CprE 528, Spring 2014 Probabilistic Methods in Computer Engineering

Homework 2

Due: Thu, 13 Jan

Policy

This is a *collaborative* homework. You are allowed to discuss the problems with other students. But, the write up should be written by yourself without help from others.

Problem 2.1

For a coin that comes up heads independently with a probability p at each flip, what is the expected number of flips till the kth heads?

Problem 2.2

Random Permutation 1. Exercise 2.21, Page 41.

Problem 2.3

Random Permutation 2. Exercise 2.26, page 42.

Problem 2.4

Reservoir Sampling: Exercise 2.18, page 40, and 2.19, page 41.

Problem 2.5

Hiring Problem: Exercise 2.32, page 43.

Problem 2.6

Coupon Collector Variant. Exercise 2.13, page 40.