Assignment-2

Single-Product Inventory System

In this assignment, you will simulate an Inventory System to compare different (s, S) policies for given unit costs.

Input

You should take inputs from a text file.

- The first line would contain 3 space-separated numbers *I, N, P* denoting the *Initial Inventory Level, Total Number of Months* and *Number of Policies*, respectively.
- The next line would have 2 numbers *D, beta_D* as *The Number of Demand Sizes* and *The Mean Inter-demand Time in months*.
- The next line would have 4 numbers *K, i, h, pi* as the *Setup Cost* and *per-unit Incremental Cost, Holding Cost* & *Shortage Cost*.
- The next would have 2 numbers *m, M* as the *Minlag* and *Maxlag* periods in months.
- The next line would have *D* space-separated numbers specifying the cumulative probabilities of the sequential demand sizes (i.e. for demand sizes of 1, 2, …, D).
- The next *P* lines each would have 2 space-separated numbers *s, S* denoting the respective policies.

Output

In the output file, you would first show all the necessary details of the Inventory System (please refer to the Sample I/Os). Afterwards, you need to show the Average Ordering, Holding, Shortage and Total Costs for each given policy.

Note: You must use the Prime Modulus Multiplicative Linear Congruential Generator (ref. Appendix 7A: Page 419 from Averill Law Book) to generate the random variates.