**Project Outline: AI Development Resource**

Project Title:

AI Development Resource

Research Question:

Can AI actually help in developing a project or is it only useful for small snippets of relatively unusual code?

**Data Collection**

Strategy:

To determine the effectiveness and accuracy of AI in software development, the data collection process will involve:

1. Creating a Software Development Project: Design and implement a simple software project, documenting each step in detail.
2. Using Multiple AI Tools: Select several free AI tools available for programming assistance (e.g., ChatGPT, GitHub Copilot, Replit, etc.).
3. Task Replication by AI: For each AI, input the same project requirements and tasks to see how well each AI can replicate the project.
4. Documentation: Record the output, efficiency, and any discrepancies for each AI tool.

**Data Points**

* Time taken by each AI to complete each task.
* Accuracy of the code produced by each AI.
* Quality of code (including readability, efficiency, and adherence to best practices).
* Any errors or bugs in the AI-generated code.
* Comparison with the human-implemented version.

**Hardware Requirements**

Needed Hardware:

* Laptop: Primary device for coding, running AI tools, and documenting the process.

Access to Hardware:

* Since this is a software-based project and you already have a laptop, no additional hardware is required. Ensure your laptop has a stable internet connection and sufficient processing power to handle running multiple AI tools.

**Data Display and Analysis**

Display of Data:

1. Comparative Tables: Create tables comparing the time taken, accuracy, and quality of code between human and AI implementations.
2. Graphs: Use bar charts or line graphs to visualize the efficiency and accuracy differences among the AI tools.
3. Code Snippets: Present side-by-side comparisons of code snippets generated by each AI tool versus the human-generated code.

Analysis:

1. Efficiency Analysis: Calculate the average time taken by AI tools versus human implementation for each task.
2. Accuracy Analysis: Count the number of errors/bugs in the AI-generated code and compare it to the human code.
3. Quality Assessment: Evaluate the quality of the code based on readability, adherence to coding standards, and optimization.
4. Discussion: Discuss the strengths and weaknesses of each AI tool in aiding software development, and draw conclusions on their practicality for full project development versus small code snippets.

Steps and Timeline

1. Week 1-2:

* Design the software development project and implement it manually.
* Document each step thoroughly.

1. Week 3-4:

* Select AI tools and set up necessary environments.
* Input the project requirements into each AI tool.
* Collect and document the code output from each AI.

1. Week 5-6:

* Analyze the collected data.
* Create comparative tables, graphs, and code snippet presentations.

1. Week 7:

* Draft the final report with findings.
* Discuss the practicality and effectiveness of AI tools in software development.

1. Week 8:

* Review and finalize the project report.
* Prepare for any presentations or submissions.

**Final Deliverables**

* Project Report: A comprehensive document detailing the process, data collected, analysis, and conclusions.
* Presentation: A summary presentation highlighting key findings and insights from the project.
* Supplementary Materials: Comparative tables, graphs, and code snippets for detailed reference.