A star in the background

Description automatically generated

Solution:

1. List of sensor Covers:

SC1 = {S1, S4}

SC2 = {S2, S3}

SC3 = {S2, S4}

1. Linear Program Formulation for sensor lifetime maximization problem:

Maximize Σi = 1 to n ti where ti is the time variable

Such that Σj = 1 to m Cij. tj <= bi

Cij = {1 if sensor in sensor cover

0 if sensor is not in sensor cover

Maximize t1 + t2 + t3

Such that

t1 <= 9

t2 + t3 <= 3

t2 <= 2

t1 + t3 <= 3