INSIGHT EDU

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Topic

This project develops a web application that recommends educational and career paths in technology tailored to users' personalities. By combining psychological insights with machine learning, the app ensures that each user’s learning journey aligns with their unique strengths and preferences, enhancing their success in the tech field.

Motivation

سَنُرِيهِمْ آيَاتِنَا فِي الْآفَاقِ وَفِي أَنْفُسِهِمْ حَتَّى؟ يَتَبَيَّنَ لَهُمْ أَنَّهُ الْحَقُّ

"We will show them Our signs in the horizons and within themselves until it becomes clear to them that it is the truth."
The verse explains that we must know "ourselves" and understand the potential within us.
QS. Fusshilat:53

Target User Grup

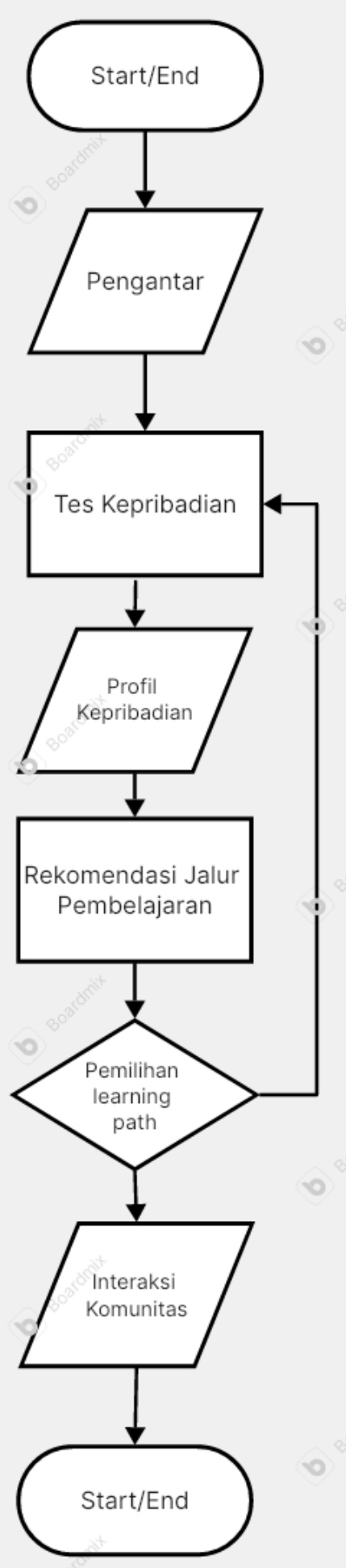
InsightEdu targets individuals exploring technology careers, particularly students, recent graduates, and professionals seeking guidance on educational and career paths that align with their personal attributes and interests.

InsightEdu

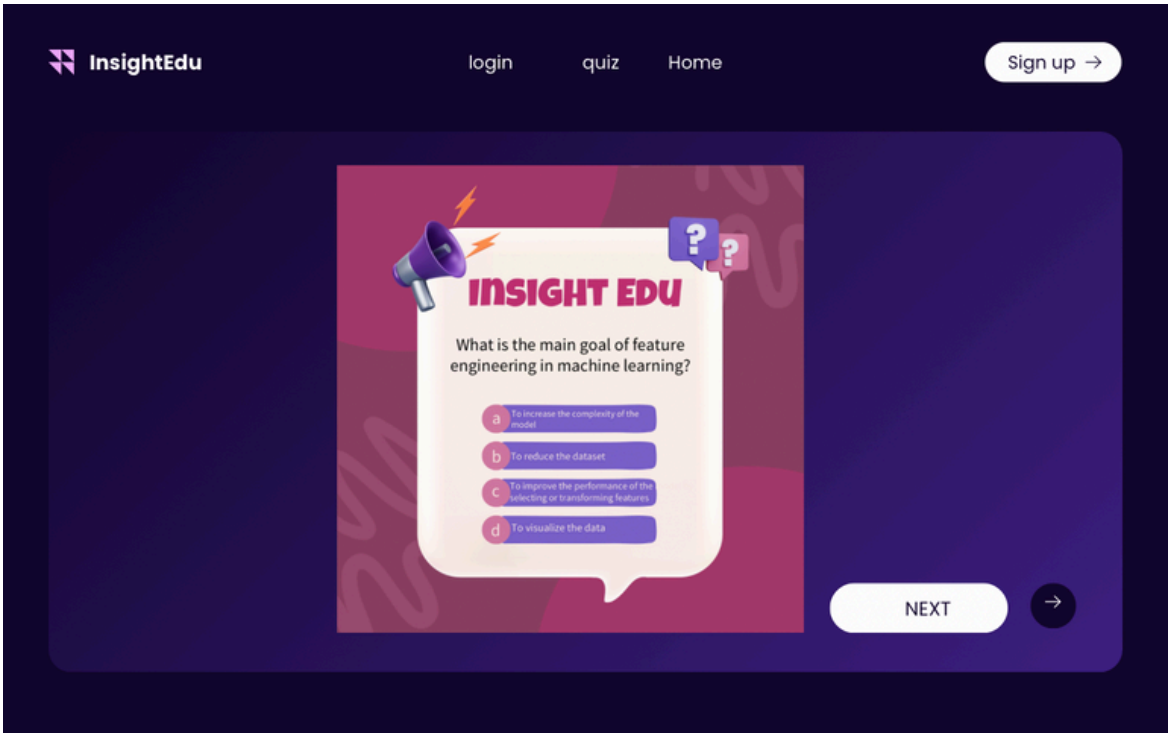
A web application that recommends personalized technology learning paths based on user personality assessments.

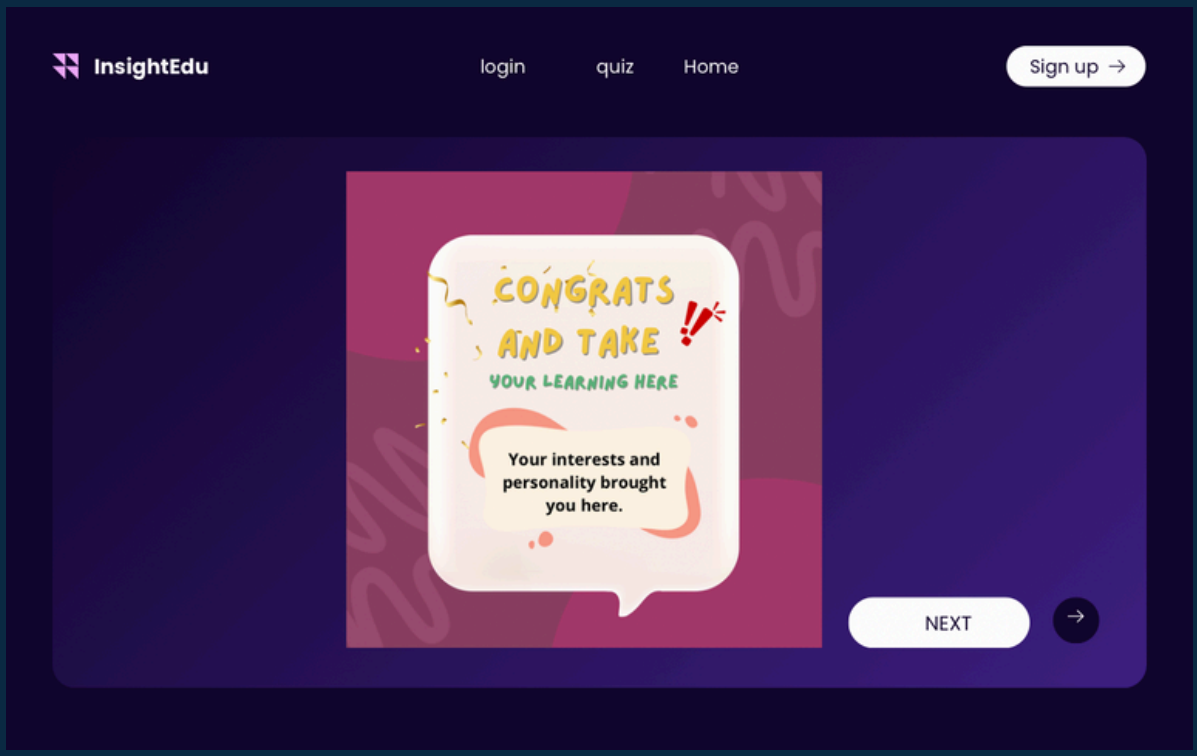
Contributes primarily to SDG 4 (Quality Education) by providing accessible, personalized education pathways.

Flowchart


Start/End
Pengantar
Tes Kepribadian
Profil Kepribadian
Rekomendasi Jalur Pembelajaran
Pemilihan learning path
Interaksi Komunitas
Start/End

Design and Illustration





Research questions and objectives

Research Questions:

- **How do different personality traits influence individuals' preferences for learning paths in technology?**
- **What are the most effective methods for assessing personality traits in the context of technology education?**
- **How do personalized learning paths based on personality assessments impact learners' engagement and success in technology fields?**

Objectives:

- **Develop a comprehensive understanding of the relationship between personality traits and learning preferences in the field of technology.**
- **Explore and evaluate existing personality assessment methods to determine their suitability for personalized learning recommendations.**
- **Design and implement a user-friendly platform InsightEdu for administering personality tests and delivering personalized learning recommendations.**

Research Methodology

- **Literature Review: Conduct a comprehensive literature review on the intersection of personality traits and learning preferences in technology education. Identify key theories, studies, and frameworks that elucidate the relationship between personality traits and learning styles in technology fields.**

- **Survey Development: Develop a survey instrument to assess various personality traits relevant to technology education. The survey should incorporate validated scales and questions derived from the literature review. Ensure that the survey is comprehensive yet user-friendly to encourage participation.**

- **Data Collection: Administer the survey to a diverse sample of participants, including students, professionals, and educators in technology-related fields. Utilize online platforms, professional networks, and educational institutions to reach a broad audience. Collect demographic data alongside personality trait responses to facilitate comprehensive analysis.**

- **Personality Trait Analysis: Employ statistical techniques such as factor analysis to identify distinct personality traits relevant to technology education from the survey responses. Analyze the relationships between these traits and individuals' preferences for learning paths in technology, considering factors such as learning styles, motivation, and career aspirations**

Research Methodology

- **Assessment Methods Evaluation: Evaluate existing personality assessment methods, including self-report questionnaires, behavioral observations, and situational judgment tests, for their suitability in the context of technology education. Assess the reliability, validity, and practicality of each method for providing personalized learning recommendations.**
- **InsightEdu Platform Development: Based on the findings from the literature review, survey analysis, and assessment methods evaluation, design and develop the InsightEdu platform. Integrate validated personality assessments with algorithms for recommending personalized learning paths in technology. Ensure the platform's usability, accessibility, and compatibility across devices.**
- **Pilot Testing: Conduct pilot testing of the InsightEdu platform with a smaller sample of users to assess its functionality, effectiveness, and user satisfaction. Gather feedback on the platform's interface, recommendation accuracy, and overall user experience to inform iterative improvements.**
- **Conclusion and Recommendations: Synthesize the research findings to draw conclusions about the relationship between personality traits and learning preferences in technology education. Provide recommendations for educators, policymakers, and developers to leverage personalized learning approaches effectively in promoting quality education**

Methods and technologies

A. Technologies:

- **TensorFlow:**

TensorFlow is a machine learning framework developed by Google, used for building and training deep learning models.

- **Flask:**

Flask is a web framework for Python, commonly used to create web applications and RESTful APIs.

- **MongoDB:**

MongoDB is a NoSQL database that stores data in flexible, JSON-like documents, suitable for web development.

- **Node.js:**

Node.js is a JavaScript runtime environment for server-side programming, commonly used to build scalable web applications.

- **React.js:**

React.js is a JavaScript library for building user interfaces, commonly used for creating dynamic web applications.

- **Express.js:**

Express is a web framework for Node.js, providing features for building web applications and APIs.

Methods and technologies

B. Methods:

- **RESTful API (Representational State Transfer):**

A RESTful API is an architectural style for designing networked applications, using HTTP requests for CRUD operations on resources.

- **Supervised Classification Model:**

A supervised classification model is a machine learning algorithm that categorizes input data into predefined groups based on labeled training data.

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Time Tables

WEEK	TASKS
Week 1	Planning and Design
Week 2-3	Front-end Development
Week 4-5	Back-end Development
Week 6	Testing and Adjustment
Week 7	Launch

References of journals

iKnowde: Interactive Learning Path Generation System Based on Knowledge Dependency Graphs

https://www.semanticscholar.org/paper/e04cbbf16a9be857a211bae8055e3e276b724494

Learning Path Recommendation Using Lesson Sequence and Learning Object based on Course Graph

https://www.semanticscholar.org/paper/d2d3cf159d48f620ffb1c2a48450da7b3d21aa7a

Personalized curriculum sequencing utilizing modified item response theory for web-based instruction

https://www.semanticscholar.org/paper/d3ab5838c5442b4e6152a86134bf86f675770d42

Mining learner profile utilizing association rule for web-based learning diagnosis

https://www.semanticscholar.org/paper/751f0da1c65b2a15f6e841480f908f004c658c91

Integer Programming

https://www.semanticscholar.org/paper/a81c4f2beb5656a428fc4291c1c2a6c09748e2de

Data-Driven Personalized Learning Path Planning Based on Cognitive Diagnostic Assessments in MOOCs

https://www.semanticscholar.org/paper/8f805cdd792806edc0fe9ee5cdb20f611febe637

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Tri-skill variant Simplex and strongly polynomial-time algorithm for linear programming

https://www.semanticscholar.org/paper/e04cbbf16a9be857a211bae8055e3e276b724494

Situational Operational Planning in Real-time Systems

https://www.semanticscholar.org/paper/d2d3cf159d48f620ffb1c2a48450da7b3d21aa7a

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Phase transitions in combinatorial optimization problems

https://www.semanticscholar.org/paper/d3ab5838c5442b4e6152a86134bf86f675770d42

Intelligent Web-based Tutoring System with Personalized Learning Path Guidance

https://www.semanticscholar.org/paper/751f0da1c65b2a15f6e841480f908f004c658c91

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