KUNAL SHARMA

ASSIGNMENT 1: LP FORMULATION PROBLEM

1. **Decision Variables:**

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

2. **Objective Function:**

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

   $Z_{max}=32Y1+24Y2$

3. **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.

   $Y1>=0, Y2>=0$

4. **Full Mathematical Formulation:**

   Maximize $Z=32Y1+24Y2$

   $3Y1+2Y2<=5000$

   $45Y1+40Y2<=84000$

   $Y1<=1000$

   $Y2<=1200$

   $Y1>=0,$

   $Y2>=0$