**Case Study Analysis**

**Objective:**

Students will analyze a case study related to the evaluation and refinement of an engineering solution.

**Instructions:**

1. Choose one of the following case studies (or provide your own):

* SpaceX's reusable rocket technology.
* Development of the COVID-19 vaccine.
* The design and construction of the Sydney Opera House.

1. For the selected case study, write an analysis covering:

* **Problem Identification**: Identify the initial problem that the engineering team aimed to solve.
* **Prototyping and Testing**: Discuss the prototyping and testing phases. What challenges were faced during these stages? How did they overcome these challenges?
* **Refinement Process**: Explain how the solution was refined over time. What changes were made to improve the solution?
* **Final Outcome**: What was the final outcome of the project? Was the solution effective in addressing the original problem? How did iteration and testing contribute to the final success?

**Evaluation Criteria:**

| **Criteria** | **Excellent (4)** | **Good (3)** | **Fair (2)** | **Poor (1)** | **Score** |
| --- | --- | --- | --- | --- | --- |
| Problem Identification | Clearly and concisely identifies the problem and context. | Identifies the problem but lacks detail. | Problem is mentioned but not fully explained. | Problem is unclear or incomplete. | /4 |
| Prototyping and Testing | Thoroughly explains the prototyping and testing phases with examples of challenges and solutions. | Provides good explanation of prototyping and testing phases with some detail. | Mentions prototyping and testing but lacks depth. | Little to no discussion of prototyping or testing. | /4 |
| Refinement Process | Clearly explains how the solution was refined over time, with specific examples of improvements. | Explains the refinement process but lacks specific examples. | Mentions refinement but lacks detail. | No mention of refinement. | /4 |
| Final Outcome and Reflection | Thorough analysis of the final outcome and role of testing and iteration in success. | Analyzes the outcome with some reflection on testing and iteration. | Outcome is mentioned but lacks critical reflection. | Little to no reflection on the final outcome or iteration process. | /4 |