

**Group Name:**

**Title:** \_\_\_\_\_

**Members:**

To be filled by Instructor:

- |           |               |
|-----------|---------------|
| <b>1.</b> | <b>Score:</b> |
| <b>2.</b> | <b>Score:</b> |
| <b>3.</b> | <b>Score:</b> |
| <b>4</b>  | <b>Score:</b> |
| <b>5.</b> | <b>Score:</b> |

**Grading Criteria**

| Criteria                            | Points | Description                                                                                                                                                                                       |
|-------------------------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mathematical Modeling & Formulation | 30     | Clear definition of problem, use of linear algebra concepts (vectors, matrices, systems of equations, transformations). Correctness of mathematical reasoning and solution.                       |
|                                     | 25     | Partially clear definition of the problem, use of linear algebra concepts (vectors, matrices, systems of equations, transformations). Partial correctness of mathematical reasoning and solution. |
|                                     | 15     | Unclear definition of the problem, use of linear algebra concepts (vectors, matrices, systems of equations, transformations). Totally wrong mathematical reasoning and solution.                  |
| Solution Methodology & Analysis     | 20     | Use of proper linear algebra techniques (row reduction, eigenvalues, projections, matrix multiplication). Logical flow of solution steps.                                                         |
|                                     | 15     | Partial use of proper linear algebra techniques (row reduction, eigenvalues, projections, matrix multiplication). The flow of solution steps is slightly organized.                               |
|                                     | 10     | Wrong use of proper linear algebra techniques (row reduction, eigenvalues, projections, matrix                                                                                                    |

|                                 |    |                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                 |    | multiplication). Disorganized, incorrect, and confusing.                                                                                                                                                                                                                                                                                             |
| Python Implementation           | 25 | Efficient code, fewer commands, and elegance. Exactness of code, readability (comments & structure), proper use of libraries (e.g., NumPy, matplotlib), and demonstration of intermediate results.                                                                                                                                                   |
|                                 | 20 | Correctness of code, readability (comments & structure), proper use of libraries (e.g., NumPy, matplotlib), and demonstration of intermediate results.                                                                                                                                                                                               |
|                                 | 15 | Nonfunctioning code, poor structure.                                                                                                                                                                                                                                                                                                                 |
| Results and Interpretation      | 15 | Insightful explanation of outputs, connection to problem context, and clear interpretation of what the results mean.                                                                                                                                                                                                                                 |
|                                 | 10 | Only descriptive outputs with no insights or connection to the problem context.                                                                                                                                                                                                                                                                      |
|                                 | 5  | No results and interpretation.                                                                                                                                                                                                                                                                                                                       |
| Live Demo + Question and Answer | 30 | Demonstrated complete mastery of both coding and mathematical concepts during the live demo. The code ran successfully, and the outputs were clearly explained in mathematical terms. The group confidently answered all questions, demonstrating a deep understanding of the algorithmic logic and linear algebra principles underlying their code. |
|                                 | 20 | The code demonstration was mainly successful, with only minor technical or conceptual issues. Members answered most questions adequately, but with a partial understanding of how mathematical reasoning connects with their implementation—some reliance on memorized explanations or unclear articulation of formulas is evident.                  |
|                                 | 15 | The code failed to execute correctly, or the group showed limited understanding of the mathematics                                                                                                                                                                                                                                                   |

|                                                |     |                                                                                                                                                                                                                                                                                                                                  |
|------------------------------------------------|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                |     | and logic involved. Answers to questions were vague, incorrect, or highly dependent on guesswork. The demonstration lacked mathematical justification and coherence.                                                                                                                                                             |
| Instructions Completeness                      | 20  | All instructions were followed completely. The group was well prepared and organized. Attire was well-prepared and organized. The attire was appropriate, the presentation materials were ready, and the group started and finished on time. The presentation demonstrated professionalism, discipline, and attention to detail. |
|                                                | 15  | Most instructions were followed, though minor issues were noted. Preparedness and coordination were evident, but could be improved for smoother delivery.                                                                                                                                                                        |
|                                                | 10  | Instructions were poorly followed. The Group was unprepared, late, or missing key requirements. The presentation lacked readiness and professionalism.                                                                                                                                                                           |
| Group Individual Rating                        | 20  | To be given by different members:                                                                                                                                                                                                                                                                                                |
| Creativity and Initiative (Bonus)              | +10 | Novel applications, additional features, visualization enhancements, or extensions beyond basic requirements.                                                                                                                                                                                                                    |
| <b>Total Score:</b>                            |     |                                                                                                                                                                                                                                                                                                                                  |
| /140 (160) (Without Creativity + Indiv Rating) |     |                                                                                                                                                                                                                                                                                                                                  |