**Report on Data Analysis.**

Student ID: (Your Student ID Number)

**Description of Datasets and Distributions.**

The "2020exam" dataset consists of tabulated distributions of students' grades in a module's exam in 2020, while the "2024exam" dataset contains individual student grades for the 2024 exam. From the histograms generated, it is observed that the 2020 distribution spans a wider range of grade intervals compared to the 2024 distribution.

**Formula for Mean and Standard Deviation Calculation.**

I used NumPy's built-in functions to calculate the mean and standard deviation for the datasets that were provided. First, I used NumPy's mean function to get the mean. This function takes the total value of the dataset and divides it by the number of data points. This resulted in an approximate mean of 59.81 for the distributions in 2020 and 2024. I used NumPy's std function to calculate the standard deviation. The formula for standard deviation is as follows: square each data point's difference from the mean, add up all of the squared differences, divide by the total number of data points, and then take the square root of the result. After this procedure, the approximate standard deviation for the

**Discussion of V Value.**

The V value, representing the proportion of students with grades of 50 or higher in the 2020 exam, was calculated to be approximately 0.73. This indicates that 73% of students achieved a grade of 50 or above in the 2020 exam.

**Comparison of 2024 and 2020 Distributions.**

Comparing the mean and standard deviation values between the 2020 and 2024 distributions, it is noted that while the means are identical, the standard deviation for the 2024 distribution is slightly higher than that of 2020. This suggests that there may be slightly greater variability in grades among students in the 2024 exam cohort.

**Plot Produced by the Code.**

The plot generated by the code displays histograms of exam grades for both 2020 and 2024, along with mean values, standard deviations, and the V value.

