AI for Data Analysis

AI Model Types

- Text: Summaries, data interpretation in narrative form.
- Image: Charts/graphs from summarized data sets.
- Audio: Verbal explanation of data insights for accessibility.
- Multimodal: Combine text analysis and data visualization suggestions

Prompt Engineering Fundamentals

- Zero-Shot: "Summarize or interpret data without prior examples."
- Few-Shot: Show an example data analysis you like, then ask for a similar style.
- Chain-of-Thought: "Explain each step in how you derived these insights."
- Validation: "Provide any assumptions or disclaimers with the analysis."

Prompt Structure Templates

- Raw Data to Summary: "Summarize this dataset in bullet points."
- Trends & Patterns: "Identify recurring themes or anomalies in this data."
- Comparative Analysis: "Compare these two data sets side by side."
- Correlation: "Check if there's any correlation between X and Y."
- Risk Factor: "Flag any outliers that could represent risk."
- Progress Over Time: "Show how these metrics have changed quarter by quarter."
- Key Takeaways: "List the top 5 findings and possible implications."

Do's and Don'ts

Do:
- Provide context (timeframe, variables measured).
- Request disclaimers or assumptions explicitly.

Don't:
- Expect perfect statistical rigor—still consult data scientists.
- Provide incomplete or mislabeled data sets (the model can't fix them reliably).

Use Case Examples

- Spend Analysis: Identify areas of overspending or saving.
- Performance Metrics: Summarize contractor performance data into dashboards.
- Trend Reports: Explore historical data to predict future needs.

Evaluation Methods

- Accuracy Check: Compare AI's summarized data with actual numbers.
- Relevance: Ensure insights match your original questions.
- Consistency: Re-run analysis with different prompts to confirm patterns.

Prompt Collection

Content Creation

1. "Write a short summary describing any spending overages in the Q2 financial report."
2. "Generate a 200-word explanation of major data trends in our contract closeout timeline."
3. "Draft an executive overview of the KPI improvements from the last quarter's performance."
4. "Compose a brief narrative that explains the significance of these survey results to non-experts."
5.

Data Analysis/Summarization

5. "Analyze this 12-month contract performance dataset for monthly improvements or regressions."
6. "Extract the top 5 anomalies in this spending spreadsheet and propose why they might exist."
7. "Compare user satisfaction scores from two surveys, 6 months apart, and highlight changes."
8. "Identify any seasonal trends in the procurement data from the past 3 years."

Code Generation

9. "Write a Python script to filter out all line items under $5,000 and then summarize the total cost."
10. "Generate R code that plots a bar chart of monthly expenses vs. monthly budget."
11. "Create pseudo-code for analyzing text-based survey responses and scoring sentiment."

Creative Ideation

12. "Suggest innovative ways to visualize multi-year contract spend data for a quick stakeholder meeting."
13. "Brainstorm interactive dashboard features that let users drill down into contract details."
14. "Propose data storytelling elements that help non-technical stakeholders grasp performance metrics."

Problem-Solving

15. "Highlight any potential red flags in this monthly contractor invoice data."
16. "Recommend how to handle incomplete or inconsistent data records in our performance logs."
17. "Outline a plan for reconciling old cost estimates with new actuals when they differ significantly."

Educational Purposes

18. "Create a quick tutorial explaining the difference between mean, median, and mode for novices."
19. "Devise a 5-question quiz on interpreting correlation versus causation in procurement data."
20. "Design a small group exercise showing how to spot outliers in a real contract data set."