# INFO5502 – Assignment 5: Choosing an Unbiased Probability Distribution Using Maximum Entropy

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By executing R-script Lagrangian root solve, below values are captured.

We used Simulated Annealing algorithm here

**TABLE A**

| Coin Value | $q_i$ | $q_i * \exp[-c * (x_i - m)^2]$ | $p_i = k * q_i * \exp[-c * (x_i - m)^2]$ | $p_i * x_i$ | $p_i * (x_i - 11{,}1782)^2$ |
|---|---|---|---|---|---|
| 1 | 0.167 | 1.0384234e-84 | 0.288403926 | 0.288403926 | 29.8463438016 |
| 5 | 0.167 | 9.2607073e-85 | 0.2569323971 | 1.2846619855 | 9.8071494349 |
| 10 | 0.167 | 8.0252833e-85 | 0.2226563489 | 2.226563489 | 0.30908157744 |
| 25 | 0.167 | 5.2211929e-85 | 0.1448586554 | 3.621466385 | 27.6741097328 |
| 50 | 0.167 | 2.5477359e-85 | 0.0706852933 | 3.534264665 | 106.532078435 |
| 100 | 0.167 | 6.0420275e-86 | 0.0167632186 | 1.67632186 | 132.250264262 |
| **Sum of Columns** | 1.00 | 1/(sum of this column) = k k is used in the calculation of the adjacent column Sum=$360.433615*10^{-86}$ | 1.00 | ***Estimated Mean = 12.3432783*** | ***Estimated Variance =306.419027292*** |