Assignment 1

1) Decision Variable:

In this scenario there are 2 decision variables as mentioned
Which is number of collegiates to produce in a week and number of minis produced in a week

C1 = Number of collegiate to produce / week
C2 = Number of mini to produce / week

2) What is objective function:

The aim of the task is to determine the number of units that should be created for each rucksack in order to maximize profit.

Collegiate (C1) = 32 $ profit

Mini (C2) = 24 $ profit.

The Maximum combined profit for both backpack (P) = 32(C1) + 24(C2)

3) Constraints:

1) Nylon and Labor Hours:

According to the problem statement mentioned 3 sq ft of nylon is required for Collegiate = 3(C1)
According to the problem statement mentioned 2 sq ft of nylon is required for mini= 2(C2)

3(C1) + 2(C2) <= 5000

According to the problem statement time required to make 1 C1 = 45 min
According to the problem statement time required to make 1 C2 = 40 min
35 labor working 40 hours per week = 1400 hrs

45(C1) + 40(C2) <=1400

4) The Mathematical formulation for this LP problem is mentioned as:

The Maximum combined profit for both backpack (P) = 32(C1) + 24(C2)

The Raw material required: 3(C1) + 2(C2) <= 5000

The Labor hour required: 45(C1) + 40(C2) <=1400