**KUNAL SHARMA**

**ASSIGNMENT 1**

1. **Decision Variables:**

The decision variables are X1 and X2. X1 represents Collegiate and X2 represents Mini.

1. **Objective Function:**

The objective is to maximize the profits of the Back Savers company.

Zmax=32X1+24X2

1. **Constraints:**

As, Back Savers have contract and receives 5000 square foot of nylon shipment each week and as the sales forecasts indicate that at most 1000 Collegiate and 1200 Minis can be sold per week.

3X1+2X2<=5000

X1<=1000

X2<=1200

There are 35 laborers available. Constraints of Labor in minutes.

45X1+40X2<=35\*40\*60 min/week

45X1+40X2<=84000 min/week

Also, Collegiate and Mini must be greater than 0.

X1>=0, X2>=0

1. **Full Mathematical Formulation:**

Maximize the Z=32X1+24X2

3X1+2X2<=5000

45X1+40X2<=84000

X1<=1000

X2<=1200

X1>=0,

X2>=0