ICQ 2

Instructions

In this exercise, please use the excel file "Sudarshan_TE23_ICQ2.csv".

Context behind the data

A failing telco company, Singktel, would like to find out how best to retain its customers to its subscription plans. As part of their data science team, you managed to collect a list of subscribers who started their subscription one year ago, and whether they have "churned" or "not churned". To have "churned" means to have stopped subscribing to Singktel. Details of the data set are given in the Appendix.

Questions

Please give your answers as percentages corrected to the nearest 2 decimal places where applicable.

Section A

Question 1

What is the percentage of customers that churned?

Section B

Now, let us focus on the variables "Subscription Status" and "Age". In particular, we would like to find out the relationship between these 2 variables.

Let "Churned" be A.

Let "Not Senior Citizen" be B, and "Senior Citizen" be NB.

Question 2

Find rate(A | B). Give your answer in terms of percentage.

Question 3

Find rate(A | NB). Give your answer in terms of percentage.

Question 4

What is the direction of association between A and NB?

Appendix

Below is a table which gives you more information on each variable.

Variable	Explanation
Gender	Female: Customer is a female.
	Male: Customer is a male.
Age	Not Senior Citizen: Customer is not a senior citizen.
	Senior Citizen: Customer is a senior citizen.
Partnership	Not Partnered: Customer does not have a partner.
	Partnered: Customer has a partner.
Support	Dependents: Customer has dependents with Singktel.
	No Dependents: Customer does not have dependents with Singktel.
Tenure	High Tenure: Customer has been with Singktel for a long period of time.
	Low Tenure: Customer has been with Singktel for a short period of time.
Contract	Monthly: Customer has a monthly contract.
	Yearly: Customer has a yearly contract.
Billing	Not Paperless: Customer does not use paperless billing method.
	Paperless: Customer uses paperless billing method.
Phone	No Phone Service: Customer does not have phone service.
	Phone Service: Customer has phone service.
Subscription Status	Churned: Customer is no longer a subscriber with Singkel.
	Not Churned: Customer is still a subscriber with Singktel.