**Candy Shops**

Alpenlibe and Eclairs are the two candy firm who wanted to collaborate in order to maximize their total profit, by deciding how much candies each company should produce. It costs Alpenlibe$ Z\_{1}^{2}$dollars to produce candies and costs Eclairs $(0.75\*Z\_{2}^{2})$ to produce the same. If total $Z$ candies are produced, consumer will be paying 300 − Z dollars for each candy.

**Mathematical Model: -**

*Parameters (Inputs):*

$$i ϵ 1,2, \left( i: Index for companies \right)$$

$Z=Z\_{1}+Z\_{2} (Total number of candies produced)$

$$P(z) :300-Z (Amount paid by consumer for each cady)$$

*Decision Variables:*

$$Z\_{i} :Candies produced by company i$$

*Objective:*

$$Maximize total profit=\left[\sum\_{i=1}^{2}Z\_{i}\*P(z) \right]-[ Z\_{1}^{2}+(0.75\*Z\_{2}^{2}) $$

*Constraints:*

$$Z\_{i}\geq 0$$

**Excel Model:**

