

Decision Variable: Ice cream shop, there are only two types of ice cream, vanilla and strawberry

X_1 = Ice-cream , X_1 = Vanilla ice-cream , X_2 = Strawberry ice-cream

Objective: Get the highest benefit by profit for vanilla ice cream is \$2 and \$3 for strawberry ice cream.

$$2 X_1 + 3 X_2$$

Constraint: To make the ice cream, the fresh milk is required. To make a box of vanilla ice cream requires 0.5 liter and strawberry ice cream requires 0.2 liter.

You daily order 10 liters of fresh milk.

$$0.5 X_1 + 0.2 X_2 \leq 10 \rightarrow \text{eq. 1}$$

Give a doll for each ice cream box. The number of dolls, that you can give to customers, is 30 dolls per day

$$1 X_1 + 1 X_2 = 30 \rightarrow \text{eq. 2}$$

** Vanilla ice-cream, Strawberry ice-cream must more than 0**

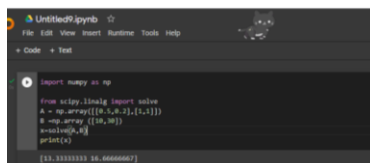
$$X_1 \geq 0, X_2 \geq 0$$

Then,

A is matrix of the number before X_1 and X_2 from eq. 1 and eq. 2

B is number of outcomes from eq. 1 and eq. 2

solve equation

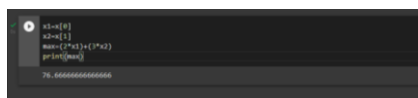


```

import numpy as np
from scipy.optimize import linprog
A = np.array([[0.5, 0.2], [1, 1]])
b = np.array([10, 30])
c = np.array([2, 3])
print(A)

```

After that find the maximum profit.



```

x1 = 0
x2 = 0
max = 0
print(max)

```

If you need to sell vanilla and strawberry, The maximum outcome is 76.66. by the output of vanilla ice-cream is 13.33 and strawberry ice-cream is 16.67.