**MA155 Projects**

**First Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Last Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Project 2:** General Probability and Discrete Probability Distribution Applications

**Due Date:** xx/xx/xx @ xx on Canvas (xx Points)

**Submission Instructions:**

* Once you are done with the task, submit your project using this MS Word file on canvas.
* Use your first and last name to name the file.

**Scenario**:

A health insurance policy covers visits to a doctor's office. Each visit costs $230. The annual deductible on the policy is $300. For a policy, the number of visits per year has the following probability distribution.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Number of Visits | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Probability | 0.6 | 0.15 | 0.1 | 0.08 | 0.04 | 0.02 | 0.01 |

1. **(xx points)** Use Microsoft Excel to create a table with the following column headings: Visit, Probability, Annual Deductible, Cost, and Payment.

**Note:** Cost = Visits x Cost per Visit; Payment = MAX(0, Cost – Annual Deductible)

1. A policy is selected at random from those where costs exceed the deductible.
   1. **(x points)** Calculate the probability that this policyholder had exactly 3 office visits (Round your answer to three decimal places).
   2. **(x points)** Calculate the probability that this policyholder had exactly 5 office visits (Round your answer to three decimal places).
   3. **(x points)** Briefly comment (no more than two sentences) on your results from parts 2.i) and 2.ii).
2. Use the Table in part 1 to answer/respond to the following questions:
   1. **(xx points)** Find the expected payment for visits to a doctor on this policy.
   2. **(xx points)** Find the standard deviation of payments for visits to a doctor on this policy.
   3. **(xx Points)** Briefly comment (no more than two sentences) on your results from parts 3.i) and 3.ii).