Automatic Balancing of Redox Reactions

Linear Algebra 2270-4 Semester Project

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Outline:

- Explain the nature of Redox reactions:
  - What are redox reactions?
  - How are they useful and important in chemistry?
  - How are they balanced?
  - Why is it difficult to balance them?
  - How are they interesting from a linear algebra perspective?
  - What sort of tactics and strategies can be used to balance them?
  - Why would automatic balancing software be useful?
- Introduce our software:
  - Show an example of our software in use. For the paper, this will be screenshots.
  - Demonstrate how the software works – what is happening behind the scenes? Include code snippets in the paper.
  - Address specifically the conversion of formulas into computable matrices.
  - Explain our choice of environment/programming language, with reasoning.
  - Discuss the solving strategy we implemented and why we implemented it.
  - Discuss other possible strategies, and varying trade-offs, from both digital and mathematical perspectives.