

Prompt Engineering Documentation For EDA

This report focuses on the prompts utilized throughout this assignment to gain useful insights on the provided dataset. These prompts have been used in conjunction with Exploratory Data Analysis (EDA) techniques implemented in Python code.

Dataset Description

The dataset contains emotion scores, transcript scores and corresponding transcripts extracted

from the introduction videos of 10 candidates applying for a job.

- Emotion scores: The dataset contains the emotions of candidates throughout the video including emotion scores of angry, happy, sad, disgust, fear, surprise and neutral, gaze, eye offset, blink and the metadata of the image frames extracted from the video.
- Transcript scores: The dataset contains positive, negative, neutral, confident, hesitant, concise, enthusiastic scores obtained after sentiment analysis on the transcripts of each candidate.
- Transcript text: Contains the actual text of the transcript of the videos of each candidate.

Objectives

- Perform prompt engineering and Exploratory Data Analysis on the given dataset to generate valuable and actionable insights from the data.
- Analysis of communication skills and finding areas of expertise based on data.
- Gain any other insights that could be useful in making a decision on the recruitment of the candidate.
- Decide whether the candidate should be recruited or not after a thorough analysis of the data.

Prompt Engineering

The following prompts were used to generate answers from GPT-4. Similar prompts were incorporated into the EDA Python code. Due to GPT-4's cost, Google Gemini was utilized for the data retrieval aspects of the analysis. Given the limitations on file imports, only two candidates were compared in this analysis. For one of these candidates, some data was assumed due to import constraints.

Rationale for Prompt Choices

1. **Structured Format:** We opted for a structured prompt to ensure consistent and comprehensive analysis across all candidates.
2. **Quantitative Measures:** Introducing quantitative elements (e.g., confidence scores, severity ratings) allows for easier comparison between candidates.
3. **Data Integration:** By including summary statistics and key excerpts in the prompt, we ensure that the AI has immediate access to relevant data points.

4. **Visualization Suggestions:** Requesting visualization ideas encourages thinking about how to best represent the data visually, which can aid in the decision-making process.
5. **Specific Examples:** Consistently asking for specific data points to support claims ensures that the analysis is grounded in the provided information rather than making unfounded assumptions.

1. Initial Prompt :

You are an AI assistant tasked with analyzing data from 10 job candidates.

You have access to their emotion scores, transcript scores, and transcripts from introduction videos. Based on this data, provide insights on:

1. Whether we should recruit the candidate, with reasons based on the data.
2. An analysis of their communication skills and areas of expertise.
3. Any other insights that could help in the decision-making process.

Please analyze the data and provide your insights.

Response :

Candidate 1: Jeffrey Shepherd

1. Recruitment Recommendation

- **Yes, recommended** for roles related to pharmaceutical regulatory affairs, drug safety, or biotechnology.
- **Reasons:**
 - Jeffrey has 3 years of experience in regulatory affairs and 2 additional years in postgraduate studies, bringing substantial expertise to the table.
 - The transcript shows excellent communication skills with consistent academic and professional achievement.
 - His emotional data shows a dominant emotion of neutrality during most of his speech, suggesting he maintains composure.
 - With expertise in detail-oriented tasks (e.g., patents and research awards), he would excel in research-intensive roles.

2. Communication Skills and Expertise

- **Strengths:**
 - Confident and clear in communication (e.g., confidence score of 0.85 at the start).
 - Consistent attention to detail and problem-solving abilities, particularly in technical areas like drug safety.
 - Expertise in biotechnology and pharmaceuticals, complemented by additional skills in medical writing.
 - His speech speed (average 2.5–3.5) and positive/neutral emotional tone suggest he can communicate effectively without being too fast or too emotional.

3. Additional Insights

- His side interest in baking and traveling shows a well-rounded personality, indicating creativity and a potential cultural fit in diverse team environments.
- His ability to perform under pressure and his academic accolades suggest he would excel in high-demand, research-oriented roles.

Candidate 2: Cameron Barajas (Assumed Data)

1. Recruitment Recommendation

- **Yes, recommended** for roles in investment banking, finance, or venture capital.
- **Reasons:**
 - Cameron has strong internship experience in both a boutique investment bank and a startup, which aligns well with finance roles.
 - His ability to collaborate with founders and senior professionals, and involvement in financial modeling, indicates strong analytical and leadership capabilities.
 - The emotional data (assumed neutral or positive) would suggest composure in high-pressure environments like finance or consulting.

2. Communication Skills and Expertise

- **Strengths:**
 - Cameron demonstrated flexibility and the ability to adapt his communication style, whether leading or being part of a team.
 - Strong analytical skills in finance (e.g., preparing financial models) and startup consulting suggest an ability to manage complex business challenges.
 - His ability to present frameworks and updates to senior management highlights effective communication skills, both written and verbal.

3. Additional Insights

- Cameron's internships show a clear interest in startups and investments, making him a good fit for roles where business valuation or early-stage investment analysis is critical.
- His enthusiasm for learning and adapting to different environments suggests a candidate eager for growth and development.

Conclusion

Both candidates show strong potential, with Jeffrey suited for technical, research-driven roles in biotechnology and pharmaceuticals, and Cameron ideal for finance, venture capital, or startup-related positions. Their communication skills and emotional composure make them strong candidates for further consideration.

2. Refined Prompt :

As an AI recruitment assistant, you have been provided with data for a job candidate including:

1. Emotion scores throughout their introduction video
2. Transcript scores (including positive, negative, neutral sentiment, confidence, etc.)
3. The full transcript of their introduction video

Based on this data, please provide a structured analysis including:

1. Recruitment recommendation (Yes/No/Maybe) with detailed justification based on the data.
2. Analysis of communication skills, highlighting strengths and areas for improvement.
3. Identified areas of expertise or passion based on the transcript content.

4. Any red flags or concerns raised by the data.
5. Overall impression and additional insights.

Please use specific examples from the data to support your analysis.

Response:

Candidate 1: Jeffrey Shepherd

1. Recruitment Recommendation: YES

- **Justification:** Jeffrey demonstrates strong technical expertise with three years of experience in the pharmaceutical industry, focused on regulatory affairs and drug safety, complemented by his academic background (B.Tech in Biotechnology, M.Tech from IIT Kharagpur). His transcript suggests a calm, detail-oriented communicator, capable of handling complex research-driven roles. His confidence levels (0.85 on average) indicate strong self-assurance, making him a good fit for roles requiring precision and focus.

2. Analysis of Communication Skills

- **Strengths:**
- **Confidence:** His confidence scores remain consistently high, averaging 0.846. This shows that he is self-assured when talking about his experience and achievements.
- **Composure:** The emotion scores show that neutrality is the most frequent emotion (87.7% in some sections), indicating that he maintains calm under pressure and during formal presentations, a valuable trait for roles in pharmaceuticals and biotechnology.
- **Clarity & Pace:** Speech speed varies between 2.5 and 3.5 words per second, indicating a steady pace that makes his communication clear and easy to follow.

- **Areas for Improvement:**
- **Emotional Engagement:** While maintaining composure is an asset, the frequent neutrality might make his communication appear too monotonous. Introducing more positive emotional cues, particularly when discussing achievements, could help create a more engaging impression.
- **Minor Hesitation:** In later parts of the transcript, slight hesitation (0.56 at some points) was detected, which could be reduced to improve fluency in high-stakes discussions.

3. Identified Areas of Expertise or Passion

- **Regulatory Affairs & Medical Writing:** His experience in regulatory affairs, with a focus on drug safety, stands out. His three years in the field combined with his specialization make him a strong candidate for pharmaceutical or medical writing roles.
- **Biotechnology:** Jeffrey's academic background (B.Tech and M.Tech in Biotechnology) underlines his expertise in this field, further supported by patents and research publications.
- **Research & Innovation:** His research work, which has received awards, highlights his passion for scientific innovation. His interest in detail-oriented tasks is also reflected in his patents and publications.

4. Red Flags or Concerns

- **Neutral Emotional Tone:** While neutrality is often a strength in technical roles, it can make a candidate seem less engaging in client-facing or leadership roles where emotional intelligence and enthusiasm are important. However, this is only a mild concern for research-driven roles.
- **Anger Scores:** Some moments in the video show elevated anger (up to 56%). Though likely isolated, this could be further investigated to determine if it impacts interpersonal interactions.

5. Overall Impression & Additional Insights

Jeffrey Shepherd presents himself as a technically proficient, detail-oriented candidate well-suited for research-intensive or regulatory

roles in pharmaceuticals and biotechnology. His confidence and ability to remain composed in high-pressure situations make him an ideal fit for roles requiring precision. However, more emotional engagement in communication would enhance his appeal in team leadership or client-facing positions.

Candidate 2: Cameron Barajas (Assumed Data)

1. Recruitment Recommendation: YES

- **Justification:** Cameron is a motivated candidate with solid internship experience in both investment banking and startup finance. His internships reflect a strong understanding of finance, business models, and the startup ecosystem. His ability to lead teams and adapt to different roles makes him a versatile candidate for early-stage finance roles, particularly in venture capital or investment banking. His passion for startup growth and investor relations further strengthens his fit for such roles.

2. Analysis of Communication Skills

- **Strengths:**
- **Flexibility & Leadership:** Cameron emphasizes his ability to both lead and collaborate, indicating strong adaptability in team settings, which is crucial in fast-paced environments like startups or investment banking.
- **Positive Tone:** Throughout his video, Cameron likely exhibits a positive and enthusiastic tone when discussing his experiences in startups and finance, making him a strong communicator in collaborative environments.
- **Clarity:** With his work in financial modeling and discussing complex ideas with senior professionals, Cameron likely has strong clarity when explaining technical concepts.
- **Areas for Improvement:**
- **Confidence in Technical Discussions:** While Cameron is likely confident in discussing his internship experience, he might lack the

deep technical expertise compared to more experienced candidates like Jeffrey. Further development in financial analysis or more technical areas of finance would boost his overall confidence in these topics.

3. Identified Areas of Expertise or Passion

- **Investment Banking:** His internship in a boutique investment bank in Hyderabad, where he worked closely with senior professionals, suggests a solid understanding of investment banking processes.
- **Startup Finance & Business Models:** Cameron's experience working on financial models and updating business frameworks based on discussions with startup founders points to his expertise in early-stage finance and business operations.
- **Entrepreneurial Spirit:** His enthusiasm for working with startups, particularly in the context of seed-stage funding, shows a passion for entrepreneurship and venture capital, making him a great fit for roles in these areas.

4. Red Flags or Concerns

- **Limited Full-Time Experience:** Cameron's experience is largely internship-based, which, while valuable, might be a concern for roles requiring more sustained full-time work. This can be seen as a minor concern, depending on the level of the role he's applying for.
- **Technical Depth:** Though his experience in financial modeling is relevant, he may lack deeper technical knowledge in finance, which would be more apparent in candidates with longer industry experience.

5. Overall Impression & Additional Insights

Cameron Barajas comes across as a dynamic and adaptable candidate with a passion for startups and finance. His internship experiences have provided him with a strong foundation in investment banking and startup valuation, making him well-suited for early-stage finance or venture capital roles. With more full-time

experience, Cameron could evolve into a highly valuable asset in these sectors.

Summary:

- **Jeffrey Shepherd** is a strong candidate for technical, research-intensive roles in biotechnology or pharmaceuticals. His confidence and technical expertise stand out, though more emotional engagement would enhance his communication in leadership roles.
- **Cameron Barajas** is a motivated candidate with a solid foundation in finance and startups. His passion for entrepreneurship and flexibility in team settings make him a great fit for roles in venture capital or investment banking, though more full-time experience and technical development would further strengthen his profile.

3. Final Prompt :

As an AI recruitment analyst, you have been provided with the following data for a job candidate:

1. Emotion scores: [Insert summary statistics of emotion scores]
2. Transcript scores: [Insert summary statistics of transcript scores]
3. Key excerpts from the transcript: [Insert 2-3 relevant excerpts]

Based on this data, please provide:

1. Recruitment recommendation (Yes/No/Maybe) with a

confidence score
(0-100%).

2. Quantitative analysis of communication skills, including:
 - a. Overall positivity score
 - b. Confidence level
 - c. Speech clarity score
3. Top 3 potential areas of expertise, with confidence levels for each.
4. Any red flags or concerns, rated by severity (Low/Medium/High).
5. Suggestions for 2-3 visualizations that would best represent this candidate's data.
6. Overall impression in 2-3 sentences.

Please use specific data points to justify your analysis where possible.

Response:

Candidate 1: Jeffrey Shepherd

1. Recruitment Recommendation: YES (Confidence Score: 85%)

- **Justification:** Jeffrey demonstrates strong professional experience in the pharmaceutical industry, technical expertise in regulatory affairs, and exceptional academic achievements. His high confidence (0.85) and neutral emotional state support his reliability for technical roles. Slight concerns around emotional engagement bring the confidence down slightly.

2. Quantitative Analysis of Communication Skills

- **Overall Positivity Score:**
 - **56%** on average, with neutrality being the most frequent emotion (up to 87.7% in some segments). Positive emotions (happiness) occur sporadically.
- **Confidence Level:**
 - **0.846 on average**, indicating strong self-assurance and consistent delivery throughout his introduction.
- **Speech Clarity Score:**
 - Based on speech speed and concise scores, the average speech speed ranges from **2.5 to 3.5 words per second**, with clarity scores inferred to be high given the lack of hesitation (0.56 in a few minor points).

3. Top 3 Potential Areas of Expertise

1. **Regulatory Affairs (Confidence Level: 90%)**
 - Jeffrey's 3 years of experience and specialization in drug safety, risk management, and medical writing make this his strongest area of expertise.
2. **Biotechnology (Confidence Level: 85%)**
 - His M.Tech in Biotechnology from IIT Kharagpur and research accolades indicate deep expertise in this area.
3. **Pharmaceutical Research (Confidence Level: 80%)**
 - His involvement in patents, publications, and receiving a best research award suggest strong research capabilities within the pharmaceutical domain.

4. Red Flags or Concerns

- **Emotional Engagement (Severity: Medium)**
 - The high prevalence of neutral and some anger-dominant emotions (up to 56%) could suggest a lack of emotional engagement,

potentially limiting his appeal in roles requiring high emotional intelligence.

- **Hesitation in Speech (Severity: Low)**
- Minor hesitation observed in later sections, but not enough to significantly impact the overall delivery.

5. Suggestions for Visualizations

1. **Emotion Distribution Over Time:** A line graph showing how different emotions (neutral, anger, happiness, etc.) change throughout the introduction video.
2. **Confidence vs Hesitation Graph:** A scatter plot showing confidence and hesitation scores over time, highlighting areas where confidence peaks or dips.
3. **Speech Speed Distribution:** A histogram showing the variation in speech speed to illustrate clarity and consistency.

6. Overall Impression

Jeffrey Shepherd presents himself as a highly skilled candidate with extensive experience in regulatory affairs and biotechnology. His confidence and clear communication make him a strong fit for technical roles, though his neutral emotional tone may limit his engagement in client-facing or leadership positions.

Candidate 2: Cameron Barajas (Assumed Data)

1. Recruitment Recommendation: YES (Confidence Score: 75%)

- **Justification:** Cameron's experience in investment banking and startup internships positions him well for roles in finance or venture capital. While his flexibility and teamwork are strengths, the lack of detailed technical expertise relative to Jeffrey lowers the overall confidence score slightly.

2. Quantitative Analysis of Communication Skills

- **Overall Positivity Score:**
- **65%** (Assumed data), reflecting enthusiasm about his internships and startup experience. Positive sentiment would likely be

higher given his focus on exciting professional opportunities.

- **Confidence Level:**
- Estimated at **0.75**, based on his leadership and adaptability skills in startup and finance environments, but potentially lower in more technical discussions.
- **Speech Clarity Score:**
- **Speech clarity would likely be strong, with minimal hesitation** assumed from his description of leadership roles and involvement in financial models.

3. Top 3 Potential Areas of Expertise

1. **Investment Banking (Confidence Level: 80%)**
 - His internship at a boutique investment bank in Hyderabad and his work on a venture network make this his primary area of expertise.
2. **Startup Finance & Valuation (Confidence Level: 75%)**
 - His role in developing financial models for startups at Kabadi Techno suggests expertise in startup finance and early-stage business valuation.
3. **Team Leadership & Collaboration (Confidence Level: 70%)**
 - Cameron emphasizes his ability to lead or adapt to team roles, suggesting strong interpersonal and leadership skills in a startup or finance setting.

4. Red Flags or Concerns

- **Lack of Deep Technical Expertise (Severity: Medium)**
- Compared to more technically experienced candidates like Jeffrey, Cameron's focus on internships and general startup experience may indicate a need for further development in technical financial expertise.
- **Limited Professional Experience (Severity: Low)**

- While his internships are impressive, he lacks the years of experience in a full-time role that might be expected for senior positions.

5. Suggestions for Visualizations

1. **Sentiment Timeline:** A bar graph showing positive, negative, and neutral sentiment throughout Cameron's transcript to highlight his positivity when discussing achievements.
2. **Role Adaptability Visual:** A pie chart or radar graph showing the different roles he's taken (leader, team player, financial modeler) to visually represent his flexibility.
3. **Internship Impact Visualization:** A timeline showing the progression and impact of his two key internships to give a visual overview of his development in the finance sector.

6. Overall Impression

Cameron Barajas is a motivated and adaptable candidate with solid experience in finance and startup environments. His strong communication skills and leadership potential make him a good fit for roles in investment banking or venture capital, though further experience in a full-time role would be beneficial for senior positions.

Final Summary:

- **Jeffrey Shepherd** is a highly experienced, confident candidate with strong expertise in biotechnology and pharmaceuticals, best suited for technical or research-oriented roles.
- **Cameron Barajas** is an enthusiastic candidate with strong internship experience in finance and startups, ideal for early-stage investment banking or startup finance roles, though he could benefit from further technical expertise and full-time experience.