Here's a prompt for Claude to review Manus AI's output:

REVIEW AND SIMPLIFICATION PROMPT FOR CLAUDE

You are reviewing research findings and recommendations prepared by Manus AI for a 2nd year Computer Science student working on a medical decision support system project.

Your job is to:

1. Read through everything Manus AI provided
2. Check if it makes sense and is actually useful
3. Explain what needs to be done next in the simplest possible terms

EVALUATION CRITERIA

For Academic Papers Found:

- Are the papers from 2022 onwards? (Check the dates)
- Do they actually talk about Bayesian networks, decision trees, or medical diagnosis? (Not just vaguely related)
- Did Manus AI extract the key information (what condition, what approach, where they got data)?
- Are there at least 10 papers listed?

For Data Sources Identified:

- Can you actually access these datasets? (Are they public or do they require permissions?)
- Does Manus AI explain what data is inside each one?
- Would these datasets actually help build a Bayesian network for the chosen condition?

For Methodology Explanation:

- Does the explanation make sense for how to go from raw data to a decision tree to a Bayesian network?
- Did Manus AI explain where the probability numbers come from?
- Is the pathway clear enough that someone could actually follow it?

For Comparative Analysis Framework:

- Does the comparison between Bayesian networks and direct AI models make sense?
- Are the metrics for comparison reasonable and measurable?
- Does it seem like something achievable given the project timeline?

WHAT TO OUTPUT

Create a simple report with these sections:

SECTION 1: QUALITY CHECK Go through each of the 6 research areas (dynamic data ingestion, decision tree generation, Bayesian network conversion, diagnosis and treatment, cost analysis, comparative analysis). For each one, write one sentence saying whether Manus AI's findings are solid or if there are problems.

Example format: "Dynamic Data Ingestion: Manus AI found 2 relevant papers but they are from 2020, which is outside the requested timeframe. Need to search for more recent examples."

SECTION 2: DATA SOURCES REALITY CHECK List each data source Manus AI recommended. For each one, answer these three questions simply:

- Can you actually get this data?
- Does it have the information you need?
- Any major roadblocks?

SECTION 3: THE ACTUAL NEXT STEPS (SIMPLIFIED) Ignore all the technical language. Just tell the student what they literally need to do next in a numbered list. Each step should be doable in one or two sentences.

Example:

1. Pick which medical condition your group will focus on (diabetes, heart disease, etc.)
2. Go to Google Scholar and search for papers about Bayesian networks and that condition
3. Download the papers that look relevant

Keep it dead simple. No jargon.

SECTION 4: RED FLAGS If you spot anything that won't work or seems impossible, list it here. Be direct.

Example red flag: "MIMIC III requires hospital credentials to access. Your group may not be able to get it. Need to find an alternative public dataset."

SECTION 5: WHAT MANUS AI GOT RIGHT List 2-3 things Manus AI did well in the research plan. Be specific.

Example: "The comparative analysis framework clearly explains how to test both systems side-by-side."

SECTION 6: CONFIDENCE LEVEL On a scale of 1-10, how confident are you that Manus AI's plan is actually doable for a 2nd year CS student group with 2 weeks until the next meeting?

- Explain why in 2-3 sentences.

TONE GUIDELINES

- Be honest but not harsh
- If something is wrong or confusing, say so clearly
- Use analogies or everyday language to explain technical concepts if needed
- Assume the student reading this has no background in AI or medical systems

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Input Manus AI's response into this prompt and Claude will break down whether the research plan actually works and what the student needs to do next.

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- Does the comparison between Bayesian networks and direct AI models make sense?
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- Does it seem like something achievable given the project timeline? WHAT TO OUTPUT Create a simple report with these sections: SECTION 1: QUALITY CHECK Go through each of the 6 research areas (dynamic data ingestion, decision tree generation, Bayesian network conversion, diagnosis and treatment, cost analysis, comparative analysis). For each one, write one sentence saying whether Manus AI's findings are solid or if there are problems. Example format: "Dynamic Data Ingestion: Manus AI found 2 relevant papers but they are from 2020, which is outside the requested timeframe. Need to search for more recent examples." SECTION 2: DATA SOURCES REALITY CHECK List each data source Manus AI recommended. For each one, answer these three questions simply:
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- Assume the student reading this has no background in AI or medical systems

does this document answer the following:

Based on the meeting transcript, Yvonne provided the following key points for the group to research and do: 1. Explore using a dynamic data ingestion engine that can pull in updated medical data, rather than using hard-coded data. 2. Research and understand how to generate a decision tree based on the ingested data. 3. Look into converting the decision tree into a Bayesian network, as Yvonne mentioned this is a common approach. 4. Analyze the diagnosis and treatment recommendations that can be made based on the Bayesian network. 5. Consider incorporating cost analysis into the treatment recommendations, looking at factors like affordability and coverage by the NHS. 6. Yvonne suggested the group could compare the outputs of the Bayesian network approach to using an AI model directly on the symptoms, as an additional analysis. 7. For the next meeting in 2 weeks, the group should come prepared with a specific medical condition/problem they want to focus on and the relevant data sources they plan to use. * Dynamic data ingestion @ 6:00 * Bayesian network conversion @ 9:14 According to the transcript, Yvonne provided the following guidance on how the group should research the medical conditions: 1. Look for research papers published within the last 3 years that use Bayesian networks or decision trees for diagnosis and treatment of medical conditions. 2. When searching, use keywords like "Bayesian network", "decision tree", "probabilities", and the specific medical condition you want to focus on. 3. Skim through the papers to find examples of the Bayesian network or decision tree diagrams they used, and note where they got their probability data from (likely some kind of medical dataset). 4. Yvonne suggested aiming to find at least 10 relevant research papers as a starting point. 5. She mentioned the Mimic 3 database as a potential data source, but said the group doesn't necessarily have to use that if they find other suitable datasets. 6. The key is to find credible sources that provide the kind of structured data and probabilities needed to build the decision tree and Bayesian network models. So in summary, the focus should be on finding recent academic research that demonstrates the approaches Yvonne described, and identifying appropriate medical datasets to work with.

You are a research assistant helping me find academic papers about Bayesian networks for cardiovascular disease prediction and diagnosis.

Search for peer-reviewed papers that:

- Use Bayesian networks to model cardiovascular disease
- Apply Bayesian networks for heart disease prediction
- Show network structures for cardiovascular risk factors
- Include validation results on cardiovascular datasets

Focus on papers from the last 10 years. Return papers with clear methodology sections showing the network structure and variables used.

For each paper, extract:

- The specific cardiovascular condition studied
- Key variables in the Bayesian network
- Dataset size and source
- Prediction accuracy metrics
- Network structure details

Prioritize papers that provide reproducible methods or publicly available network models.

PROMPT FOR MANUS AI: LITERATURE REVIEW ENHANCEMENT

You are tasked with enhancing a literature review document on Bayesian Networks for cardiovascular disease prediction. Follow these instructions precisely to add the required content.

YOUR TASK

Add two main sections to the existing document. Focus on clarity, technical accuracy, and proper academic writing.

SECTION 1: CPT PARAMETER ESTIMATION METHODS (CRITICAL - MANDATORY)

Location: Create new Section 1.4 titled "Parameter Estimation Methods from Bayesian Network Literature" after Section 1.3 on page 2

Length: 1 to 1.5 pages

Structure and Content:

1. **Introduction Paragraph**:
    - Define CPT (Conditional Probability Table) parameter estimation
    - Explain that CPTs contain probability values quantifying relationships between parent and child nodes in Bayesian Networks
    - State that you will summarize how three sources approached this
2. **Suo et al. [1] Analysis**:
    - Extract and explain their specific parameter estimation method
    - Describe how the Weighted Survival approach handles parameter learning with missing and censored data
    - Include formulas or mathematical approaches they used
    - Note sample size used for parameter learning (n=110,325 training set)
    - Mention prior distributions or Bayesian estimation techniques
3. **Ordovas et al. [2] Analysis**:
    - Identify and describe their parameter estimation method
    - State whether they used Maximum Likelihood Estimation (MLE), Bayesian parameter learning, expert elicitation, or hybrid approaches
    - Explain how they derived probability values for their CPTs
    - Note data preprocessing that affected parameter estimation

4. **Kong et al. [3] Analysis**:

    - Describe how they estimated parameters for their BN analyzing type 2 diabetes and coronary heart disease
    - Explain special considerations for modeling comorbidities in parameter estimation
    - Note their approach to handling relationships between multiple diseases
5. **Comparison Paragraph**:

    - Compare the three approaches (similarities and differences)
    - Explain which approach works best for different scenarios
    - Connect back to how parameter estimation differs between BN and DT models

SECTION 2: BAYESIAN NETWORK STRUCTURE LEARNING (RECOMMENDED)

Location: Expand existing Section 4.2 on page 5

Length: 0.5 to 1 page

Structure and Content:

1. **Expand the Bayesian Network bullet point**:

    - Explain that BN structure (skeleton) represents conditional dependencies between variables
    - Describe the graphical structure (directed acyclic graph with nodes and edges)
2. **Add subsection: "Structure Learning Methods from Literature"**:

    Suo et al. [1]:

    - Describe how they determined the network structure
    - Specify if structure was learned from data using algorithms (constraint-based like PC, score-based like K2/hill-climbing)
    - Note if structure was based on medical domain knowledge or literature
    - Mention if experts validated the structure
3. **Ordovas et al. [2]**:

    - Explain their approach to creating the network topology
    - Describe how they determined which variables are parents/children of others
    - Explain what determined the causal relationships
4. **Kong et al. [3]**:

    - Describe their structure creation methodology

    - Explain how they modeled relationships between diabetes, CHD, and other factors
    - Note what determined the network's conditional independence structure
5. **Add comparison statement**:

    - Write: "Decision Trees create a sequential, hierarchical structure based on information gain. Bayesian Networks create a more complex probabilistic graph that represents multiple simultaneous dependencies between variables."
    - Add example: "In a BN, Age serves as a parent node to both Hypertension and Diabetes. Both of those serve as parent nodes to CVD Outcome. This represents the understanding that age influences multiple risk factors, which influence disease outcome."

WRITING GUIDELINES

Include:

- Clear, direct sentences
- Technical accuracy with proper terminology
- Data and examples from the sources
- Smooth transitions between paragraphs

Exclude:

- Em dashes (use commas or periods)
- Phrases like "not just this, but also that"
- Metaphors and clichés
- Words like: delve, embark, unlock, revolutionize, groundbreaking, cutting-edge, remarkable, harness, powerful, landscape, testament
- Unnecessary adjectives and adverbs
- Markdown formatting in the final output

INFORMATION SOURCES

To complete this task, extract information from:

1. Suo et al. (2024): Focus on Methods section for parameter training approaches, Weighted Survival Bayesian Network methodology, and probability calculations

2. Ordovas et al. (2023): Focus on Methods section for CPT value determination, Maximum Likelihood or Bayesian learning approaches, and expert input

3. Kong et al. (2024): Focus on Methods section for parameter learning approaches and statistical methods for probability assignment

If papers lack explicit details:

- State: "The paper does not explicitly detail the parameter estimation approach"
- Infer from context: "Based on the dataset size and methodology described, they appear to have used [MLE/Bayesian estimation]"
- Provide standard context: "Standard approaches for BN parameter estimation include..."

OUTPUT FORMAT

Provide the two new sections as complete, ready-to-insert text. Use proper academic paragraph structure with topic sentences and supporting details. Maintain consistent citation formatting matching the existing document style.

Strategic MVP Prompt Engineering Framework

For Lovable AI Deployment

📋 INSTRUCTIONS FOR USE

Please provide the following to generate your optimized Lovable AI prompt:

1. **Project Plan Document** - Your project requirements, features, and objectives
2. **Python Backend Code** - The calculation/logic engine
3. **HTML Frontend Code** - The user interface structure Once provided, I will analyze these materials and generate a modular, strategically-structured prompt for Lovable AI that captures the essence of your MVP.

🎯 PROMPT ENGINEERING FRAMEWORK

Your generated prompt will follow this strategic architecture:

MODULE 1: CORE IDENTITY & PURPOSE

- **What**: Product essence in one powerful statement
- **Why**: The problem it solves and value it creates
- **Who**: Target user and their pain point

MODULE 2: FUNCTIONAL ARCHITECTURE

- **Input Layer**: What data users provide
- **Processing Layer**: How calculations/logic transform inputs
- **Output Layer**: What results users receive

MODULE 3: USER EXPERIENCE FLOW

- **Entry Point**: Initial user interaction
- **Core Interaction Loop**: Primary user journey
- **Success State**: Desired outcome and satisfaction moment

MODULE 4: TECHNICAL SPECIFICATIONS

- **Frontend Requirements**: UI components, layout, interactivity
- **Backend Logic**: Calculation methods, data handling, algorithms

- **Integration Points**: How frontend and backend communicate

MODULE 5: DESIGN LANGUAGE

- **Visual Tone**: Aesthetic direction (minimalist, professional, playful, etc.)
- **Emotional Resonance**: How users should feel
- **Symbolic Elements**: Metaphors and mental models

MODULE 6: CONSTRAINTS & PRIORITIES

- **MVP Scope**: What's absolutely essential
- **Exclusions**: What's explicitly out of scope
- **Success Metrics**: How to measure if it works

🔄 AWAITING YOUR MATERIALS

Please share:

- [ ] Project plan/documentation
- [ ] Python code
- [ ] HTML code I'll then synthesize these into a precision-engineered prompt that:
- ✨ Captures strategic intent with symbolic clarity
- 🎯 Structures information for agentic AI comprehension
- 🧩 Enables modular refinement and iteration
- 💎 Distills your MVP to its purest essence **Ready when you are. Share your materials and I'll craft your prompt.**

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