CO250 Assignment 2

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Exercise 1.

block	A	B	C	D	E
weight	7	12	4	12	9
impurity	2	1	1	2	1
value	25	13	15	20	12

Weight minimum of 20
Impurity maximum of 4

(a)

Let $x_i = \begin{cases} 0 & \text{if we mine block } i \\ 1 & \text{otherwise} \end{cases} \quad \forall i \in \{A, B, C, D, E\}$

Let $x = \begin{bmatrix} x_A \\ x_B \\ x_C \\ x_D \\ x_E \end{bmatrix}$

maximize $\begin{bmatrix} 25 & 13 & 15 & 20 & 12 \end{bmatrix} x$

such that
$\begin{bmatrix} 7 & 12 & 4 & 12 & 9 \\ -2 & -1 & -1 & -2 & -1 \end{bmatrix} x \geq \begin{bmatrix} 20 \\ -4 \end{bmatrix}$

$x \geq \begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{bmatrix}$, $x \leq \begin{bmatrix} 1 \\ 1 \\ 1 \\ 1 \\ 1 \end{bmatrix}$, $x \in \mathbb{Z}^5$