Lab 6
Assignment
(Batch B2)

Q1) The cumulative distribution function for the discrete random variable X is given by

$$F(x) = \begin{cases} 0 & x = 0 \\ \frac{1}{32}(6x^2 - x^3) & 0 < x < 4 \\ 1 & x \geq 4 \end{cases}$$

a. find $P(2 \leq x \leq 3)$.
b. find $P(x \geq 2)$.
c. Calculate Variance of X

NOTE: Do not use any library

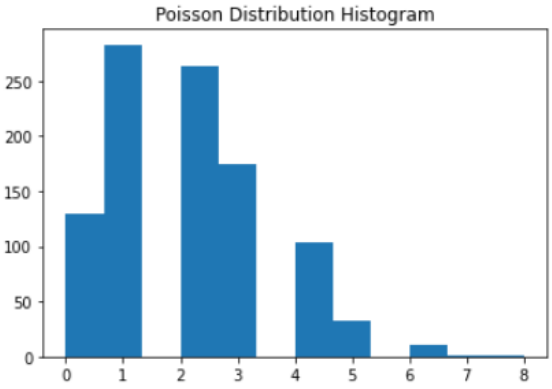
Input: 4
Output:
[0, 0.05, 0.11, 0.11000000000000001]
0.11000000000000001
0.95
1.12

Input: 8
Output:
[0, 0.05, 0.11, 0.11000000000000001, 0.04999999999999999, -0.07, -0.25, -0.49]
0.11000000000000001
0.95
-52.5504

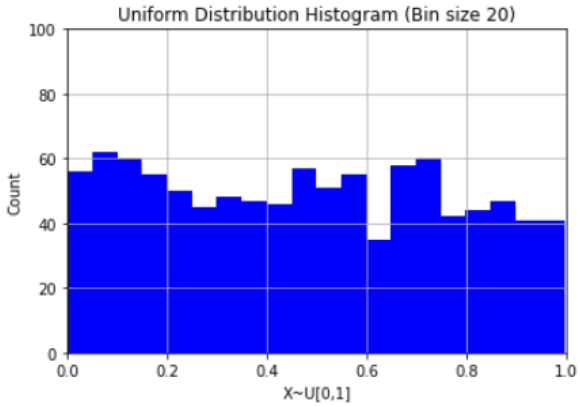
Q2) Generate random numbers following Poisson distribution, Uniform Distribution, and Normal Distribution, and plot them.

NOTE: Do not use any library

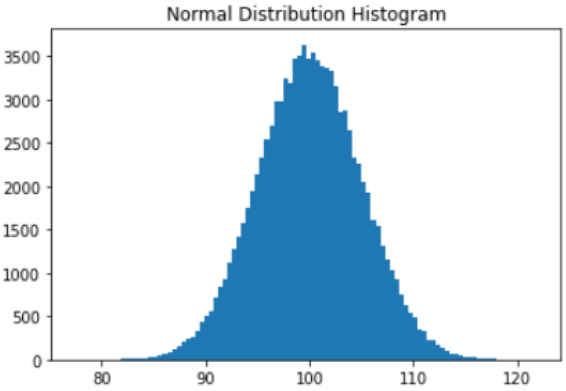
1. Poisson distribution



2. Uniform distribution



3. Normal distribution



Note: The plots can change based on the given data (random data).