STA237 Tutorial 1

Kevin Dang

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Agenda

- Introduction
- Tutorial Problems
- Intro to R

Introduction

- TA: Kevin Dang

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- Tutorial : Thursdays 3:10-5pm

- Office hours: Tuesdays 1-2pm

- Locations: Microsoft Teams (links posted on Quercus)

About Tutorials

- Tutorials start at 3:10pm. There is a 10 minute break from 4-4:10pm

- Tutorial activities are worth 13.5% (9 x 1.5%)

- Each week you will be given multiple problems to work on, and you submit one of the assigned questions to Crowdmark to be graded

- We will be using R in JupyterHub: https://jupyter.utoronto.ca/

Tutorial Problems

- You will receive an email at the end of the tutorial session to upload your work.

- You will have 8 hours windows to upload your work.

- If you upload the work of others on your Crowdmark link, you will get maximum 10% penalty in your course marks.

- **You only upload your work of Question 2 on Crowdmark for this tutorial.**

- For future tutorials, you will not be notified which question will be submitted for grading until the end of the session

Question 1

A student figures that he has a 30% chance of being let out of class late. If he leaves class late, there is a 45% chance that he will miss his bus. What is the probability that he is let out of class late and misses the bus?

Question 2

The Ontario Lottery Association claims that your odds of winning a prize on an Instant Win Crossword game are 1 in 3.09. This means that any ticket has probability 1/3.09 = 0.324 of winning a prize. Every Friday you buy one Crossword game.

(a) What is the probability you don't win a prize next Friday?

(b) What is the probability you don't win a prize six Fridays in a row?

(c) If you haven't won a prize for the past six Fridays, what is the probability you will win a prize on your next game?

(d) What is the probability you will win on two of your next three games?

Question 3

Leah is flying from Moncton to Vancouver with a connection in Montreal. The probability that her first flight leaves on time is 0.15. If the flight is in on time, the probability that her luggage will make the connecting flight in Montreal is 0.95, but if the first flight is delayed, the probability that the luggage will make it is only 0.65.

(a) Are the first flight leaving on time and the luggage making the connection independent events? Explain.

(b) What is the probability that Leah's luggage arrives in Vancouver with her?

Question 4

Simulating the conditional probability P(A|B) requires repeated simulation of the underlying random experiment, but restricting to trials in which B occurs.

Every time a pair of dice is rolled, the routine checks whether the sum is 7 or not. If not, the dice are rolled again until a 7 occurs. Once a 7 is rolled, success is recorded if the first die is 2, and failure if it is not. The proportion of successes is taken just for those pairs of dice rolls that sum to 7. Write R codes for this simulation study.

Intro to R

- https://jupyter.utoronto.ca/