**NLP:**

Adidas wants to release limited-edition Red and Gold Sun Devils sneakers to be sold exclusively in ASU. All profits from the shoe sales would go to charities in Tempe. Their market research team has told them the more shoes they make, the less people would be willing to pay for them. In fact, they came up with a simple equation for the selling price for the shoes, Selling Price = $400 – $0.40\*(Number of pairs). It costs Adidas $60 to make any limited-edition sneakers. How many sneakers should Adidas produce?

**Discussion:**

The problem is an example of supply leading demand of a product. The novelty of the product defines the price more than the actual value of the product. The problem requires us to find the maximum total profit that Adidas can generate from the sale of the limited-edition sneakers.

**Models:**

Parameters:

C: Cost Price of a pair in $ = 60

S: Selling Price of a pair in $ = 400 - .4X

Decision Variable:

X: Number of sneakers of to produced

Objective:

Maximize: (X\*(S-C))

Constraints:

1. $X\geq 0$
2. $X\in Integers$