ADVANCED ANALYTICS USING STATISTICS– LAB 4

1. What is conditional probability? The table below shows the occurrence of diabetes in 100 people. Let D and N be the events where a randomly selected person & “has diabetes” and & “not overweight”. Then find P(D | N).

	Diabetes (D)	No Diabetes (D')
Not overweight (N)	5	45
Overweight (N')	17	33

Ans = To find P(D|N), which represents the probability that a randomly selected person has diabetes given that they are not overweight, you can use the formula for conditional probability:

P(D|N) = P(D∩N)\P(N)

Where:

- P(D∩N) is the joint probability of having diabetes and not being overweight.
- P(N) is the probability of not being overweight.

From the table:

- P(D∩N) = 5\100 (5 people have diabetes and are not overweight)
- P(N) = 50\100 (50 people are not overweight)

Now, let's calculate P(D|N):

P(D|N) = P(D∩N)\P(N) = (5\100)\(50\100) = 5\50 =0.1

Therefore, the probability that a randomly selected person has diabetes given that they are not overweight is 0.1 or 10%