Project 2 Report: Set Covering Problem

# Problem Description

Using various heuristic techniques, solve the Set Covering Problem for the two given test cases: *phase1* and *cap360*, each representing a ‘graph’ of various poles (facilities) and meters (customers). Report the results as the total number of poles used to cover all meters, and the time taken for the simulation.

# Result 1 (Without Preprocessing)

### *phase1:*

|  |  |  |
| --- | --- | --- |
| Scoring Function | #Poles Used | Time Taken |
| Greedy |  |  |
| Score 1 |  |  |
| Score 2 |  |  |

### *cap360:*

|  |  |  |
| --- | --- | --- |
| Scoring Function | #Poles Used | Time Taken |
| Greedy |  |  |
| Score 1 |  |  |
| Score 2 |  |  |

# Result 2 (With Preprocessing)

### *phase1:*

|  |  |  |
| --- | --- | --- |
| Scoring Function | #Poles Used | Time Taken |
| Greedy |  |  |
| Score 1 |  |  |
| Score 2 |  |  |

### *cap360:*

|  |  |  |
| --- | --- | --- |
| Scoring Function | #Poles Used | Time Taken |
| Greedy |  |  |
| Score 1 |  |  |
| Score 2 |  |  |

# Result 3 (With Full Preprocessing)

### *cap360:*

|  |  |  |
| --- | --- | --- |
| Scoring Function | #Poles Used | Time Taken |
| Greedy |  |  |
| Score 1 |  |  |
| Score 2 |  |  |

# References

1. Prof. Bala Krishnamoorthy’s course notes as part of MATH 567 Integer and Combinatorial Optimization taught at Washington State University, Spring 2025. Problem Statement and Lecture notes retrieved Integer Optimization: Lecture Notes and videos. (2025, April 24). Retrieved from <https://bala-krishnamoorthy.github.io/FilesMath567/S25/LecNotes/index.html>.