Week 6 - Big Data Capstone Project Progress Report

Differences between Similarity Score and ATS Score

Similarity Score

- Measures how closely a resume matches a specific job description.
- Typically based on keyword matching, skills, experience, and qualifications.
- Expressed as a percentage (e.g., "Your resume is 85% similar to this job posting").
- Used by ATS and online resume-checking tools to suggest improvements.

ATS Score

- A broader metric used by ATS software to rank candidates based on multiple factors.
- Includes similarity score but also formatting, readability, and ATS compatibility (OpenAI, 2025).
- Some ATS systems give an overall score (e.g., out of 100) based on various criteria.
- Employers use this to filter and prioritize applications.

Key Difference

- The similarity score mainly focuses on content matching (keywords, skills, experience).
- The ATS score considers both content and formatting, ensuring a resume is ATS-friendly (OpenAI, 2025).

Define the ATS Score Components

Break the ATS score into measurable factors, assigning weights based on importance:

Component	Weight (%)	Description
Similarity Score	40-50%	Text-matching score between job description and resume by using cosine similarity.
Skills Match Score	20-25%	Checks if required skills from the job post are present in the resume.
Experience Match	15-20%	Evaluates job title, years of experience, and industry match.
Education Match	5-10%	Checks if the candidate meets educational requirements.

Resume Formatting	5%	Ensures ATS-friendly formatting (no tables, images, or complex styling).
Grammar & Readability	5%	Ensures resume clarity and correctness.

Optimized ATS Score Formula

Instead of recalculating everything, we can **transform the Similarity Score** and add the missing ATS factors:

ATS Score = (0.6 x Similarity Score) + (0.15 x Section Placement) + (0.15 x Formatting Compliance) + (0.10 x Action Language)

| Factor	Why Does It Matters?	Weight (%)
Section Placement	Ensures keywords appear across Experience, Summary, and Education, not just Skills.	15%
Formatting Compliance	Checks if the resume is ATS-friendly (no tables, images, special characters).	15%
Action-Oriented Language	Looks for strong action verbs (e.g., "Developed," "Led") to make a resume impactful.	10%

Why 60% Similarity Score? → Because it already captures keyword relevance and frequency.
Why 40% New ATS Features? → Because Section Placement, Formatting, and Action Words are essential for ATS compatibility.

Example Calculation

Factor	Score (out of 100)	Weight (%)	Contribution to ATS Score

Similarity Score	85	60%	51
Section Placement	70	15%	10.5
Formatting Compliance	90	15%	13.5
Action Language	75	10%	7.5
Final ATS Score	**82.5**	**100%**	**82.5%**

This ATS Score (82.5%) is derived from Similarity Score while adding essential ATS-specific elements.

Integration of Similarity Score & ATS Score in Job Matching System
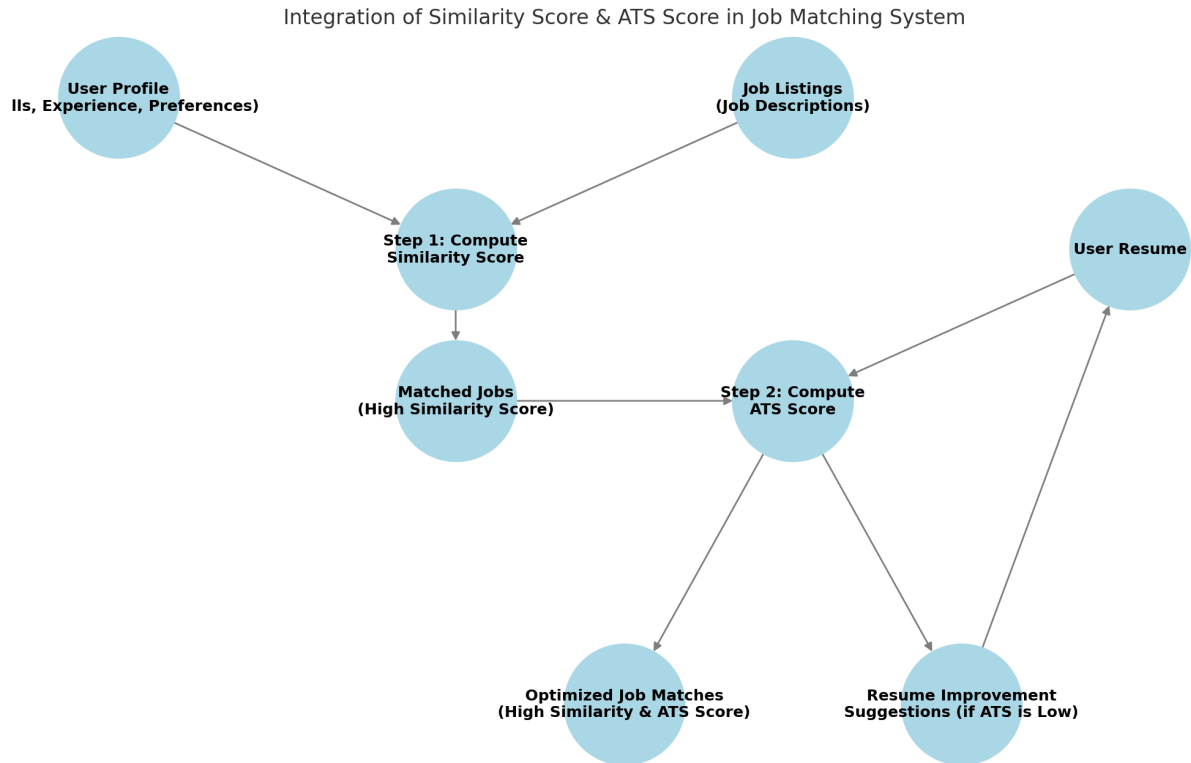
Flowchart illustrating how the Similarity Score and ATS Score integrate into your Job Recommender & Resume Customization System:

Flow Breakdown

1. **User Profile & Job Listings**

   - The system extracts information about user skills, experience, and preferences.
   - It also collects job descriptions from listings.

2. **Step 1: Compute Similarity Score**

   - Jobs are ranked based on how well they match the user's profile.

3. **Matched Jobs (High Similarity Score)**

   - The system identifies top job matches based on similarity.

4. **Step 2: Compute ATS Score**

   - The user's resume is analyzed to check if it's optimized for ATS filters.

5. **Optimized Job Matches (Final Selection)**

   - Only jobs where the user has both a high Similarity Score and a strong ATS Score are recommended as best-fit.

6. **Resume Improvement Suggestions (If ATS is Low)**

    ○ If the ATS Score is low, the system suggests resume modifications (e.g., missing keywords, formatting fixes).
    ○ The user can update their resume and recheck their ATS Score.

Key Takeaways

- The Similarity Score ensures the job is a good match.
- The ATS Score ensures the resume is strong enough to pass screening.
- The system prioritizes job recommendations based on both scores.
- If the ATS Score is low, the system helps users improve their resume before applying.

How It Works:

1. **User Searches for Jobs**

    ○ Only the Similarity Score is displayed to keep things simple.
2. **User Selects a Job**

    ○ The system then checks the ATS Score for the user's resume against the selected job.
3. **Two Possible Paths:**

    ○ If the ATS Score is low, the system suggests resume fixes (e.g., adding missing keywords).
    ○ If the ATS Score is fine, the user moves directly to the Final Optimized Score.
4. **User Customizes Resume**

    ○ If necessary, the user edits and improves their resume based on suggestions.
5. **Final Optimized Score is Shown**

    ○ This combines Similarity Score and ATS Score into a single metric.
6. **User Confidently Submits Resume**

    ○ Ensures that both job relevance and ATS optimization are maximized before applying.

Reference

OpenAI. (2025). What is the difference between Similarity Score and ATS Score?
https://chat.openai.com/