CS 410 Project Proposal

Team Name: ENSquare

Members:

Names	**NetID's**
Captain - Nikitha Reddy Sankepally	nikitha6@illinois.edu
Guru Nanma Purushotam	gnp4@illinois.edu
Eesha Rajesh Chawhan	chawhan2@illinois.edu

Free Topic: Advisor Matching System for University Students

Detailed Description:
In the academic journey of a university student, identifying a suitable advisor is crucial. A well-matched advisor can offer tailored guidance, which can significantly influence the student's research direction and outcomes. However, with a vast array of advisors, each having unique research interests, pinpointing an ideal match is challenging. Our project, the "Advisor Matching System", aims to streamline this process by automating the matching of students to potential advisors based on shared research interests.

Task
Develop an intelligent system that aligns students with advisors who share corresponding research interests, thereby enhancing the academic and mentorship experience for both parties.

Importance
Finding a well-suited academic advisor plays a pivotal role in a student's research endeavors. A relevant match can:
1. Provide specific guidance aligned with the student's research interests.
2. Improve the efficiency of the research process.
3. Enhance collaboration opportunities.
4. Foster a more fulfilling academic experience for the student.

Planned Approach
1. Data Collection & Pre-processing: Extract research profiles and papers of university advisors from academic databases, followed by data cleaning and keyword extraction.
2. Student Interest Processing: Allow students to input or select their research interests and process these inputs for matching.
3. Algorithm Development: Design and implement an algorithm to match students' interests with advisors' research areas, ranking advisors based on relevance.
4. Interface Development: Create a user-friendly platform for students to input interests and receive advisor recommendations.

Tools, Systems, and Datasets
Datasets: Research profiles and papers from platforms like Google Scholar, ResearchGate, or university repositories.
Tools/Systems: Text mining libraries for keyword extraction, React, Node JS for web development, and databases (SQL) for storing data.

Expected Outcome
A functional web-based platform where students can seamlessly input their research interests, get ranked recommendations of potential advisors, and access essential details about these advisors.

Evaluation
The system's effectiveness will be evaluated using:
1. Accuracy: Checking how many of the top-recommended advisors genuinely align with the student's interests.
2. Usability Testing: Assessing the user interface's intuitiveness and efficiency.
3. Feedback Surveys: Gathering student and advisor feedback post-match to gauge satisfaction levels.

Programming Language
Python. Given its rich library ecosystem for text processing, web development, and data management, Python is the ideal choice for this project.

Workload Justification:
1. Data Collection & Pre-processing: 15 hours
   - Data extraction, cleaning, and keyword extraction.
2. Student Interest Processing: 10 hours
   - Development of input forms and data processing modules.
3. Algorithm Development: 18 hours
   - Design, implementation, and testing of the matching algorithm.
4. Interface Development: 12 hours
   - Web interface design, implementation, and integration.
5. Evaluation: 8 hours
   - Testing, feedback collection, and result analysis.
6. Documentation: 2 hours
Total Estimated Workload: 65 hours

By breaking down the project into these stages and allocating focused time on each component, we ensure a thorough and detailed development process while meeting the workload requirement.