Your team will create a report for the following problem:

The North Pole is a busy place at this time of year. Many people don’t realize that there is a help line that you can call if you have last minute questions or issues for the big guy, 1800-HoHoHo4. Calls come into the help line at a furious pace, keeping the elves very busy. Of course there is an automated system, and about 30% of calls can be resolved via this system, without needing elfin-intervention. Of the other calls, 60% get put on hold, and of these calls, 50% eventually hang up out of frustration. When the calls get through to an elf, either right away or after being on hold, 14% get routed to Bob (he’s very slow, but very thorough), 52% to Lillian, and the rest to Chester. Bob has a 70% resolve rate, Lillian a 45% rate and Chester (poor Chester!) a 30% resolve rate.

Cover Page: Create a clever or interesting cover page to present your project.

Page 1:

Create a tree diagram to represent this scenario. Show that you have included all possible outcomes by adding the sums of the probabilities.

Page 2:

Describe methods that you could use to simulate each step of this process. Use a different method for each step.

Page 3:

Complete 25 iterations of your simulation, going through all events until you have a resolution or no resolution (maximum of 4 steps). Show the results of your iterations in a table or chart or some other way that clearly displays what you did.

Page 4:

1. Answer each of the following questions, showing your work, or justifying your answer:
   1. What is the probability that a call will be resolved to the satisfaction of the caller?
   2. Given that the call is resolved, what is the probability that it was resolved by Lillian?
   3. What is the probability that Lillian resolves the call?
   4. Given that a call is put on hold, what is the probability that it is resolved?
2. Make up 3 more questions of your own. Include conditional probability.
3. Name 2 events that are independent (if any) and 2 that are mutually exclusive (if any).

See the attached rubric for information on how your project will be graded.