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Section 1- Queries

1. Write a query to print the number of employees per department in the organization.

Sol: SELECT DEPARTMENT,COUNT(EMPLOYEE_ID) NO_OF_EMPLOYEES FROM EMPLOYEE GROUP BY DEPARTMENT;

2. Write an SQL query to find the name of the top-level manager of each department

Sol: SELECT FIRST_NAME,LAST_NAME FROM EMPLOYEE WHERE MANAGER IS NULL;

3. Write a query to find the total incentive received by a given employee in a given month.

Sol: SELECT T.E_ID,T.FNAME,T.LNAME,T.MONTH,SUM(T.INC) TOTAL_INCENTIVE FROM(SELECT E.EMPLOYEE_ID E_ID,SUBSTRING(I.INCENTIVE_DATE,4,3) MONTH,E.FIRST_NAME FNAME,E.LAST_NAME LNAME,I.INCENTIVE_AMOUNT INC FROM EMPLOYEE AS E JOIN INCENTIVES AS I ON E.EMPLOYEE_ID=I.EMPLOYEE_REF_ID) AS T GROUP BY T.E_ID,T.MONTH;

4. Write a query to find the month where employees got maximum incentive

Sol:SELECT K.MONTH,MAX(K.INA) FROM (SELECT SUBSTRING(I.INCENTIVE_DATE,4,3) MONTH,SUM(I.INCENTIVE_AMOUNT) INA FROM INCENTIVES I GROUP BY MONTH) AS K ;

Section-2:

5. You have two sand timers, which can show 4 minutes and 7 minutes respectively. Use both the sand timers (at a time or one after other or any other combination) and measure a time of 9 minutes.

Sol:

1)Start both the timers as the 4 minute timer ends time left in 7 minute timer is 3 minutes.

2)Flip the 4 minute timer as it is runs the 7 minute timer ends a minute before the 4 minute timer.

3)Flip the 7 minute timer ,by the time the remaining 1 minute of the 4 minute timer ends the 7 minute timer also runs for a minute.

4)Flip the 7 minute timer again so it runs for a minute.

4+3+1+1=9

6. John and Mary are a married couple. They have two kids, one of them is a girl. Assume safely that the probability of each gender is 1/2. What is the probability that the other kid is also a girl?

Sol:

All the possibilities with genders for 2 children

1. boy,boy

2. girl,boy

3. boy,girl

4. girl ,girl

As it is given that one child is girl we are left with possibilities 2,3,4 stated above.

The sample space is 3(number of possible cases)

The no of possible outcomes that has the other child also a girl is 1.

Hence the probability that both the children are girls is 1/3

7. The following appeared as part of a campaign to sell advertising time on a local radio station to local businesses.

Ron's Cafe began advertising on our local radio station this year and was delighted to see its business increase by 10 percent over last year's totals. Their success shows you how you can use radio advertising to make your business more profitable.

Discuss how well reasoned you find this argument. In your discussion be sure to analyze the line of reasoning and the use of evidence in the argument. For example, you may need to consider what questionable assumptions underline the thinking and what alternative explanations or counterexamples might weaken the conclusion. You can also discuss what sort of evidence would strengthen or refute the argument, what changes in the argument would make it more logically sound and what, if anything, would help you better evaluate in conclusion.

Sol:

The argument claims that we can use radio advertising to make our business profitable with the evidence being shown that Ron's cafe business increased by 10% as it advertised on radio.

This argument is not reasoned well as the evidence shown is not strong enough. There is no proper proof that the increase in business solely is due the advertisement on the radio. There

might be other factors contributing like people would have liked the cafe for it's service and the menu and might have recommended to others. There is also a probability that the prior advertisements related to cafeteria were good recommendation so people would have followed it again. This baseless evidence with no proper survey or proof might put other businesses at risk and might lead to huge loss. As Ron's cafeteria earned profits this can be termed as a main reason for it but not the sole reason. As the argument is not strong enough it weakens the conclusion. A better survey with enough proofs as in the number of people that watch the radio at the time etc. may help to strengthen the conclusion