**The Great Hamster Hire**

**A)** Incorrect solution

Below is my edited version (BLUE statement is changes from what ChatGPT provided.)

Assumption:

If boosted intelligence is greater than maximum capability, you can’t boost it.

Decision Variables:

: A binary variable that equals 1 if junior engineer  is assigned to senior engineer 

: A binary variable that equals 1 if junior engineer  is assigned to do contract 

: A binary variable that equals 1 if senior engineer  is hired.

Define the parameters:

: number of junior engineers. : number of senior engineers.

: number of contracts. : Large Constant number

: maximum number of junior engineers that a senior engineer can manage.

: difficulty of contract .

: payment for contract .

: intelligence value of junior engineer .

: annual salary of junior engineer 

: intelligence value of senior engineer .

: annual salary of senior engineer .

: The boost in intelligence that a senior engineer can provide.

Objective Function



Constraints

1. Each junior engineer can be assigned to at most one senior engineer:

 for 

1. Each contract must be assigned to at most one junior engineer and vice versa.

 for  and  for 

1. The intelligence boost should not exceed the senior engineer’s intelligence:

 for 

1. Each senior engineer can manage at most H junior engineers:

 for 

1. The assigned engineering’s intelligence must be greater than the contract difficulty:

 for



1. Binary constraints for decision variables:

 for  and 

 for  and 

 for 

**B)** Just think as ChadGPT as a senior engineer with 240 USD annual salary, can boost  intelligence, upper boundary of boosted intelligence is , and can manage  junior engineer.

Assumption

ChadGPT cost is per person.

They are 3 choices of improvement:

|  |  |  |
| --- | --- | --- |
| Use only ChadGPT | Use only senior engineer | Use ChadGPT then senior engineer. |

Additional Decision Variables

: A binary variable that equals 1 if junior engineer is using ChadGPT.

Objective



Additional Constraints

Modify no.3

The intelligence boost should not exceed maximum capability:

 for 

 for 

Modify no.5

1. The assigned engineering’s intelligence must be greater than the contact difficulty:

 for 

Hiring Strategy: Since ChadGPT can boost N juniors, ChadGPT might be better options than senior that cost more than ChadGPT and able to boost less than ChadGPT.