1. You are a teacher who wants to understand the average performance of students across different classes (One, Three, Five) in a school. You have a dataset of students' scores in different classes, as follows:

|  |  |  |
| --- | --- | --- |
| **Class One** | **Class Three** | **Class Five** |
| * S1 scored 85 * S2 scored 90 * S3 scored 88 | * S4 scored 75 * S5 scored 78 | * S6 scored 92 * S7 scored 95 |

1. Calculate the mean score for each class (One, Three, Five).
2. Compare the average scores to determine which class is performing best.
3. Estimate standard deviation for each class (One, Three, Five). Also, Calculate coefficient of variation and comment on it.
4. Estimate mean score, and standard deviation at a time.
5. A school tracks the academic performance of students within different sections (e.g., Section S1, S2) of the same class.

| **Class A** | **Class B** | **Class C** |
| --- | --- | --- |
| S1 scored 85 | S3 scored 78 | S7 scored 75 |
| S2 scored 90 | S4 scored 92 | S7 scored 78 |
| S1 scored 88 | S5 scored 95 |  |
| S2 scored 75 | S3 scored 85 |  |
|  | S4 scored 90 |  |
|  | S5 scored 88 |  |

1. Calculate the average score for each student section within a class to identify any disparities in performance between sections.
2. Calculate the standard deviation for each student section within a class to identify any disparities in performance between sections.
3. You are an education researcher who wants to analyze how **gender** and **class** (A, B) affect the **pass/fail** rates of students in a school. By looking at the data, you want to understand the relationship between these categorical variables.

| **Gender** | **Class** | **Passed** |
| --- | --- | --- |
| Male | A | Yes |
| Female | A | No |
| Female | B | Yes |
| Male | B | No |
| Male | A | Yes |
| Female | B | Yes |
| Male | A | No |
| Female | A | Yes |
| Female | B | No |
| Male | B | Yes |