A Case Study of Central Tendency

The Head of the Employees' Union in a company was negotiating with Mr. Amlan Roy, the president of the company on the issue of salary adjustment. The Union Head said, "Our workers need more money to cope with the rising cost of living. No one in our Union earns more than Rs18000/ a month. Mr. Roy replied, "It's true that costs are going up. It's the same for the company. We have to pay higher costs for raw materials, so we get a lower profit. Besides, the average salary in our company is Rs.22,000/ I don't see how we can afford a wage increase at this time."

The Union conducted an urgent meeting that evening. A general clerk said, "We make only Rs.9000/ per month.

The workmen representing the largest sector of the population in this company make Rs.12,000/ per month. We want our pay to be increased to that level at least."

The Union Head decided to take a detailed look at the salary information. He went to the payroll department and got the information as shown in the table below.

Type of job	Number employed(n)	Salary(y)	Total salary of this grade(nxy)	Union member
President	1	250000	205000	No
Vice President	2	100000	200000	No
Director	3	60000	180000	No
Branch Manager	4	50000	200000	No
Supervisor	4	30000	120000	No
Foreman	6	18000	108000	Yes
Payroll Clerk	3	16000	48000	Yes
Secretary	6	15000	90000	Yes
Workman	30	12000	360000	Yes
Sales Clerk	15	10000	150000	Yes
General Clerk	6	9000	54000	Yes
Total	80		1760000	

Mean or average salary= 17600000/80=22,000

The Union Head thought, Mr. Roy is right, but the mean salary is pulled up by those executives' high salaries. Therefore, it does not give a really good picture of the salaries of the majority of staff. The general clerk's request is reasonable. Each of the thirty workmen make Rs12000/. That's the most common salary level mode. However, there are twenty-one union members who make less than Rs12,000/.
Finally, the Union Head said to himself, “I wonder what the middle salary should be.” He thought of the employees as being lined up in order of salary, from low to high. The middle salary (it is called the median) is the salary of employee number 40 & 41 that is Rs. 12,000.

1. Who will favour the use of (a) the mean, (b) the mode and (c) the median in this case study?
2. If the salaries of the 21 clerks with the lowest salaries were raised to Rs.12 000, find
(a) the new mean,
(b) the new mode,
(c) the new median.
3. If all salaries were raised by the same amount,
(a) which measure(s) of the central tendency would remain the same?
(b) which measure(s) of the central tendency would change? Why?
(c) If only one or two clerks' salaries were increased,
(i) which measure(s) of the central tendency would definitely change?
(ii) which of the other measure(s) of the central tendency would most likely remain unchanged?
(iii) how likely would the median be affected?
4. If the president of the company raised his own salary only so that the mean salary was increased by Rs. 1000? What is his new salary?
5. The company lay off two workmen. Predict whether the mean salary will increase, decrease or remain the same. Give reasons.
6. The company lay off one branch manager and one supervisor. Predict whether the mean salary will increase, decrease or remain the same. Give reasons.
7. Calculate the number of lower grade employees to be laid off to maintain the demand of the general clerk to Rs12,000/ at least without increasing the salary bill of the employees. What will be the new mean salary?
8. If salaries of the employees who are members of Union are increased by Rs1000/ and salaries of non-Union members are increased by Rs2000/ each, then how much lowest category employees should be laid off by the company to keep tha salary bill at least it was at first?