Final Project Journal Article

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Your abstract is a 1 paragraph summary of the project. You should summarize the motivation, the procedure, and the results here. The motivation behind doing this project was that Professor Bellis required it as our final. I used the knowledge that I learned throughout the year. The procedure used was using Monte Carlo and using functions, and for loops to find the percentage change it will rain on one day of the month. I found that the percentage it rains one day a month when there is a 20 percent to rain is around .9 percent. When there is a 10 percent chance to rain and it rains 8 days a month I calculated that it rains around .8 percent of that time.

I. INTRODUCTION

The reason that I did this Final Project is because Professor Bellis assigned it as our Final. And in order to receive a good grade this project must be completed. This project was used to determine our knowledge of computer science, python, LaTeX, and all the stuff in between. The overall goal of this project was to use the Monte Carlo method to find the percentage that it rains on a certain number of days that it rains, when it rains a certain percentage that it rains on those individual days. The approach of the project was using the Monte Carlo method and creating functions to take in certain numbers and plugging them into equations.

II. PROBLEM 1

For question number one, I created a function that took in the number of days in a month, then I created a range of how many days to calculate each days percentage of rain. Next I made a for loop that calculated a random number between 0 and 1 for each day in a month, 30. Following that, I made a conditional that took each individual number and if it was between 0 and the percentage chance it will rain, it would at 1 to the list of rainy days in that month. Next I made an elif statement to the if statement to add a 0 to the list of rainy days if the random number between 0 and 1 is above the percentage chance it will rain. Then I made another function that calculated the number of months, in a certain range, that only had one day of rain that month. I used a for loop to add the sum of all the days that were in the range from 0 to the percentage chance it rains and if that sum equalled 1, I would add it to the list of rain, that signifies the number of months where it only rains one day. Finally I took that number, the number of times it only rained once in a month, and divided it by the number of months that I used total, and multiplied that value by 100 to get the percentage that it rains once a month.

III. PROBLEM 2

Question number two is exactly the same as number one. However I had to change the percentage chance that it will rain, and chance it from raining only 1 day a month to 8 days a month. I did that by changing the sum of rainy days in a month to 8 rather than 1.

IV. PROBLEM 3

A. Part A

I did not know how to complete number 3a so for the sake of the histogram I used question number 2 in order to have a visual of the histogram.

B. Part B

I attempted make a for loop to plot a histogram