**ASSIGNMENT 1: LP FORMULATION PROBLEM**

1. **Decision Variables:**

The decision variables are Y1 and Y2. Y1 represents Collegiate and Y2 represents Mini.

1. **Objective Function:**

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

Zmax=32Y1+24Y2

1. **Constraints:**

As, Back Savers have contract and receives 5000 square foot of nylon shipment each week.

3Y1+2Y2<=5000

As, the sales forecasts indicate that at most 1000 Collegiate and 1200 Minis can be sold per week.

Y1<=1000

Y2<=1200

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

45Y1+40Y2<=35\*40\*60 min/week

45Y1+40Y2<=84000 min/week

Collegiate and Mini must be greater than 0.

Y1>=0, Y2>=0

1. **Full Mathematical Formulation:**

Maximize Z=32Y1+24Y2

3Y1+2Y2<=5000

45Y1+40Y2<=84000

Y1<=1000

Y2<=1200

Y1>=0,

Y2>=0