7. Give an efficient method for generating nine uniform points on (0, 1) conditional on the event than no two of them are within 0.1 of each other.

Use Gibbs sampler.

Step1 : Generate 9 points from uniform(0, 1)

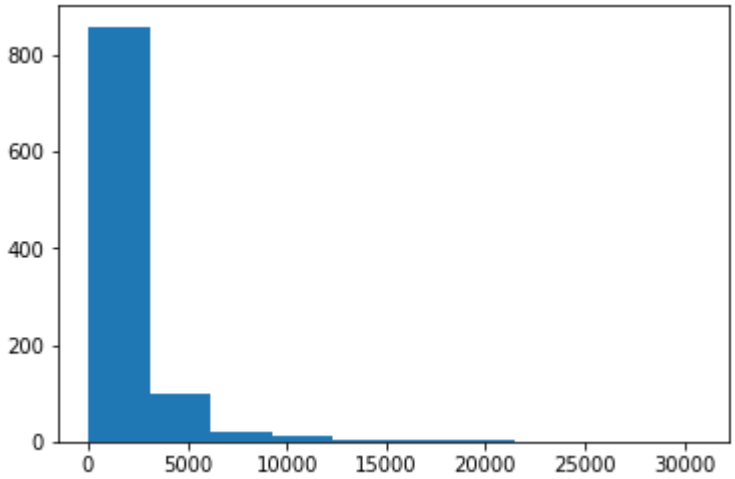
Step2 : Generate U1, U2 from U(0, 1), I = int(nU1)+1

Step3 : Di = U1 - X[j], for $j \neq I$, i=1,...8

Step4 : If Di > 0.1 for all i = 1, …, 8, X[I] = U2; else go to step2

Step5 : Repeat until all point distance not within 0.1

Via simulation 1000 times



Most are 0~2500 succeed