

Original Article

# AI NEWUS: An AI-Powered Career Guidance and Placement Preparation Platform

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Received: 02 March 2026

Revised: 04 April 2026

Accepted: 23 April 2026

Published: 11 May 2026

**Abstract** - This paper proposes an artificial intelligence-based career guidance and placement readiness tool that provides individuals looking to improve their skills and increase their employability potential with individualized and adaptive learning experiences. Current e-learning tools are based on static or fixed learning and assessment processes and often lack dynamic evaluation tools to assess individual performance. This paper proposes a dynamic evaluation framework that uses unique and randomized sets of questions to offer individualized learning experiences to users. Technical skills are developed through a series of structured learning stages with intelligent progress based on performance eligibility criteria. An AI-based analytics tool offers real-time evaluation of user interactions to identify gaps in technical skills, logical reasoning ability, verbal and quantitative aptitudes, and offers suggestions to improve these areas. Placement readiness is achieved through time-bound aptitude tests, company-specific technical problem sets, and AI-based mock interviews that mimic real-life processes. Automated feedback systems and visual performance analytics aid the learner in monitoring their progress while improving their weak areas. The novelty of this work lies in the unified integration of the concepts of adaptive learning, assessment generation, skill evaluation in multiple domains, and placement simulation under a single umbrella of artificial intelligence. This approach will improve learner engagement, placement preparedness, and the potential of artificial intelligence to match academic training with the ever-changing needs of the industry.

**Keywords** - Adaptive Learning, Artificial Intelligence, Career Guidance, Mock Interview, Placement Training.

## 1. Introduction

Technological advancements, as well as increasing international competitiveness, have profoundly impacted recruitment processes in recent times. For instance, organizations increasingly require individuals to possess strong technical, analytical, and communication skills, in addition to academic qualifications. Consequently, it is imperative for students to be well-prepared in different fields, including programming, logical reasoning, quantitative skills, and communication skills, in recruitment processes.

However, many students struggle to recognize skills needed in different industries as well as to prepare adequately for recruitment processes. Despite the availability of many digital learning tools, including online courses, as well as aptitude tests, most of these tools utilize traditional approaches, including content delivery as well as tests for all learners. The traditional approaches do not take into account

individual differences in learning, knowledge, and problem-solving skills.

With the recent developments in AI and learning analytics technology, there is now the opportunity to develop adaptive learning systems that offer personalized learning experiences. The AI-based technology has the potential to analyze learner interactions and develop performance patterns while providing recommendations for learning materials. The technology has the potential to enhance learner engagement and learning efficiency while preparing learners for their careers.

In order to overcome the challenges faced by existing systems, this research aims to develop an AI NEWUS web-based platform that uses AI technology to provide personalized career guidance and placement preparation. The AI NEWUS web-based platform includes skill development



programs, placement preparation programs, and AI-based mock interview simulations.

The web- grounded AI NEWUS platform evaluates pupil performance and offers learning paths grounded in performance analytics. The web- grounded AI NEWUS platform evaluates pupil performance and offers learning paths grounded in performance analytics. To ameliorate learner engagement and placement readiness, the AI NEWUS web- grounded technology provides adaptive literacy, intelligent assessment, and mock interviews.

### 1.1. Research Objectives

The primary objects of this exploration are as follows

1. To develop an AI- supported platform for substantiated career counseling and placement readiness.
2. To develop an adaptive literacy system that assesses pupil performance and recommends particular courses.
3. To integrate skill development, dissembled interviews, and aptitude training into one system.

## 2. Related work

The objectification of artificial intelligence in educational tools has been delved into. Educational data mining and literacy analytics have been used to assess the gestures of learners and their literacy patterns to address literacy issues.

Experimenters Baker and Inventado have presented educational data mining ways for assessing pupil commerce data and learning patterns to enhance adaptive literacy systems. Also, Brusilovsky has proposed adaptive literacy models for creating learning systems that can dynamically change based on user gestures and preferences.

Experimenters have also explored colorful studies on AI- grounded career recommendation systems. Das et al. have proposed a machine learning model for assessing pupil chops and academic records to recommend suitable careers. Although these models can be useful for career vocation, they do not offer nonstop skill development.

Experimenters have also proposed colorful placement medication models for enhancing pupil reclamation preparedness. Singh et al. have proposed an intelligent placement training system for furnishing aptitude and specialized training to scholars. Although the system can be useful for furnishing training to scholars, it lacks adaptive literacy capabilities and feedback mechanisms.

Recent exploration has also addressed the issue of AI- grounded interview simulation systems. In this regard, a natural language processing- grounded interview evaluation system was proposed by Malathi et al., which enables the evaluation of the responses given by the campaigners. This system simulates the interview terrain but does not give a

comprehensive frame that enables the integration with a literacy system.

From the literature review, it is observed that most systems give a result for a limited functionality similar to course recommendation systems, aptitude tests, interview evaluation systems, etc., still, only a limited number of systems give a comprehensive frame that enables the integration of adaptive literacy systems, specialized medication systems, and interview simulation systems.

The proposed AI NEWUS platform will give a result to the existing problems in the field of placement medication by integrating adaptive literacy systems, specialized medication systems, interview simulation systems, etc., within a single intelligent platform.

## 3. Proposed System

The proposed AI NEWUS platform is intended to be a web-based operation that facilitates career mediation by furnishing three main modules: skill development, placement training, and AI- grounded mock interviews.



Fig. 1 Overall structure of the AI NEWUS platform

In the skill development module, literacy is taught in a structured manner, with courses divided into three orders: freshman, intermediate, and advanced. Each course is designed to give explanations of generalities, exercises, and tests to gauge the user's knowledge.



Fig. 2 Skill development module with course progression by level

In the placement medication module, there is practice available for aptitude tests, specialized questions for specific companies, and HR. The tests are designed to be timed, mimicking the conditions of a real placement test.



Fig. 3 Placement training workflow includes aptitude, technical, and HR rounds

In the mock interviews, a real- world simulation is conducted by generating questions applicable to specific places, including specialized and HR questions. The AI evaluates the responses of the user, furnishing feedback in a structured manner, including aspects of communication, connection of answers, and problem-solving chops.

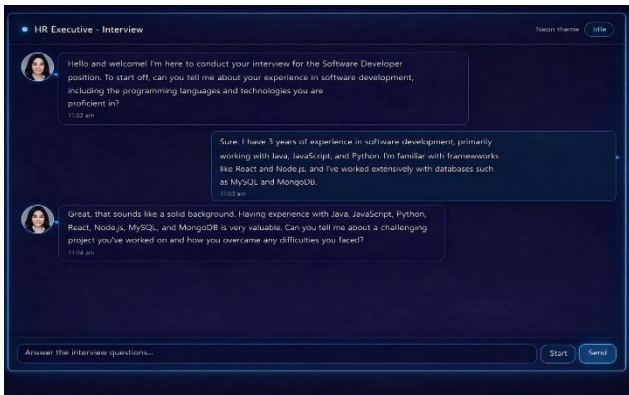


Fig. 4 Topic-specific aptitude evaluation and assessment procedure

## 4. Methodology

The methodology for the proposed AI NEWUS platform is intended to create an intelligent literacy frame that incorporates adaptive literacy, automated assessments, and medication for pupil placement. The methodology for the AI NEWUS platform will follow a defined workflow that includes user profiling, adaptive literacy, pupil evaluation, and AI- driven interview simulation. This methodology will create a literacy experience that's nonstop, immediate, and substantiated for the pupil.

### 4.1. User Registration and Profile Initialization

The first step in the methodology for the AI NEWUS platform is user enrollment and profile initialization. During this step, the pupil will be asked to give introductory

information similar to their academic background, specialized interests, favored job places, and career aspirations. This information will serve as the base for the user profile.

User profiling is a critical element of the AI NEWUS platform that will enable the personalization of the pupil literacy experience. The AI element will dissect the information handed by the pupil to recommend the most applicable literacy material. The user profiling will allow the AI NEWUS platform to give an acclimatized literacy experience that's customized to the pupil's skill position and career boundaries.



Fig. 5 User registration and profile management process

### 4.2. Adaptive Learning and Course Progression

The adaptive literacy medium is the core of the proposed platform. The courses are divided into a structured literacy path with colorful situations of literacy, including the freshman position, the intermediate position, and the advanced position. Each position is further divided into topic-wise literacy accouterments and abstract knowledge.

The system will track the commerce with the literacy accouterments and the assessment results. After the evaluation, the AI module will decide if the learner has gained the needed knowledge to move on to the next position of the course. The adaptive literacy medium will help the platform give the learner the required training based on their knowledge position.



Fig. 6 Topic-specific aptitude evaluation and assessment procedure

### 4.3. Dynamic Assessment Generation

Assessments play a vital part in the progression of the learner and the identification of gaps in the knowledge sphere. The proposed system will incorporate a dynamic question generation element.

The question generation will be grounded on colorful factors such as the difficulty level of the content, the proficiency level of the learner, and the performance history. This will help the system to induce different assessments.

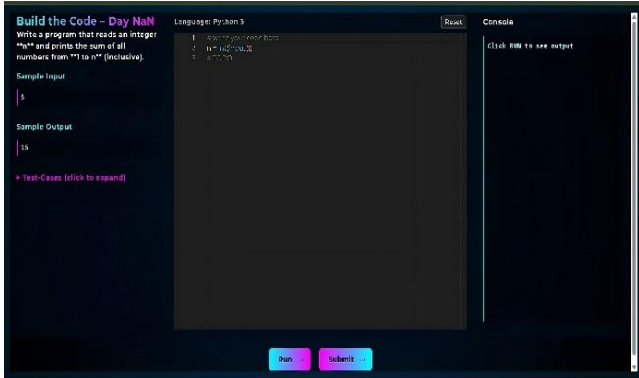


Fig. 7 AI NEWUS Interactive Coding and Assessment Interface

### 4.4. Module for Placement Preparation

The development of chops necessary for factual hiring procedures is the main objective of the placement medication module. Aptitude training, specialized interview medication, and HR interview accouterments are all included in this module.

Practice tasks in areas like verbal capability, logical reasoning, and quantitative logic are offered by the aptitude training element. Programming challenges and interview questions unique to the company are examples of specialized medicine. These exercises are meant to mimic factual placement tests that associations administer. In order to mimic the circumstances of real recovery tests, timed assessments are also included.



Fig. 8 Workflow for technical preparation unique to a company

### 4.5. AI-Powered Simulated Mock Interview

The artificial intelligence styles used in the mock interview module are intended to replicate realistic interview settings. Scholars can choose an open job position and take part in simulated interviews with HR interview scripts and specialized questions. The AI machine assesses user responses during the interview process using designated evaluation criteria, including specialized delicacy, communication clarity, and problem-solving chops. Textual or spoken responses are analyzed using natural language processing ways. The system produces thorough feedback reports that highlight areas that need enhancement as well as strengths. Before sharing in factual recovery interviews, this feedback helps scholars ameliorate their interview methods and boost their tone of confidence.

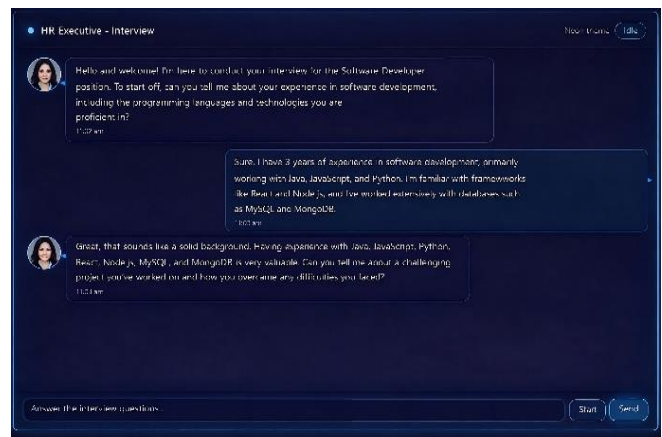


Fig. 9 AI-powered simulated interview and assessment procedure

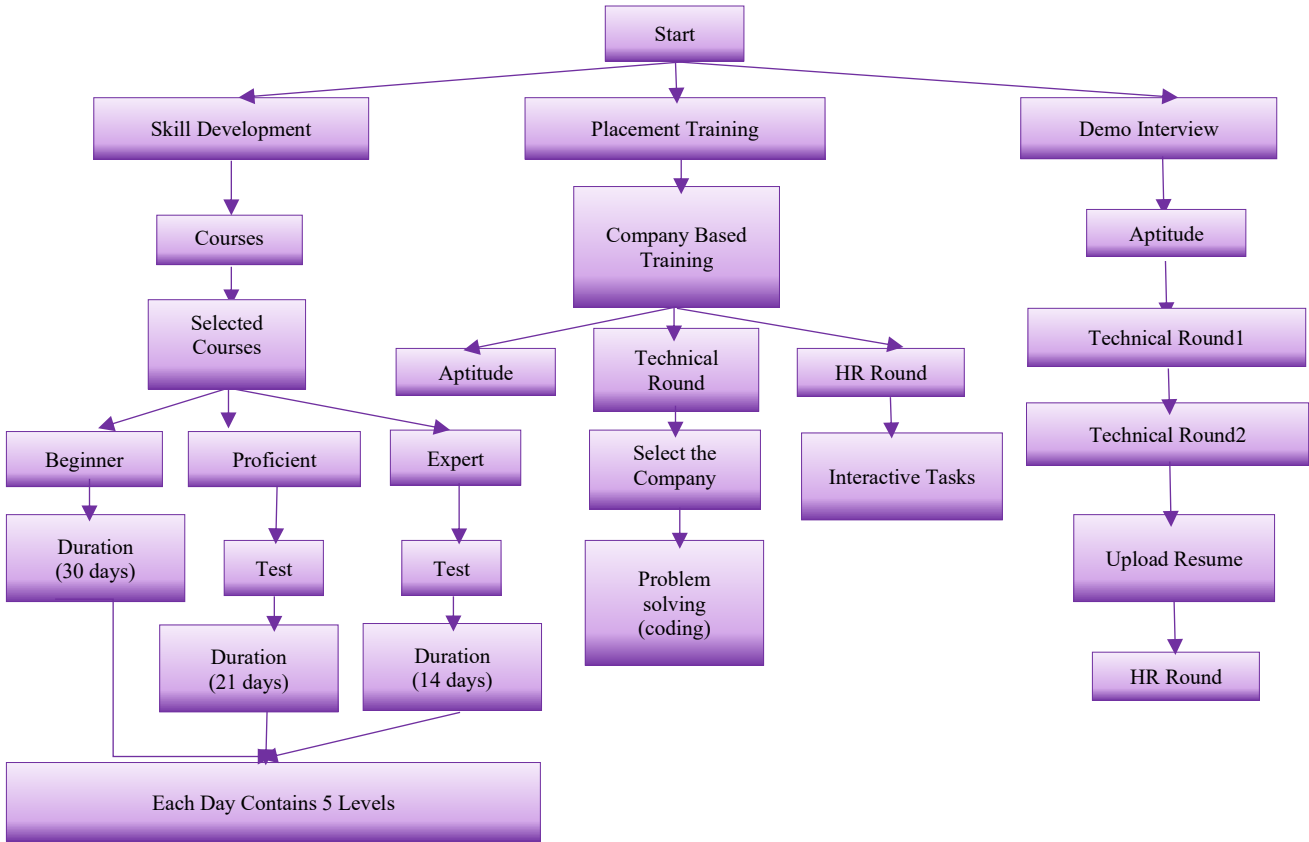
### 4.6. Feedback and Performance Analytics

Comprehensive performance analysis is the methodology's last step. Learner commerce data, assessment issues, and interview evaluation scores are all continuously gathered by the platform. This data is reused by the analytics module to produce performance reports and visual dashboards.



Fig. 10 Dashboard for performance analytics and progress visualization

## 5. Flowchart



## 6. System Architecture

AI NEWUS's system armature combines data operation, operation processing, artificial intelligence analytics, and user commerce into a scalable and modular framework. In order to guarantee effective communication between system factors and save flexibility for future expansion, the armature employs a layered approach.

The donation subcaste, operation subcaste, artificial intelligence and analytics subcaste, and data storehouse subcaste are the four main layers that make up the armature.

### 6.1. Layer of Presentation

The platform's user interface is represented by the donation subcaste, which serves as the main interface for user-system commerce. This subcaste is enforced as a web-grounded interface that enables scholars to pierce courses, take part in tests, and track their progress.

### 6.2. Application Layer

The application layer is in charge of overseeing the system's essential features. The business sense demanded for placement training, interview simulation, assessment scheduling, and course operation is enforced in this subcaste.

The skill development, placement training, and mock interview modules are among the modules that serve within the application layer. To gain learner performance perceptivity and produce applicable recommendations, each module interacts with the AI analytics machine.

### 6.3. Artificial Intelligence and Analytics Layer

The artificial intelligence and analytics subcaste is considered to be the intelligent part of the proposed platform. This subcaste analyzes the user data as well as learning gestures, enabling intelligent decision-making.

The AI module of this subcaste processes information, including scores attained in tests, responses given in questions, and learning progress. This enables it to understand learner strengths as well as sins. Accordingly, it provides individualized literacy recommendations as well as facilitates movement between course situations.

Likewise, this AI subcaste enables dynamic questions as well as mock interview evaluation. Natural language processing is employed in accessing responses given in interviews, enabling feedback generation regarding communication chops as well as problem-solving ways.

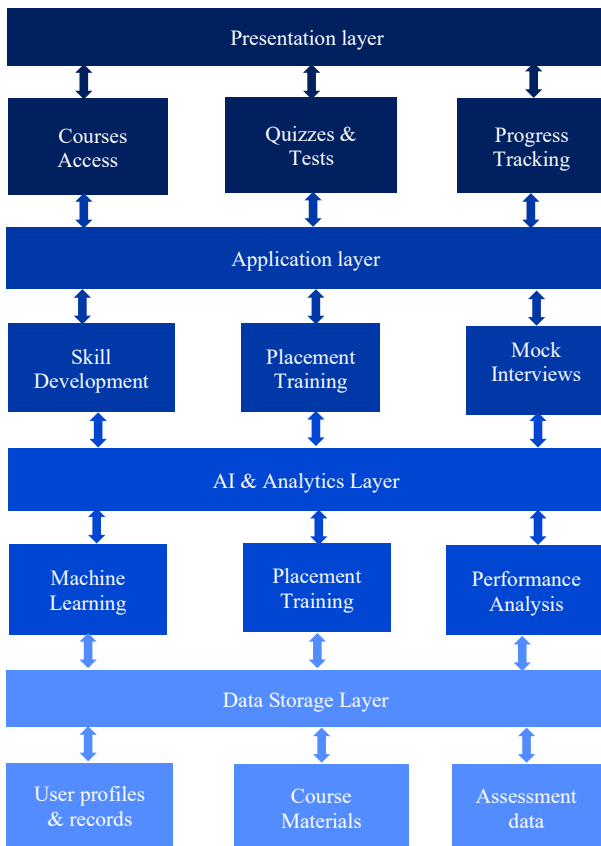
Also, it enables generating reports as well as analytics, easing a better understanding of learner progress.

**6.4. Data Storage Layer**

All system data, including user biographies, course accouterments, assessment records, and interview logs, and performance criteria, are managed by the data storehouse subcaste. The database is erected to manage both structured and unstructured data while conserving data security and integrity.

Sensitive user data is shielded from unwanted access by secure storehouse styles. programs for access control and data encryption are put in place to cover sequestration and comply with data protection regulations.

Also, the stored data is the base for AI- grounded analysis, which allows the system to continuously learn from user relations and enhance the perfection of its recommendations.



**6.5. System Integration and Workflow**

The role of the AI NEWUS platform in providing an integrated learning environment is based on effective interaction between the layers of the system’s architecture. The application layer is responsible for processing requests generated by learners as they interact with the system’s user interface. The application layer can be viewed as an interface

between the learner and the intelligent components of the system. When learners want to access learning modules, undertake assessment tests, or participate in mock interviews, the application layer processes their requests and forwards the relevant information to the learner’s AI analytics engine.

After analyzing learner performance data stored in the system, the learner’s AI engine generates recommendations, evaluation results, and suggestions on adaptive learning. The generated information is then sent back to the application layer. The interaction between the components of the system enables real-time feedback, personalized learning, and effective monitoring of learners within the AI NEWUS system.

**7. Experimental Results**

In order to analyze learning improvement and engagement, the prototype platform was evaluated with student participants.

**Table 1. Experimental results**

Metric	Traditional Method	AI NEWUS
Aptitude Score	62%	78%
Technical Skills	58%	74%
Interview Readiness	55%	81%

**8. Conclusion and Future Scope**

The proposed AI NEWUS platform's AI-supported knowledge terrain is meant to improve career comfort, technical skill development, readiness for placement, and readiness for interviews. The system fixes the main problems with traditional knowledge platforms, which always have static content and unproven assessments. It does this by using adaptive knowledge mechanisms, dynamic question generation, and AI-driven mock interviews. Compared to traditional drug methods, experimental evaluation shows that the platform makes learners more interested, helps them do better on tests, and makes them more confident in interviews. The system facilitates data- driven skill development and aids in bridging the gap between academic literacy and assiduity demands through ongoing performance analytics and acclimatized feedback.

Unborn developments of the system may include the integration of advanced machine learning models for prophetic career recommendations, sentiment and emotion analysis for interview evaluation, and multilingual support to ameliorate availability for learners from different backgrounds. Fresh advancements, such as institution- position analytics dashboards, beginner interfaces, and real-time mentorship modules, can further strengthen the connection of the platform in large- scale deployment scripts. Long- term evaluation across multiple academic institutions will also help validate its effectiveness under different literacy surroundings and user groups.

The platform pays close attention to responsible data handling when recycling academic biographies, learning actions, and assessment records. All user-accessed particular and performance-related data is gathered, safely stored, and shielded from unauthorized use by strict access controls.

AI-grounded evaluation takes fairness into account as well, with procedures put in place to reduce prejudice and guarantee fair and transparent evaluation for all scholars. While promoting the safe integration of AI in education and

career mediation, these moral practices aid in conserving user trust.

## Acknowledgment

The authors express sincere gratitude to the mentors and coordinators of K.L.N Innovation Research Park (KLN.IRP), K.L.N College of Engineering (Autonomous), for their guidance and continuous support throughout the development of the AI NEWUS project.

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