```python
# Practical-3: To check whether the email is spam or not spam there are 100 emails.
# (1) 40 are label spam and 60 are label not spam.
# (2) the spam mails are not spam considered based on single feature word “offer” . Out of 40 spam mails 30 contains word ‘offer’ and out of 60 not spam mails 5 contained word ‘offer’.

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def conditionalProbability(pSpam, pOfferGivenSpam):
    pSpamGivenOffer = (pOfferGivenSpam * pSpam) / pOffer

    return pSpamGivenOffer

totalEmails = 100
spamEmails = 40
nonSpamEmails = totalEmails - spamEmails
offerInSpam = 30
offerInNonSpam = 5

pSpam = float(spamEmails) / totalEmails
pNonSpam = float(nonSpamEmails) / totalEmails
pOfferGivenSpam = float(offerInSpam) / spamEmails
pOfferGivenNonSpam = float(offerInNonSpam) / nonSpamEmails
pOffer = (offerInSpam + offerInNonSpam) / float(totalEmails)

result1 = conditionalProbability(pSpam, pOfferGivenSpam)
print("--> Probability of an Email Having the Keyword 'offer' being a Spam Email: {:.4f} or {:.2f}".format(result1, (result1*100)))

result2 = conditionalProbability(pNonSpam, pOfferGivenNonSpam)
print("\n--> Probability of an Email having the Keyword 'offer' not being a Spam Email: {:.4f} or {:.2f}".format(result2,(result2*100)))

print("\n-*-*-*-*-*-END OF PRACTICAL 3-*-*-*-*-*-\n")
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