

Sampling

Reservoir Sampling (Single Pass, Anytime Stop)

```
bag[0:k] = reservoir[0:k]
for cur in range(k, len(reservoir)):
    replace = random.randint(0, i)
    if replace < k: bag[replace] = reservoir[cur]
```

Linked List Random Node k=1

Random Pick Index k=1

Inverse Transform Sampling, Rejection Sampling

Generate Random Point in a Circle Rejection sampling Inverse Transform Sampling

Random Pick with Weight Inverse Transform Sampling 前缀和, 二分查找

Random Point in Non-overlapping Rectangles 按面积随机选择矩形

Rand-M -> Rand-N

Implement Rand-N() Using Rand-M() MxM square, divide among 1..N