# Questions Regarding MATLAB Simulation of Electric Dipole Field I hope this message finds you well.

I’m currently reviewing and organizing some of my previous academic assignments and projects for educational purposes and online publication. I would appreciate your insights on a basic MATLAB simulation I completed as part of an undergraduate Electromagnetics course.  
  
The project consists of two parts:

## 📌 Part 1: Coordinate System Transformation

- This section involves a MATLAB script that converts a 3D vector between Cartesian, Cylindrical, and Spherical coordinate systems.  
- I’ve implemented user input selection and included appropriate formulas for transformation.  
- Question:  
 Are there any improvements you would suggest in terms of clarity, structure, or additional checks for coordinate range/angle conventions?

## 📌 Part 2: Electric Field of a Dipole

- This section visualizes the electric field of an ideal dipole in 3D space using quiver3.  
- It uses normalized vectors for better graphical representation and supports vector interpolation across a uniform grid.  
- Questions:  
 1. Is the mathematical model used for dipole approximation sufficiently accurate for academic-level visualization?  
 2. Would you recommend using other visualization tools (e.g., streamline, contour plots) to better represent field behavior?  
 3. Do you see any critical inefficiencies or redundant computations in the current implementation?

I have included the source code for both parts and a screenshot of the output plot. Any feedback or suggestions for improving the code style, scientific correctness, or visualization quality would be greatly appreciated.  
  
  
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