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HW 5 Ice cream shop

From the question, it can be extracted the as following:

Decision variables are X_1: Vanilla ice cream

X_2: Strawberry ice cream

Objective function is $Max = 2X_1 + 3X_2$

Constraints: $0.5X_1 + 0.2X_2 <= 10$

$X_1 + X_2 <= 30$

X_1 and $X_2 >= 0$

As above, we got 2 constraints for producing ice cream. That are 1. the ingredient – milk 10 liters per day and 2. Doll for promoting – 30 dolls per day and because doll is one of the constraints, so we can sell ice cream not more than 30 boxes per day. By using scipy.optimize (linprog), the result shows that the optimal number of each favor that will make us get the maximum profit are 0 box for vanilla ice cream and 30 boxes for strawberry ice cream. As shown in the constraints, the strawberry ice cream uses less milk than the vanilla ice cream to produce 1 box. Moreover, the strawberry ice cream return in higher benefit (3$ per box). According to these reasons, it can be concluded that we should produce 0 box of vanilla ice cream and 30 boxes of strawberry ice cream to get the maximum profit at 90$.