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EduWay - AI based career pathway

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Abstract

In today's rapidly evolving educational and professional landscape, learners often struggle to identify the right learning path and career direction that aligns with their interests, skills, and aspirations. Traditional learning platforms typically provide the same content to all users, offering limited personalization and career guidance. This creates challenges in skill development, learner engagement, and career readiness.

EduWay is an AI-powered personalized learning and career development platform designed to address these challenges by providing customized learning experiences and intelligent career recommendations. The platform collects learner information such as educational background, interests, skill levels, learning preferences, and career goals through interactive surveys and assessments. Using the Gemini API, EduWay analyzes this information to generate personalized learning paths, adaptive assessments, curated educational resources, and career-oriented guidance tailored to each learner.

To enhance motivation and engagement, the platform incorporates gamification features including badges, achievements, rewards, leaderboards, and progress tracking dashboards. Learners can continuously monitor their growth, identify skill gaps, and receive recommendations that evolve according to their performance and learning progress. The system also provides adaptive assessments and personalized feedback to support effective learning and continuous improvement.

Developed using React.js, Spring Boot, MongoDB/MySQL, and modern AI technologies, EduWay offers a scalable, secure, and learner-centric educational ecosystem. By integrating Artificial Intelligence, adaptive learning strategies, gamification, and career guidance into a single platform, EduWay bridges the gap between education and industry requirements, helping learners make informed decisions and achieve their academic and professional goals more effectively.

Keywords

Artificial Intelligence (AI), Personalized Learning, Adaptive Learning, Career Recommendation System, Gemini API, Learning Path Generation, Adaptive Assessments, Educational Technology, Skill Development, Gamification, Progress Tracking, Learner Profiling, Career Guidance, Recommendation Engine, E-Learning Platform.

1. INTRODUCTION

The world of education and work is changing faster than ever, and honestly, keeping up with it is not easy. Students, fresh graduates, and even working professionals often find themselves confused about which skills to build, which courses to take, and which career direction actually makes sense for them. Industries keep evolving, and what was relevant a few years ago may not be enough today. This growing gap between what people know and what employers actually need makes career planning feel overwhelming for many.

Traditional career guidance has not really solved this problem. Most of the advice available is too general — it does not take into account what a specific person is good at, what they enjoy, or where they personally want to go. On top of that, not everyone has access to a good mentor or up-to-date learning resources. This leaves a lot of learners stuck somewhere between their education and the job market, unsure of what step to take next.

EduWay was built to fix exactly this. It is an AI-powered platform that focuses on the individual rather than the crowd. When someone joins, they

go through a short interactive survey sharing details like their educational background, current skills, interests, and career goals. The platform uses this information to create a learning path that is actually relevant to that person.
Beyond just recommending courses, EduWay also offers adaptive assessments, tracks progress over time, and uses gamification elements like badges, leaderboards, and achievement rewards to keep learners engaged and motivated throughout their journey.
The bigger goal is simple — connect education with real career outcomes and help people move forward with clarity and confidence.

1.1 Problem Statement

Although technology is increasingly making significant advancements in educational technologies, appropriate career advice and personalization of the skill set poses a problem for most students and professionals. At various stages of one's life, the student faces challenges regarding the choice of the right learning pathway which would assist him/her to attain his/her objectives.

The school-going student lacks adequate access to career advice which would allow him/her to make choices of the right stream for studies and future career. In addition, the university-going student faces problems in linking what he/she has learned with the industry requirements, hence failing to acquire the right skills. Lastly, the professional student encounters challenges regarding how to develop the necessary skills for advancement or career shift.

Traditional learning systems are characterized by provision of general knowledge without consideration of preferences and past performance of the learners.

There is therefore need for a smart learning platform which would assist the learner acquire personalized learning paths, career guidance and skill development.There is therefore need for a smart learning platform which would assist the learner acquire personalized learning paths, career guidance and skill development.

1.2 Proposed System

Thus, there is a requirement for such a platform, which will provide personalized learning paths, career counseling, monitoring of learners' progress, and skills development support services. All such platforms require to be developed using Artificial Intelligence, which would help analyze learners' profiles, identify their deficiencies, recommend relevant learning content, and take decisions for future achievements in academics and career-related fields.

In order to resolve all the challenges pertaining to career counseling, skill development, and personalized learning, here is proposed EduWay – Personalized Learning Platform based on the utilization of Artificial Intelligence.

Data Collection and Learner Profiling:
The platform collects all relevant data from learners via registration and surveying. Academic history, skills, interest, career plans, and preferred methods of learning enable to build up learners' profiles.

Artificial Intelligence-Based Personalized Learning Path Recommendations:
Gemini API will be used for recommending personalized learning paths for each learner taking into consideration their goals and needs for developing skills.

Adaptive Learning and Assessments:
Quizzes and assessments based on Artificial Intelligence allow to evaluate learners' performance.

Curated Educational Resources:
The learning articles, tutorial videos, quizzes, and other forms of educational content are curated by EduWay according to personal preferences, learning needs, and the goal of education that one wants to achieve, allowing the user to study efficiently.

Gamification:
In order to promote engagement and motivation among learners, EduWay employs gamification techniques such as badges, rewards, certification, streaks, and leaderboard.

Support for Collaboration:
The system provides peer interaction features to encourage collaboration and discussion between peers.

Career Guidance and Skills Mapping:
AI algorithms are used by EduWay to guide career choices for the learners and map the existing skills, thereby identifying the gaps in them.

Flexible and Scalable Structure:
EduWay platform supports learners of all sorts, whether school kids, college-goers, or professional individuals. Furthermore, this flexible structure allows for future growth through adding more AI-based and educational features.

1.3 Objectives

Offer personal career guidance by making use of recommendations from big data based on interests, skills, and career ambitions.

Create an interface between academic education and real industry expectations by way of developing necessary skills and certifications.

Promote the habit of lifelong learning by adapting the learning programs in accordance with learner performance and updated career objectives.

Improve learner participation by incorporating gamification elements such as badges, rewards, leaderboards, milestones, and tracking of achievements.

Encourage group-based learning by allowing peer collaboration, knowledge exchange, discussion forums, and guidance from mentors.

Make use of Artificial Intelligence to make career recommendations based on individual profiles.

Ensure support for different types of learners ranging from school children to university learners and career-oriented adults.

Materials and Methods

As AI-driven personalized learning and career development software, EduWay includes several modules, namely learner profiling, intelligent recommendations, assessment, and analytics. The platform initiates the process of gathering data by using registration forms and interactive surveys. Data related to learners covers their educational background, interests, career objectives, skills, and preferences regarding the way of acquiring new knowledge. All collected data is securely stored, and used as a basis to develop profiles of learners while personalizing their learning journey.

The EduWay platform includes a repository of educational assets consisting of articles, tutorials, videos, tasks, and references. Educational assets are classified into categories depending on themes, skills, and complexity. Also, all educational assets correspond to certain learning and career objectives. The platform utilizes Gemini API to provide learners with personalized services. Using data from profiles of learners, the Gemini tool generates recommendations and advises how to reach career goals and which educational assets to use to that end. The AI engine analyzes learning objectives and preferences of learners and provides appropriate educational assets.

The unique ability of EduWay to create personal learning path recommendations based on learners' interests, needs, and current level of knowledge is one of its key characteristics. Recommendations for learning topics, information sources, and skill development options are generated accordingly. Personal learning path recommendations depend on the analysis of the data obtained by the application during learner interaction and assessment. Therefore, the recommendations change according to learners' successes.

It is worth mentioning that the adaptive testing and assessment system powered by AI-generated quizzes and other types of assignments plays an essential role in tracking learner progress and evaluating skills development and knowledge gained throughout the learning process. Depending on the learner's performance, the difficulty level of the assignments can be increased or decreased to ensure optimal learning process conditions.

Finally, various elements of gamification, such as badges, levels, rewards, leaderboards, performance monitoring, and certificates can

motivate learners to participate actively in the learning process.

All interactions between the learners, their scores in the assessments, module completion status, accomplishments, and the feedback given are logged by the system in the database. The data are later used for the purpose of analysis and refining of recommendation. Eduway can make its recommendations better from the analyses conducted on learner behavior and learning experience.

The use of Artificial Intelligence, adaptive learning techniques, analytics and gamification allows Eduway to form a smart and personalized educational model.

Table 1: EduWay Database schema (selected portions). Below is a selected portion of the table showing some of the important tables and their corresponding attributes. The above mentioned data are central to content generation and adaptation process. The Interaction Log for example includes data that helps in forming a good learner model while Feedback Record is important for human interaction.aclanthology.orglink.springer.com.

Entity/Table	Key Attributes	Description
Learner_Profile	learner_id, demographics (age, education), goals, preferences, baseline_assessment_scores	Initial survey and profile data; personal learning goals and background.
Content_Module	module_id, topic, difficulty_level, format (video/text/quiz), prerequisites	Curated learning materials metadata (topic labels, prerequisites).
Assessment_Item	question_id, topic, difficulty, correct_answer, skill_tag	Quiz/exercise bank items linked to topics; each has correct solution.
Interaction_Log	log_id, learner_id, item_id (module or question), timestamp, user_response, correct (0/1), time_spent	Time-stamped records of each student interaction (answers, scores).
Progress_Metrics	entry_id, learner_id, timestamp, current_mastery_level, accuracy_rate, total_time	Periodic summary of learner's performance (e.g. mastery or score trends).
Feedback_Record	feedback_id, learner_id, item_id, rating (1–5), comments, timestamp	Learner's subjective feedback on content or difficulty.

In EduWay Platform, latest full stack technology has been utilized that consists of frontend, backend, database systems, and AI components. Frontend created in React.js framework is responsible for user interaction features like form filling, dashboards, visualized learning pathways, assessments, and various tracking systems. Backend systems supporting the business logic, connecting API with other services, and processing learner data have been developed using Spring Boot framework.

Gemini API has been utilized as the intelligence source for the system. Details about learners' interests, education background, career plans,

skills set, and assessment results are analyzed in order to create customized learning pathways, adapt assessments, and make career recommendations to learners. AI component creates customized and adapted educational materials according to the needs of particular learners.

Continuous workflow approach to personalization has been applied by the system. Firstly, the platform obtains information about each user during the registration and surveying process. Afterward, based on the received information, AI recommendation engine builds up a personalized learning pathway for each user. Finally, learners interact with the recommended learning materials and assess their proficiency.

When students progress further, performance metrics such as assessment scores, completed modules, achievements, and feedback are gathered. After that, the obtained results undergo analysis in order to develop more accurate recommendations for the future, improve learning plans, and provide better career advice. Progress dashboards provide students with important insights into their achievements and learning journey.

Using Artificial Intelligence, adaptive assessments, gamification, and real-time analysis, EduWay transforms into a unique platform that evolves according to users' needs. In this way, an adaptive workflow makes it possible to acquire new skills successfully and be more engaged in personalized and career-oriented education.

References: The design of EduWay takes into account the existing studies dedicated to AI-powered adaptive learning. Previous literature shows that intelligent tutoring systems and personalization with the use of AI significantly boost educational effectivenesslink.springer.com. On this basis, we implement such technologies in choosing the system features (GPT-based content generationarxiv.org, assessmentslink.springer.com, gamificationresearchgate.net) and in applying data schema practices related to educational datasetsaclanthology.orglink.springer.com. The system components are built using open-source machine learning and NLP libraries, while the whole system is validated via simulated learners' studies (pre-test, post-test, and user feedback) and A/B tests.

2. SYSTEM DESIGN AND ARCHITECTURE

The EduWay platform adopts the use of a modular and scalable approach to designing the learning experience, where the frontend user interface, backend, artificial intelligence, database, and cloud computing come together in one single system to create a customized platform. This kind of design is aimed at providing a flexible and scalable solution for future system development.

2.1 System Overview

The EduWay is an AI-based platform that provides necessary services to help students gain important skills, track their learning progress, and accomplish career-related goals through intelligent recommendations and adaptive education.

Registration & Profiles: For using the service, it is necessary for users to firstly register and complete some surveys that will give insight into educational background, interests, career aspirations, skill level, and preferred ways of studying of each user. This information will serve for creating a personalized profile.

Personalized Learning Dashboard: Once authenticated, users may use personalized learning dashboards to access recommendations, learning content, test results, accomplishments, statistics, and career suggestions.

Recommendations for Personalized Learning Based on Artificial Intelligence: For creating personalized learning paths and recommendations for specific topics and materials based on the learner's profile, we use the Gemini API.

Adaptive Assessments: Learners are able to take adaptive assessments depending on their level of knowledge. The difficulty level of assessments and recommendations can be adjusted based on the users' performances.

Monitoring Progress & Analytics:

Performance of users during the learning process will be tracked and analyzed to monitor their progress and detect any problems.

Gamified Experience:

To maximize engagement and motivation, EduWay utilizes various gamified elements such as badges, certificates, rewards, leaderboards, streaks, and achievements, among others.

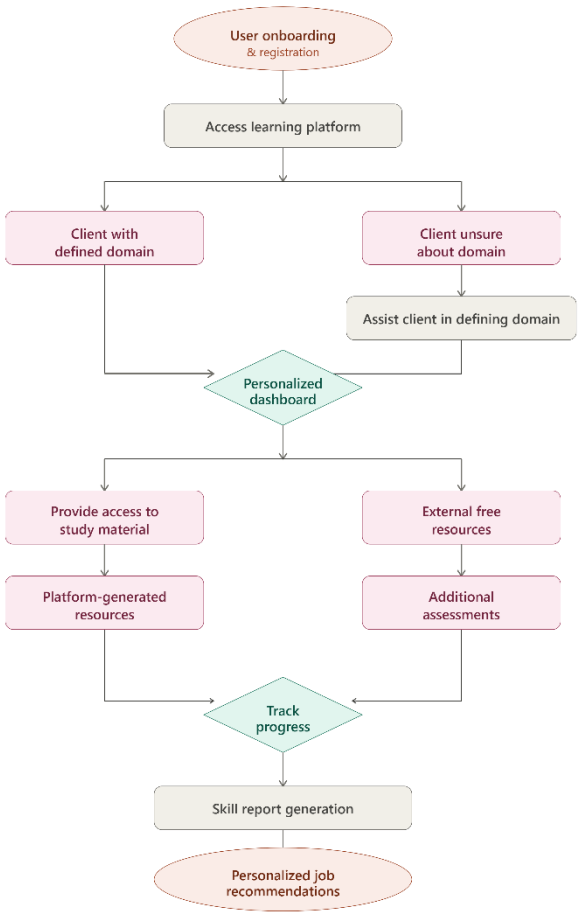
Feedback Gathering:

Feedback can be provided by the learner about aspects like the educational content, assessments, usability, etc. on the platform.

It can help improve recommendations and the experience of the learner.

2.2 Flow Diagram

Fig -2.2.0: Process Flow



2.3 Implementation Technologies

1. Frontend (UI Layer)

The frontend is designed to create an exciting interface with personalized learning tracks, assessments, dashboard, and job opportunities for the users.

React.js: JavaScript library that can be used to develop interactive UI components.

HTML5: Web page structure and layout creation.

CSS3: Design and animations styling.

React Router: Navigation assistance across the various pages of the application.

Axios: Asynchronous connection facilitation between frontend and backend services.

Redux (Optional): Application state management.

2. Backend (Logical & API Layer)

This is a layer where the business logic is managed alongside API routing to other sections within the application for facilitating the connection with the data layer.

Java: Programming language for backend logic.

Spring Boot: Development framework for efficient creation of RESTful APIs and microservices.

Spring Data JPA: Provides efficient ORM-based database access.

REST API Layer: Standardization in the communication between server and client.

2.1 Database Management

MySQL / PostgreSQL: Relational databases used to store structured data such as the user data and course information.

Hibernate (JPA): Provides efficient ORM-based interactions with the relational databases.

2.2 Security

Spring Security: Supports both authentication and authorization.

JWT (JSON Web Token): Stateful sessions provide security.

2.3 Testing Tools

Postman: Used to validate outputs of API and debug backend API requests.

3. AI/ML Module (Recommendation & Personalization Engine)

This module generates personalized recommendations related to career and skills.

Knowledge-Based Filtering: Logic of recommender system using user data and profile.

Decision Trees: Suggests career and courses based on logic.

Python Libraries:

Scikit-learn: Used for training machine learning algorithms with decision trees.

Pandas: For processing table-like data.

NumPy: For numeric operations.

Flask: Light-weight framework for deploying machine learning algorithms via REST APIs.

3. METHODOLOGY

Artificial Intelligence Framework For Personalized Learning

Through Artificial Intelligence technology, EduWay can create personalized educational experiences as well as personalized career assistance. The data about the learners' educational background, interest, career goals, existing knowledge base, and other information can be collected through registration and interactive questionnaires for the purpose of creating personalized learning pathways for the learners.

In order to do that, EduWay implements a framework based on React.js for the front end, Spring Boot for the back end, database service, and Gemini API. Through AI, based on learner's profile and his/her learning history, personalized learning pathway is created.

To make sure the learners remain engaged, EduWay uses progress monitoring and game elements analysis..

3.1 Data Collection and Processing

The first step in gathering information is made as users register and fill out the surveys. Information is submitted that includes details about qualifications, interests, skills, preferred ways of learning and career plans for the future. The gathered information is validated and structured into profiles of learners.

The information storing process uses databases based on MongoDB/MySQL in cooperation with Spring Boot backend services. Data exchanging between React.js front end and backend happens through RESTful APIs. The Gemini API evaluates information about learners and creates learning paths, tests, sources and career advice.

To secure privacy and make the whole process more reliable, the system employs the JWT authentication, encrypts all communication and limits access to learner data. Performance and recommendations are analyzed constantly to improve the results obtained from the analysis.

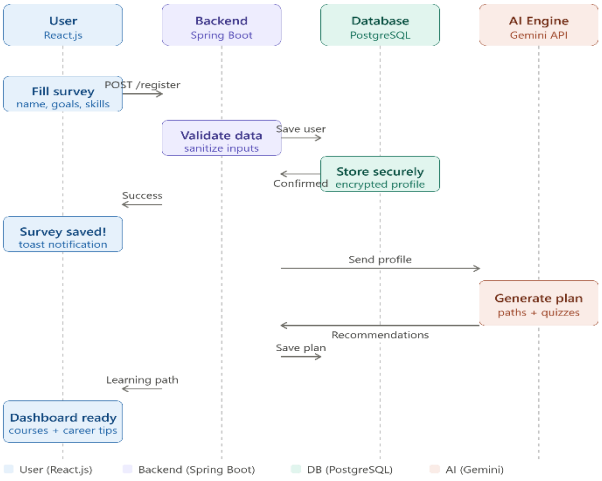


Fig -3.1.0: Data Collection

3.2 AI Algorithm for Personalized Learning Path

Personalization is based on the collection of personal information about learners through the registration form, survey, and assessment. The information that is collected is about education, interests, professional aspirations, skills, preferences, and performance. Such information is processed and analyzed by the backend of the system.

Based on the information in learner profiles and databases, Gemini API generates personalized recommendations for each learner depending on their interests, professional aspirations, and skills along with past performance.

Based on these recommendations, the platform develops a personalized learning pathway for the learner and categorizes the learners into proficiency groups providing educational resources accordingly. Additionally, career development opportunities are suggested to them based on their skill set and interests.

The progress of the learners is continually monitored along with their performance in order to give them updated recommendations.

3.3 Progress Tracking System

The personalized learning pathway is created for learners. After that, EduWay keeps tracking the activities of learners and measuring their performance.

Learner's activities are monitored and analyzed in order to find out areas in which performance is low and where more effort needs to be put into learning. This way, recommendations are updated and new learning content is added.

Those learners who perform well will get advanced information and challenges, whereas those with poor performance will be provided with basic information. Moreover, game elements such as badges, certificates, rewards, and progress indicators are used to motivate learners.

3.4 Skill-Based Job Matching System:

Learner profile created using the EduWay system considers factors such as learner's progress, test results, modules undertaken by learners, and skills acquired by them. The analysis of this learner profile helps identify strong and weak areas of the learner, as well as possible career opportunities for them.

3.5 Interactive Quizzing & Gamification Features:

As such, EduWay provides tests for the individual users, who have personalized learning paths. The test results help measure the knowledge level and the progress achieved in the learning process. Areas where one may need additional work are also discovered.

Gamification techniques are used in order to motivate and engage the learners. Points are awarded at the end of each module and test. Certificates and badges are issued depending on performance and engagement level.

4. IMPLEMENTATION TECHNOLOGIES

EduWay operates using Spring Boot (back-end), React (front-end), and MySQL (database). Modules that use AI/ML are employed to analyze the survey data and develop customized pathways for learning and career suggestions. Quizzes are used for evaluating knowledge levels, whereas gamification elements add a fun element to it all.

4.1 User Registration and Profile Creation

User Management and Authentication

EduWay implements secure user management and access control mechanisms to protect learner information and platform resources. The backend, developed using Spring Boot, manages authentication, authorization, user profiles, and database operations through secure API services.

User Data Management: The system maintains learner information including user identity, email, educational background, interests, career goals, learning preferences, and progress records. User credentials are securely stored using encrypted password mechanisms and controlled access policies.

Signup Workflow:

The user submits a registration form.

Input is validated to prevent errors or duplicates.

Passwords are encrypted using BCrypt.

Data is securely stored in the database.

1. User Registration Workflow

EduWay provides a secure user registration mechanism through RESTful API services. The

registration workflow consists of the following stages:

1. **User Information Submission:** Learners enter registration details such as name, email address, password, and profile information through the frontend interface.
2. **Input Validation:** The backend validates all submitted information to ensure data accuracy, proper formatting, and uniqueness of user accounts.
3. **Credential Security:** User passwords are encrypted using secure hashing techniques before storage, ensuring protection against unauthorized access.
4. **Profile Creation and Storage:** After successful validation, user information is stored in the database, and a learner profile is created for personalized learning and recommendation services.

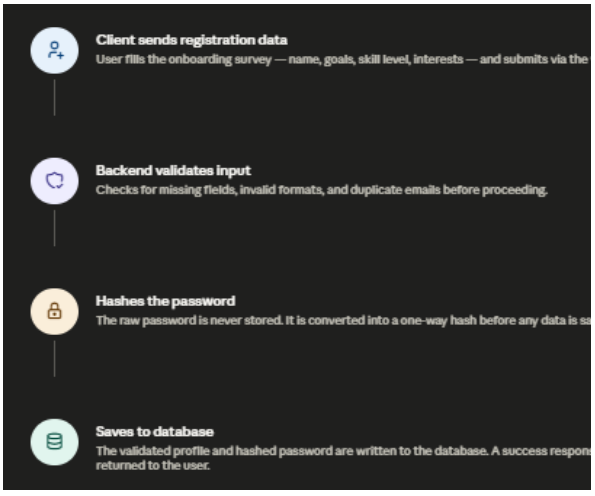


Fig – 4.1.0: User Registration Workflow

3. User Authentication and Login Process

EduWay offers a secure process for authenticating users who can access their personal learning materials via this process. The steps in the login process include:

1. Username and Password Entry:

The users submit their username and password on the login screen of EduWay and send them to the server in a secured format.

2. User Authentication:

The server will authenticate the entered credentials with the database to determine whether they belong to an existing user.

3. Token Generation:

Once a user is successfully authenticated, they receive a JSON Web Token (JWT) which acts as a secure token in the user session.

4. Access Permission:

This token will be used by the API for accessing all personalized learning contents of the user.

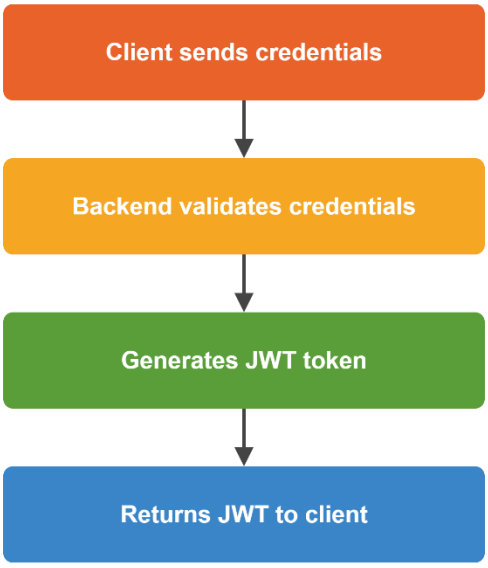


Fig – 4.1.1: User Login Workflow

4. Profile Management

It looks like some of the files you uploaded earlier have expired and are no longer accessible. If you'd like me to reference or continue work based on those documents, please re-upload them

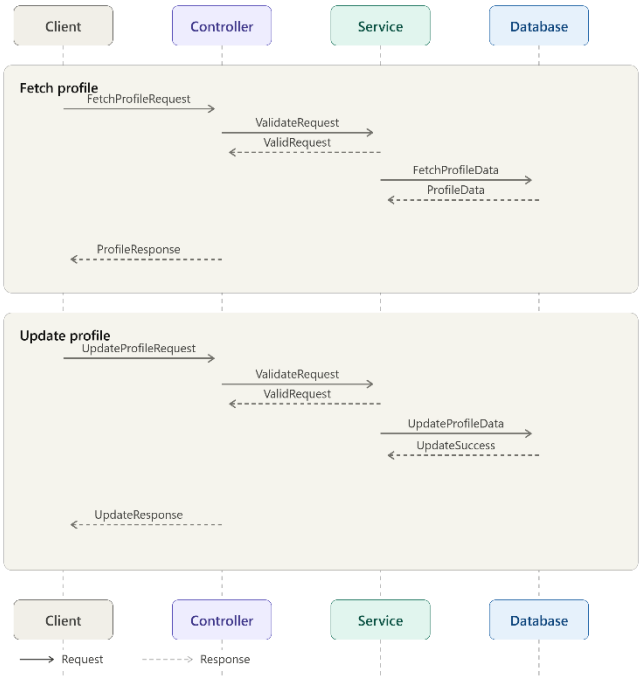


Fig – 4.1.2: Profile Management

This is an example of login functionality implementation using Spring Boot:

```
@PostMapping("/login")
public ResponseEntity<?>
authenticateUser(@RequestBody
LoginDto loginDto)
{
Authentication authentication =
authenticationManager.
authenticate( new
UsernamePasswordAuthenticationToke
n(loginDto.getU sername(),
loginDto.getPassword() ));
SecurityContextHolder.getContext().setAu
thentication(
authentication);
String jwt =
jwtProvider.generateToken(authenticatio
n);
```

Example endpoint for fetching user profile:

```
@GetMapping("/profile")
public ResponseEntity<?>
getUserProfile(@AuthenticationToken
authentication) {

User user =
userService.getUserByUsername(authentication.
getName());

return ResponseEntity.ok(user);
}
```

5. Security Framework and Access Control

EduWay has a fully-fledged security framework that is used to ensure data safety, access controls, and protection of backend systems from attacks. The security process includes the following steps:

1. **Request Validation:** Every incoming API request passes through security filters that verify request authenticity and enforce platform security policies.
2. **Authentication Verification:** The system validates the JWT token attached to the request. If the token is valid, the user's identity is verified and authenticated.
3. **Authorization and Access Control:** Access to platform resources is controlled through role-based authorization mechanisms. Users are granted permissions according to their assigned roles and access privileges.
4. **Service Execution:** After successful authentication and authorization, the request is forwarded to the appropriate backend service or controller for processing and execution of business logic.

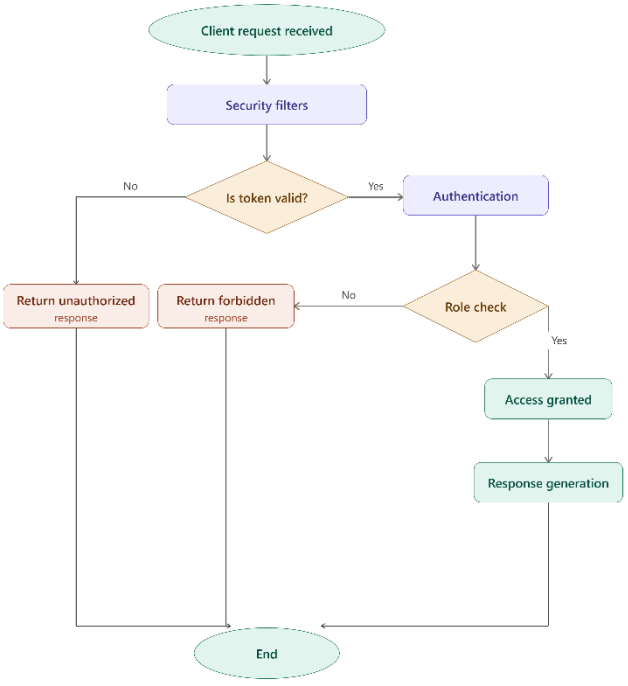


Fig – 4.1.3: Security Workflow

4.2 Results and Discussions

In terms of usability, the EduWay platform features a flexible and interactive user interface that facilitates individualized learning and career development. The user interface allows learners to effortlessly move around between learning materials, testing tools, progress charts, and career suggestions. Using interactive forms and graphical elements, it ensures an engaging experience for users at the same time providing effective communication with backend services for real-time analysis and suggestions.

The below figures depict the main interface elements of the platform:

Home Page

As the name implies, the Home Page is the main starting point for all the users entering the EduWay platform. This page informs about its purposes and features, as well as offers opportunities for individualized learning. On the Home Page, users can register on the platform, log into their profiles, find out what type of learning path is suitable for them, and get professional advice and educational materials.

Interactive elements enable learners to investigate possible learning paths, respond to surveys, and obtain personalized recommendations. For registered users, the Authentication part will allow accessing their personal dashboards and other learning-related elements.

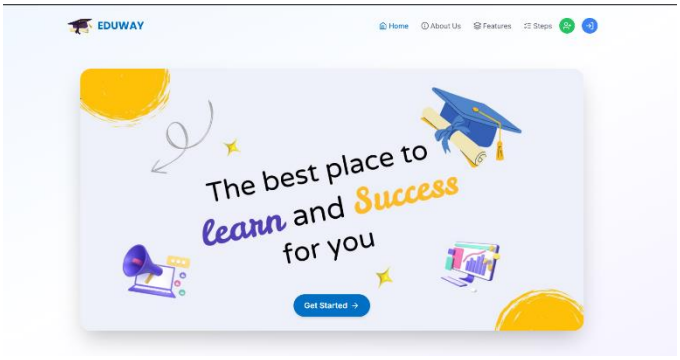


Fig – 4.2.0: Responsive home page

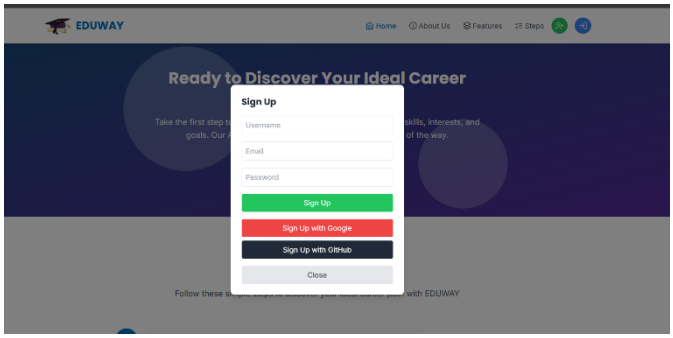


Fig - 4.2.1: Sign In Section

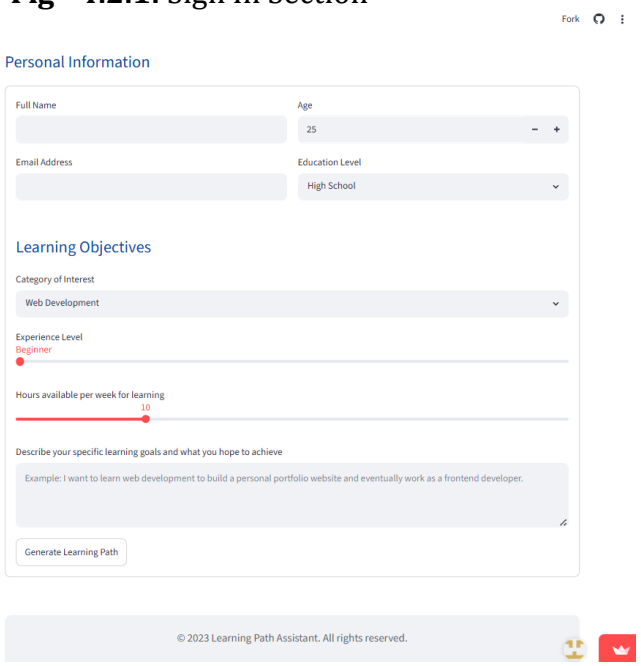


Fig – 4.2.2: Survey form Page users on the importance of a structured approach to career development

Survey Form:

A Survey form is a structured tool used to collect data, feedback, or opinions from users or respondents. It plays a crucial role in understanding user preferences, improving services, or conducting research.

Career Paths Section:

The Career Exploration Module helps learners discover and evaluate various career opportunities based on their interests, skills, and professional goals. The module provides comprehensive information about different career domains, including required competencies, growth prospects, industry trends, and potential.

About Us Page:

The About Module provides an overview of the EduWay platform, its objectives, and its role in supporting personalized learning and career development. It highlights the platform's mission to deliver adaptive educational experiences

through Artificial Intelligence, personalized learning paths, and career-oriented recommendations.

Journey to Career Success Section: The Journey to Career Success section outlines the step- by-step process of achieving career milestones. It includes detailed explanations of goal setting, skill acquisition, networking, and leveraging resources to build a successful career. This section is designed to motivate and educate.

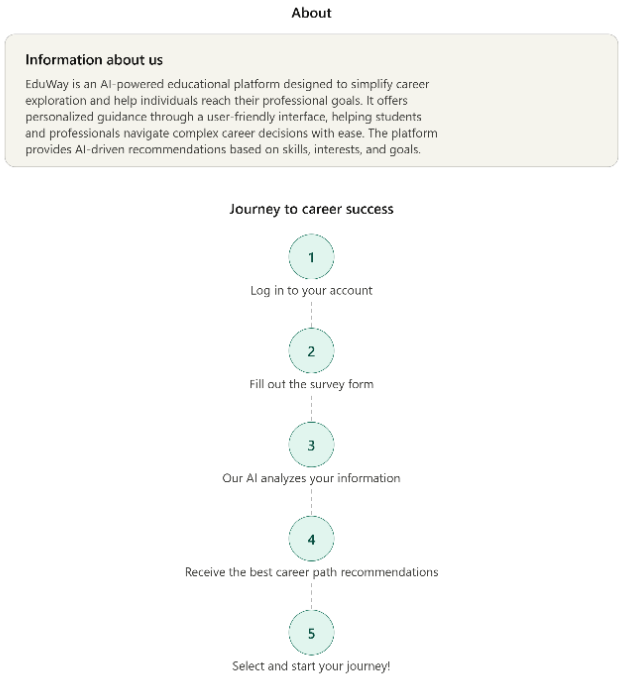


Fig – 4.2.5: About

EduWay utilizes the Gemini API to generate personalized learning experiences based on learner profiles, interests, career goals, skill levels, and assessment performance. Information collected during registration and survey completion is securely stored within the database and processed by backend services developed using Spring Boot.
The AI recommendation engine analyzes learner data and identifies appropriate learning pathways, educational resources, and career-oriented suggestions. Based on learner proficiency and objectives, the system generates customized learning roadmaps that guide users through relevant topics and skill-development activities. As learners complete assessments, learning modules, and other platform activities, their performance data is continuously monitored and analyzed. The generated insights are used to update recommendations, refine learning paths, and provide adaptive educational content aligned with individual progress.

4.4Job Marketplace Integration

The Career Recommendation Module assists learners in identifying suitable career paths based on their interests, skills, learning progress, and assessment performance. The system analyzes learner profiles and educational achievements to generate personalized career guidance and skill-development recommendations.

Using the Gemini API, EduWay evaluates learner competencies, career objectives, and identified skill gaps to recommend relevant career domains and learning opportunities. The platform also suggests educational resources, courses, and learning paths that help learners strengthen the skills required for their desired career goals.

The Spring Boot backend manages learner information, progress records, assessment results, and recommendation workflows. As learners complete modules and assessments, their profiles are continuously updated, allowing the system to refine career suggestions and provide more accurate guidance over time.

By connecting learning outcomes with career-oriented skill development, the module helps learners make informed academic and professional decisions while supporting continuous growth and long-term career planning.

4.5 Quizzes and Badges

To improve learner engagement and encourage continuous participation, EduWay incorporates gamification features and adaptive assessments within the learning workflow.

Badges and Achievements: The platform rewards learners for completing learning modules, achieving milestones, maintaining learning streaks, and performing well in assessments. Achievement badges, certificates, and reward points are displayed on learner dashboards to recognize progress and motivate continued learning. These gamification elements promote active participation and create a more engaging educational experience.

Adaptive Assessments:

EduWay provides AI-generated assessments aligned with each learner's personalized learning path. Assessment questions are designed to evaluate learner understanding, measure skill development, and identify areas requiring improvement. The system provides immediate feedback, performance insights, and recommendations based on assessment outcomes.

5. FUTURE WORK

5.1 Planned Enhancements

Improved AI-Personalized Learning:

Employ advanced AI models and recommendation methods to enhance the precision of generating personalized learning paths, career counseling, and adaptive assessment. Real-time Personalized Learning Path Adjustments:

Provide features that enable instant adjustments to learning paths based on the interaction and performance in quizzes.

Dynamic Personalized Learning Paths:

Implement a system that allows real-time changes in personalized learning paths based on user interactions and learning progress.

Additional Educational Platforms Integration:

Include more learning portals, repositories, and certification providers to deliver additional resources for learning and development.

Advanced Gamification Features Implementation:

Add advanced gamification features like personalized quizzes, badges, rewards, and leader boards to encourage learners.

5.2 Vision for the Future

AI-Based Career Advisory System: Develop a comprehensive career guidance framework capable of providing continuously evolving career recommendations based on learner progress, skills, and industry trends.

Peer Collaboration Features: Support group learning, peer discussions, mentor interactions, and project-based collaboration to encourage knowledge sharing and community learning.

Open Educational Content Integration: Provide access to high-quality open educational content, certification programs, coding challenges, and industry-focused learning platforms.

Continuous Learning Optimization: Establish intelligent feedback mechanisms that continuously refine learning paths, assessments, and recommendations based on learner performance and engagement.

Global Accessibility and Inclusivity: Extend platform support for multiple languages, accessibility standards, and diverse learner groups to make personalized education available to a broader audience

6. CONCLUSIONS

EduWay is a platform using artificial intelligence technology that combines personalized learning and career development in one comprehensive eco-system. The combination of adaptive learning, skills development, and career coaching can be implemented through the use of Artificial Intelligence and personalized approaches.

As the learner is able to detect his or her weak spots, find the appropriate learning materials, monitor performance, and obtain career-related suggestions based on the set aspirations, EduWay creates a fully personalized environment focused on maximizing learning results. Thanks to

continuous monitoring and performance analysis, such an approach is helpful for creating efficient learning paths and enhancing the user's motivation.

Thanks to the combination of learning and career coaching aspects, the EduWay solution makes it possible to reach both personal and professional targets.

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