Assignment - 2

A. Akshay

Q1.

a) Population mean is 72 bpm and sample mean is 69 bpm.

b) Alternative hypothesis :- The new relaxation app reduces the avg resting heart rate.

Null hypothesis :- The new relaxation app increases or doesn't Change the resting heart rate.

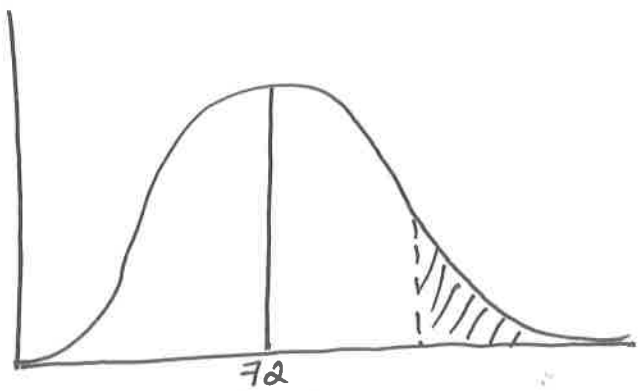
c) $\frac{\sigma}{\sqrt{n}} = \frac{10}{\sqrt{64}} = 5/4$

=> Standard error is the distance from base line to the sample mean.

d) Z - Score

$$\frac{\text{Population mean - sample mean}}{\text{se}} = \frac{72 - 69}{5/4}$$

e)



Q2.

a) The Prior Probability is the actually spam messages.

=> The value is 20% (or) 0.2

b) The Posterior Probability is 80% (or) 0.8.

=> Posterior Probability is the Prior Probability - total Probability In this example 20% is the spam messages and the Posterior is 80%.

c) $P(S/F) = \dfrac{P(F/S)\,P(S)}{P(F/S)P(S) + P(F/\sim S)\,P(\sim S)}$

$P(S) = 0.2$

$P(F/S) = 0.9$

$P(F/\sim S) = 0.5$

$= \dfrac{0.9 \times 0.2}{0.9 \times 0.2 + 0.5 \times 0.8} =$

d) The Posterior is higher than Prior because in this example 20% is spam and 80% are not spam.