ST201 Data Analysis

Continuous Assessment – Assignment Sheet 3

Instructions

- Use R to Answer the question below for continuous assessment. Due: Before **5pm on 19th November 2021**. Upload a word document with the answers to Moodle. Upload your R code as a separate file.

- Include your name, student number and tutorial time with your work.

Question 1

A total of 16 mice are sent down a maze, one by one. From previous experience, it is believed the probability a mouse turns right is .38. Suppose the turning pattern follows a binomial distribution.

(a) What is the probability that exactly 7 mice turn right?

(b) What is the probability that 8 or fewer turn right?

(c) What is the probability that 8 or more turn right?

(d) What is the probability that from 5 to 7 turn right?

(e) What is the 80th percentile value for the number of mice that turn right? Provide an interpretation.

Question 2

(a) The number of houses sold by an estate agent follows a Poisson distribution with a mean of 2 per week. Find the probability that in the next 4 weeks the estate agent sells

   (i) exactly 5 houses
   (ii) more than 5 houses

(b) The estate agent monitors sales on a monthly basis (every 4 weeks) and considers a month to be a success if more than 5 houses are sold (and a failure if 5 or less are sold). If the estate agent monitors sales each month for 12 months, what is the probability that 6 or more months are successful?