



**Faculty of Technology**  
**University of Sri Jayewardenepura**

**ITS 4202**

**Emerging Technologies**

**Final Report**

**Group Members**

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# **1. Overview of Each Strategy**

## **1.1 Manual Approach**

### **Process and Tools:**

- Group members read the papers individually, took notes, and extracted important details.
- Topic summaries centered on objectives, methodologies, findings, and limitations.
- Research gaps were revealed by the discussion of weaknesses, such as small data sets, lack of external indicators, and omission of some advanced or hybrid methods.

### **Key Characteristics:**

- Human Interpretation: Enables higher-level understanding but may include subjective bias or neglect.
- Time-Intensive: Takes extensive reading, note-taking, and repetitive discussions.
- Structured Output: Each paper's summary and research gap analysis were presented in a straightforward, standardized manner (objectives, methodology, findings, limitations, gaps).

### **Strengths and Limitations:**

- Strengths: Depth in reading, direct human judgment, and understanding of context.
- Limitations: Inconsistent details if different group members vary in summarization style.

## **1.2 AI-Assisted Approach**

### **Process and Tools:**

- Both DeepSeek and ChatGPT were given properly formatted prompts that spelled out how to contrast methodologies, identify main findings, discuss limitations, and suggest future research.
- The tools extracted contradictions (e.g., ARIMA vs. LSTM performance) and suggested standardized ways to evaluate models (e.g., consistent metrics, feature sets).

### **Key Characteristics:**

- Efficiency: Rapid generation of summaries, tables, and bullet-point results.
- Comparative Focus: AI tools provided side-by-side comparisons of models (e.g., ARIMA, LSTM, Bi-LSTM), data granularity, and accuracy measures.
- Automated Depth: Rapid recognition of research gaps, such as the lack of hybrid approaches or limited macroeconomic feature integration.

### **Strengths and Limitations:**

- Strengths: High consistency in format, faster turn-around time, systematic analysis of large text blocks.
- Limitations: Dependent on prompt quality and AI model. Occasional omissions may occur if prompts do not explicitly request certain details.

## 2. Comparison of Outcomes

Comparison Factor	Manual Approach	AI-Assisted Approach
Structure and Readability	<ul style="list-style-type: none"><li>- Straightforward summaries but in different formats.</li><li>- Can differ in depth among papers, depending on team members.</li></ul>	<ul style="list-style-type: none"><li>- Highly structured output (tables, bullet points).</li><li>- Ensures more consistent formatting and presentation.</li></ul>
Identification of Research Gaps	<ul style="list-style-type: none"><li>- Highlights missing parts (e.g., real-time data, external factors).</li><li>- Different team members may miss different things.</li></ul>	<ul style="list-style-type: none"><li>- Reinforces known gaps while providing further details (e.g., hybrid models, standardized metrics).</li><li>- Highlights contradictions.</li></ul>
Depth vs. Breadth	<ul style="list-style-type: none"><li>- In-depth on individual papers, leveraging human judgment.</li><li>- Potential inconsistency in research paper comparisons.</li></ul>	<ul style="list-style-type: none"><li>- Covers all papers equally using AI.</li><li>- May miss important details unless clearly asked.</li></ul>
Time and Resource Efficiency	<ul style="list-style-type: none"><li>- Requires multiple readings, discussions, and manual integration.</li><li>- More time-intensive.</li></ul>	<ul style="list-style-type: none"><li>- Rapid summarization once the prompt is crafted.</li><li>- Significantly reduces manual effort for drafting comparative tables.</li></ul>
Potential Errors or Bias	<ul style="list-style-type: none"><li>- Subject to human bias or oversight.</li><li>- Variations in summarization style across team members.</li></ul>	<ul style="list-style-type: none"><li>- Dependent on the quality of the AI model, data, and prompts.</li><li>- Might miss the details if the prompt is not structured or clear.</li></ul>

## 3. Conclusion

Both strategies effectively summarized three Bitcoin price prediction research studies and identified important research gaps, including the need for hybrid modeling, real-time sensitivity, and benchmarked metrics. The manual approach excelled at detailed, context-rich reading but was time-intensive and could introduce human variability. The AI-assisted approach delivered more rapid, structured, and comparative outputs but relied heavily on prompt quality.

#### 4. Individual Contribution

G.S. Chamika ICT/20/818	<ul style="list-style-type: none"><li>• Summarized the Research paper and identified Research gaps - Paper 2</li><li>• Created the final report (Comparison of Outcomes and Conclusion)</li></ul>
Y. N. S. Dissanayake ICT/20/837	<ul style="list-style-type: none"><li>• Identified Research gaps - Paper 1 and create the document</li><li>• Created the final report (Overview of Each Strategy)</li></ul>
B. G. D. T. T. Jeerasinghe ICT/20/863	<ul style="list-style-type: none"><li>• Summarized the Research paper - Paper 1</li><li>• Created the presentation</li></ul>
S.A. Dilanka Sandeepa ICT/20/926	<ul style="list-style-type: none"><li>• Summarized the Research paper and identified Research gaps - Paper 3</li><li>• Created the presentation</li></ul>