referencing the need for adaptable tools to meet workplace skill needs.
<b>Oyighan, D. &amp; Okwu, E. (2024)</b>  Social Media for Information Dissemination	Information Dissemination, Digital Era	Descriptive Research	Social media platforms (blogs, forums) allow organizations to advertise training and reach audiences immediately.
<b>Safirussalim, S. et al. (2023)</b>  Social Media Utilization in Information Dissemination	Employment, Inclusivity, Government	Case Study	Platforms like Facebook allow access to content from government and professionals, creating an inclusive experience.

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<b>Kpakol, B. N. &amp; Miodom, D. F. (2024)</b> The Role of Social Networks in Job Search	Career Development, Mentorship	Correlational Study	Social networks help professionals grow online presence, connect with mentors, and access learning content.
<b>Gasparénienė, L. et al. (2021)</b> Opportunities of Job Search Through Social Media	Privacy, Professional vs. Personal	Survey / Interview	Many users feel discomfort managing profiles for professional reasons and prefer separating personal and professional lives.
<b>IEEE Conference (2019)</b> Value of facebook for job search	Visibility, Accessibility, UI/UX	Conference Paper	Proposed improvements are necessary to make job-related content more visible and accessible on social platforms.
<b>Kushwaha, U. S. et al. (2024)</b> A Study on CareerConnect	AI, Machine Learning, Job Search	System Development	Replaces traditional systems with optimized keyword searches; features skill dashboards and video interviews.
<b>Cruz, E. (N.D.)</b> PhilJobNet	Job Portal, Government, Matching	Web Platform Review	Functions as a job matching system and offers career resources for students and job seekers.
<b>Boongaling, K. G. et al. (2024)</b> Cultiv8Me.PH	Internships, Graduates, Recommendations	System Development	Focuses on interns/graduates with features to file internships and recommend opportunities aligned with professions.
<b>Mendez, J. &amp; Bulanadi, J. (2020)</b> Job matcher: A web application	Recommender System, Collaborative Filtering	System Development	Uses filtering and recommender systems to make job recommendations more efficient.
<b>LinkedIn (2019)</b> Introducing LinkedIn Learning	E-Learning, Corporate Training	Platform Review	Offers courses from organizations with licenses but lacks access to free training from NGOs or smaller institutions.

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<b>K. D. S. et al. (2024)</b>  Web-Based Career Portal	Recruitment, Career Growth	System Development	Digital job matching tools actively support career growth, not just job finding.
<b>Mustajab, D. &amp; Irawan, A. (2023)</b>  The Effectiveness of Vocational Training Programs	Vocational Training, Employability	Correlational Research	Found a positive correlation between participation in training programs and improved employment outcomes.
<b>Ullah, N. &amp; Asghar, U. (2024)</b>  Enhancing Job Performance through Specialized Training	Job Performance, Technical Competencies	Survey / Assessment	Structured training boosts technical competencies and increases workplace productivity.
<b>Casalone, G. &amp; Baici, E. (2023)</b>  Education, Off-the-Job Vocational Training	Public Policy, Labor Market, Youth	Economic/Policy Analysis	Effectiveness of training depends on labor market conditions; well-designed programs improve youth employability.
<b>Hong Kong Govt. (2024)</b>  Digital Policy Office (RAD)	RAD, Incremental Approach, Feedback	Methodology Guide	RAD is effective for aligning technical/business requirements via constant feedback; allows progress review after each phase.
<b>Khan, F. Q. et al. (2020)</b>  A Comparative Analysis of RAD and Agile	RAD vs Agile, Documentation, Capstone	Comparative Case Study	RAD projects scored 13.33% higher in documentation quality compared to Agile projects.
<b>Rathnayaka, G. U. (2020)</b>  A Review of Software Development Methodologies	Component-based, Business Needs	Literature Review	RAD facilitates earlier realization of business benefits and adaptation to changing requirements.

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## User Manual