MATH240 Introduction to Probability and Statistics for Engineers

Project 1

Identifying Discrete Random Variables

The goal of this assignment is for you to find/gather data and practice modeling a real-world phenomenon by using discrete random variables. Remember that most questions in the textbook come from similar studies. What we would like to see is for you to create/collect a dataset to work with for your assignment in a topic you are interested in. There are two ways of collecting data: You should either try to conduct your own experiment/survey/data collection for occurrences of events you interact on a daily basis; or you may use any reasonable source you find (published articles accessed via library or internet, magazines, newspaper articles, data from a company you interned etc.) with the condition that you state your sources as references, and that we can access the source for validation. You may also use one of the following resources:

- Google Dataset Search
  https://datasetsearch.research.google.com

- Türkiye İstatistik Kurumu (TÜİK)
  http://www.tuik.gov.tr/

- Pearson StatCrunch
  https://www.statcrunch.com

You should submit a 1-2 pages report **(no need for cover page)** through Moodle that includes the following:

- Your name
- Date
- Course code and title
- Appropriate title of assignment
- Introductory paragraph (2-3 sentences that explains what you did for the assignment)
- Data collection process (include all details so that we can follow your process)
- Results
  - Calculation of relevant parameters you will use (e.g. p, n, x, λ, t)
  - Choose an appropriate model (i.e. binomial, Poisson) for your random variable and calculate P(X=0)
  - Use the same model and calculate P(X=a) (you pick a value for 'a')
- Discussion (1 paragraph)
  - Comment on factors that may affect results in your experiment