Mentor Platform

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING-II
SESSION: 2026–27 (ODD)

Abstract
Mentoring is an important form of personal, academic and professional development; however, access to suitable mentors is often fragmented, dependent on informal networks and difficult to coordinate at scale. This paper presents Mentor Connect, a proposed AI-powered web platform designed to connect mentors and mentees through personalized, goal-oriented matching. The proposed system collects user profiles, areas of expertise, interests and development goals, and uses this information to recommend potentially suitable mentor–mentee connections. Beyond matching, the platform is intended to support structured mentoring tracks, session organization, feedback collection, progress visibility and engagement through gamification. Its proposed technical architecture consists of a web frontend, API gateway, modular backend services, a database, an AI matching component and a security layer. React or Angular, Node.js or Python, PostgreSQL or MongoDB, and testing tools such as Jest, Mocha or Selenium are identified as technology options. The paper discusses the problem context, existing approaches, research gap, system requirements, proposed methodology, architecture, evaluation plan, applications and future enhancements. Since the underlying project report describes a proposal rather than a completed implementation, no experimental results or performance claims are presented. The paper concludes that the proposed platform offers a unified framework whose usefulness must be validated through implementation, systematic testing and user feedback.

Keywords: Artificial Intelligence, Mentor–Mentee Matching, Career Guidance, Personalized Learning, Mentoring Platform, Progress Tracking, Web Application, Data Privacy.

1. Introduction

Mentorship is a developmental relationship in which an experienced individual provides guidance, knowledge and feedback to someone seeking to improve skills, make informed decisions or progress towards personal and professional goals. In educational settings, mentoring can help students understand career options, prepare for employment and identify the skills required by particular industries. In workplaces, it can support onboarding, professional growth, specialization and knowledge sharing. Community programs can also use mentoring to widen access to learning and career support.

Despite its value, finding and maintaining a suitable mentoring relationship can be challenging. Mentor discovery commonly depends on personal contacts, faculty recommendations, alumni groups, professional networks or organizational coordinators. Such approaches may be useful, but they can be fragmented and may not consistently account for an individual's goals, interests and preferred areas of development. Manual matching can also become time-consuming as the number of participants increases. After a match is made, users may lack a shared environment for arranging sessions, recording feedback and monitoring progress.

Mentor Connect is proposed as a centralized digital platform that supports the mentoring lifecycle from onboarding and profile creation to matching, structured activities and feedback. Its central idea is to use profile and goal information to

generate personalized match recommendations while providing tools that help sustain the relationship. The platform is intended for educational institutions, corporate enterprises, professional networks, NGOs and community programs.

1.1 Problem Statement

Existing mentoring opportunities are often distributed across informal networks and separate coordination processes. General career guidance may not address individual requirements, while manual mentor–mentee pairing can be difficult to scale. Engagement may decline when participants do not receive regular feedback or cannot see their progress. In addition, user profiles may contain personal, educational and career-related information that requires careful protection. The problem addressed in this paper is the absence, in many mentoring contexts, of a single organized approach that combines personalized matching, structured mentoring activities, progress review and privacy-focused data handling.

1.2 Aim and Objectives

The aim is to design a proposed AI-powered mentoring platform that connects mentors and mentees through personalized, secure and engaging career guidance.

- To propose an AI-based matching process that considers user profiles and stated goals.
- To define a secure approach to handling profile, expertise and career-related information.
- To provide structured mentoring tracks relevant to different industries and career stages.
- To support sustained participation through feedback, progress visibility and gamification.
- To outline a modular web architecture and a staged development and evaluation plan.

1.3 Scope of the Study

The proposed scope includes user onboarding, mentor and mentee profiles, goal collection, AI-assisted matching, pairing, mentoring tracks, session support, feedback and progress tracking. It also considers a secure cloud backend, microservices and an API gateway. The project report does not define a final AI model, matching formula, training dataset, detailed database schema, interface screens or deployment environment. These items remain decisions for detailed design and implementation.

2. Literature Review

2.1 Literature Review

Research on mentoring generally reports positive associations with academic, professional and personal development, although the size of the benefit varies across settings and outcomes. Eby et al. (2008) synthesized research across youth, academic and workplace contexts and found that mentoring was associated with favorable career, motivational, relational and behavioral outcomes; however, the average effects were generally small. This suggests that a mentoring platform should support the quality and continuity of relationships rather than assume that making a connection alone guarantees success [7].

Evidence from youth mentoring also emphasizes the importance of program design. DuBois et al. (2002), in a meta-analysis of 55 evaluations, examined the effectiveness of youth mentoring programs and highlighted that outcomes depend on program and relationship characteristics [8]. Raposa et al. (2019) later analyzed 70 studies involving 25,286 young people and reported an overall positive effect across youth outcomes, while noting that effects were modest and varied with program characteristics [9]. Although these studies focus primarily on youth mentoring, they support evaluating Mentor Connect through participant feedback, relationship quality and meaningful development outcomes, not just the number of matches created.

The process used to pair participants is another important research concern. A review by Allen et al. (2022) identified both the matching process and individual characteristics—such as experience and deeper-level similarities—as relevant considerations when matching mentors and protégés [10]. In a computational study, Bertsimas, Cory-Wright and colleagues (2018) examined mentor–mentee matching as a two-sided matching problem using real preferences from a university program; their work illustrates how multiple participant preferences can be considered systematically rather than relying only on a single profile attribute [11]. For Mentor Connect, this supports considering mentee goals, mentor expertise and participant preferences together, while retaining the possibility of human review.

Digital mentoring can make guidance easier to coordinate across locations, but technology should be treated as an enabling layer rather than a replacement for the mentoring relationship. A systematic review of e-mentoring for youth health found that digital mentoring is an established area of study but that conclusions should be interpreted in relation to the specific populations and outcomes examined [12]. The present project proposes profile creation, online coordination, structured tracks and feedback in one system; these are design choices that should be validated through usability testing and user studies rather than presented as already proven benefits.

Taken together, the literature supports three design directions for Mentor Connect: (i) match participants using multiple relevant characteristics and stated goals; (ii) provide structure and follow-up after the initial match; and (iii) evaluate outcomes and user experience empirically. The reviewed studies do not validate the specific AI model proposed for this project, and no claim is made that an AI-based matching approach will outperform manual or rule-based pairing without direct comparison. The proposed system therefore requires implementation and evaluation before its effectiveness can be established.

The supplied project report identifies four broad categories of existing mentoring or professional connection approaches. The comparison below retains the categories and limitations described in that report; it should be understood as a project-level review rather than a systematic academic literature review.

Existing approach / reference	Approach described	Limitation identified
MentorCollective	Manual or rule-based mentor–mentee pairing.	Limited AI personalization; matching may not scale well.
APS National Mentoring Community	Community-driven and coordinator-led mentoring.	Coordination is largely offline, without one integrated technology platform.
General professional networking (e.g., LinkedIn)	Broad networking and connection requests.	Not specifically designed for mentoring tracks, progress tracking or feedback.
Traditional corporate mentoring programs	In-person pairing, often assigned through HR.	Pairing may be static, with limited data-driven personalization and structured tracks.

2.2 Research Gap

The comparison indicates an opportunity to bring several mentoring functions into one platform. These include profile- and goal-based match recommendations, structured mentoring tracks, feedback collection, progress visibility and privacy-oriented data handling. Mentor Connect is proposed as a unified response to this opportunity. This gap is inferred from the comparison in the supplied project report; it does not imply that every existing platform lacks all of these capabilities.

2.3 Review Limitations

The source report names platforms and broad reference categories but does not provide detailed academic paper citations, publication years, datasets or comparative performance measurements. Accordingly, this paper does not attribute quantitative findings to those sources or claim that the review is exhaustive. A formal publication-ready literature review would require a separate database search and verified bibliographic details.

3. Proposed Mentor Connect System

Mentor Connect is designed as a sequence of connected activities. A mentor or mentee first completes onboarding and provides profile information. Mentees describe their goals, while mentors provide information about their experience, interests and areas of expertise. The matching component processes the available information and recommends potential

connections. Once a pair is established, structured tracks and mentoring sessions support the relationship. Feedback and progress information help participants review the experience and identify areas requiring attention.

3.1 Main Functional Components

Component	Proposed function
User onboarding	Registers mentors and mentees and collects the information needed to create profiles.
Profile and goal management	Records expertise, interests, experience and desired development outcomes.
AI matching engine	Processes profile and goal information to recommend potential mentor–mentee connections.
Mentor–mentee pairing	Establishes a connection and supports organized mentoring sessions.
Structured mentoring tracks	Organizes activities around industry domains or career stages.
Feedback and progress tracking	Captures feedback and makes progress visible to participants.
Gamification	Introduces engagement mechanisms intended to encourage continued participation.

3.2 Proposed System Workflow

1. User onboarding and profile creation.
2. Entry of mentee goals and mentor expertise information.
3. Processing of profile and goal information by the AI matching component.
4. Recommendation and establishment of a mentor–mentee connection.
5. Participation in structured mentoring tracks and sessions.
6. Collection of feedback and review of progress.

4. Proposed System Architecture

The proposed architecture uses a web frontend that communicates with backend services through an API gateway. Backend responsibilities are organized into microservices so that platform functions can be developed and maintained in separate modules. A database stores platform information, while an AI component processes profile and goal data to generate match recommendations. Encryption and privacy-oriented checks are included as part of the security layer.

Architecture layer	Technology option / role	Purpose
Frontend	React or Angular	User interface for registration, profiles, goals and mentoring activities.
API gateway	Gateway between frontend and backend	Provides a controlled entry point for application requests.
Backend services	Node.js or Python; microservices	Implements platform functions in modular services.
Database	PostgreSQL or MongoDB	Stores user, profile, goal and platform information.

AI component	Matching algorithm and model inference	Generates potential mentor–mentee recommendations.
Security layer	Encryption and compliance checks	Supports privacy-focused handling of user information.
Testing	Jest, Mocha or Selenium	Supports component and user-workflow testing.

4.1 Functional Requirements

- Mentors and mentees should be able to create and maintain profiles.
- Mentees should be able to enter goals, and mentors should be able to provide expertise and experience details.
- The matching component should use profile and goal information to recommend potential pairs.
- The platform should provide a way to organize mentoring tracks and sessions.
- The platform should support feedback collection and progress visibility.
- The system should protect user data through appropriate security and privacy controls.

4.2 Non-Functional Considerations

The proposed system should be usable by participants with different levels of technical experience. It should be reliable, maintainable and capable of supporting a growing user base. Modular services can help isolate responsibilities and support maintenance. Security and data protection should be considered throughout the system lifecycle rather than added only after development.

5. Methodology

The project follows a proposed staged development methodology. Work begins with requirement analysis and proceeds through interface design, backend development, matching-component development, security implementation, testing and deployment. Each stage should be reviewed before the next stage is finalized.

Requirement analysis and profiling design: Identify mentor, mentee and organizational requirements. Define roles, profile fields, goal information, workflows and privacy expectations.

Frontend development: Build the user interface using React or Angular, including registration, profile creation, goal entry, match suggestions and mentoring activities.

Backend and microservices: Develop backend services using Node.js or Python and connect them through an API gateway. Services may manage profiles, matching requests, mentoring activities and feedback.

AI matching development: Develop a component that processes profile and goal information and recommends potential pairs. The specific algorithm, model type and training dataset remain to be selected after requirements and data are studied.

Security implementation: Introduce encryption and privacy-focused data handling. Review access to user information and assess relevant privacy requirements, including the GDPR and CCPA considerations identified in the project report.

Testing and deployment: Test components and complete workflows using suitable tools such as Jest, Mocha or Selenium. Resolve identified issues and deploy through a CI/CD process.

5.1 Proposed Development Schedule

Month	Planned activity	Expected milestone
1	Requirement gathering and UI/UX design	Requirements, user roles, profile plan and interface design.
2	Frontend development	Initial user-facing screens and navigation.

3	Backend and database setup	Backend foundation, API connection and database setup.
4	AI matching engine development	Initial matching component based on profile and goal inputs.
5	Security integration and testing	Security controls and component/integration testing.
6	Deployment, feedback and final testing	Deployed project version, user feedback and final validation.

5.2 Proposed Evaluation Strategy

Evaluation should take place at component, integration and user-workflow levels. Component tests can verify individual services. Integration tests can examine whether information moves correctly between the frontend, API gateway, backend, database and matching component. User-oriented evaluation can assess the clarity of onboarding, perceived relevance of match recommendations, ease of using feedback features and the usefulness of progress visibility. These are proposed evaluation activities; the source report does not provide completed test results or measured outcomes.

6. Security, Privacy and Risk Considerations

Mentor Connect may process profile details, career interests, expertise and mentoring goals. Such information should be collected for clear platform purposes and protected against unauthorized access. The project report identifies encryption and GDPR/CCPA-aligned data handling as important considerations. Specific technical and organizational controls must be selected during detailed design and validated before deployment. Naming a regulation as a design consideration does not, by itself, establish legal compliance.

Potential risk	Why it matters	Proposed response
Incomplete profile information	Insufficient information may reduce the usefulness of recommendations.	Use clear profile prompts and explain which fields improve matching.
Irrelevant matches	Poor matches may reduce trust and participation.	Review matching criteria and collect feedback to improve recommendations.
Low user engagement	Participants may stop when progress or useful interaction is not visible.	Use structured tracks, feedback and proposed gamification features.
Privacy concerns	Users may hesitate to share career and personal details.	Apply privacy-focused collection, encryption and access controls.
System complexity	Multiple services and components require coordination.	Use modular development, API testing and staged integration.

7. Expected Outcomes and Discussion

The proposed platform is expected to provide a more organized way to discover and maintain mentoring relationships. Profile- and goal-based recommendations may help users identify connections that are relevant to their stated development needs. Structured tracks may give participants a clearer sequence of activities, while feedback and progress

visibility may help mentors and mentees review the relationship. A common platform may also assist institutions and organizations in coordinating mentoring programs.

These outcomes are expectations derived from the proposed design, not measured findings. The actual value of the system would depend on the quality and completeness of profile information, the suitability of the matching method, usability, participant engagement, technical reliability and effective protection of user data. A working implementation and systematic user evaluation would be required to establish whether the proposed benefits are achieved.

7.1 Potential Benefits to Stakeholders

- Mentees: clearer access to guidance and a more organized development path.
- Mentors: improved visibility into mentees' goals and support requirements.
- Institutions and organizations: a common process for coordinating mentoring activities and reviewing feedback.
- Program coordinators: a centralized structure for overseeing participation and mentoring workflows.

8. Application Areas and Future Scope

Application area	Potential use
Educational institutions	Student career guidance and alumni–student mentoring programs.
Corporate enterprises	Employee development, onboarding and internal upskilling.
Professional networks	Goal-based mentoring with more structure and follow-up than general connection requests.
NGOs and community programs	Community skill-building and inclusive career support.

8.1 Future Enhancements

- AI chatbot assistance for common mentee queries and platform navigation.
- Native mobile applications to make mentoring activities and updates more accessible.
- Advanced analytics dashboards for participation, feedback and mentoring outcomes.
- Integrated live video sessions for real-time mentoring.
- Multi-language support to improve accessibility across language communities.

These features are proposed as future enhancements. They can be prioritized after the core functions—onboarding, matching, mentoring tracks, feedback and security—have been implemented and evaluated.

9. Limitations

This paper is based on a project report that describes a proposed platform. It does not include a completed software implementation, a finalized matching algorithm, a training dataset, a detailed database schema, a deployed environment, user-study data or measured performance results. The literature review is also limited to the named platforms and broad categories in the source report, rather than a verified systematic review of scholarly publications. Consequently, the discussion of benefits and outcomes is prospective. These limitations should be addressed in future development and research.

10. Conclusion

Mentor Connect proposes an integrated digital platform to improve access to personalized mentoring and career guidance. It combines profile- and goal-oriented AI-assisted matching with structured mentoring tracks, session support, feedback, progress visibility and engagement features. The proposed architecture includes a web frontend, API gateway,

modular backend services, database, matching component and security layer. A six-month development plan provides a staged route from requirements and interface design to implementation, testing and deployment.

The platform has potential applications in education, corporate development, professional networks and community programs. Its success will depend on relevant match recommendations, ease of use, continued participation, system reliability and responsible handling of user data. Future work should implement the proposed system, define and evaluate the matching approach, conduct usability and integration testing, and gather feedback from mentors, mentees and participating organizations. The present work therefore establishes a proposed framework rather than reporting validated implementation results.

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Source and Preparation Note

This research paper was developed from the supplied document titled “Mentor Connect – Software Project Report.” The terminology, proposed features, technology options, development schedule and stated limitations have been retained. No unnamed academic studies, algorithms, datasets, implementation results or performance measurements have been invented. Before submitting this paper as a formal publication, the author should verify and complete bibliographic details, add institution-specific formatting and, if required, conduct a separate scholarly literature search.