**Mathematical Formulation for LP Problem**

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| **Model** | **Nylon(Sq.ft)** | **Sales/week** | **Time(min)** | **Profit($)** |
| **Collegiate** | 3 | 1000 | 45 | 32 |
| **Mini** | 2 | 1200 | 40 | 24 |

**Decision Variables:**

Let X = Number of Collegiate Model Backpacks

Y = Number of Mini model Backpacks

**Objective Function:**

Maximize Profit(P) = 32X+24Y

**Constraints:**

s.t

Nylon (Sq.ft): 3X+2Y ≤ 5000

Labor (Hrs): (45/60)X + (40/60)Y ≤ 40\*35

(3/4)X+(2/3)Y ≤ 1400

Sales Forecast: X ≤ 1000

Y ≤ 1200

And X ≥ 0, Y ≥ 0