CSE 103

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Subject: Assignment from book

Chapter: 1

Section: 2

Exercise: 33

33. Steve would like to determine the relative salaries of three coworkers using two facts. First, he knows that if Fred is not the highest paid of the three, then Janice is. Second, he knows that if Janice is not the lowest paid, then Maggie is paid the most. Is it possible to determine the relative salaries of Fred, Maggie, and Janice from what Steve knows? If so, who is paid the most and who the least? Explain your reasoning.

Solution:

Let's first assume that Fred is not the highest paid. So according to the first condition, Janice must be the highest paid of the three. The second condition says, if Janice is not the lowest paid, then Maggie is paid the most. But this is contradictory to Janice being paid the highest. Therefore, Fred has to be the highest paid person.

Again, let's assume that Janice is not the lowest paid. Then according to the second condition, Maggie is the highest paid. This is contradictory to Fred being the highest paid person. So to fulfil both the conditions, Janice must be paid the lowest of the three.

So we can conclude that Fred is paid the highest salary, Maggie is paid lower than Fred and Janice is paid the lowest.