Task 4

Measurement error = 863 – 857 = 6

Code from RStudio

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# DSC520 T302

# Exercise 1.2

# Begin code for Task 5

# Plotting each histogram individually

# Individual Plot of Normal Distribution

# mean=0

# std.dev.=1

# set line and axis label color to light green

# label x and y

# set limits of x axis, x=-4 to x=4

curve(dnorm(x, 0, 1), from=-4, to=4, col="lightgreen", col.lab="lightgreen", xlab="Normal Distribution", ylab="Frequency", xlim=c(-4,4))

# Individual Plot of Negative Skew

# alpha=8

# beta=2.58

# plotted over the range, x=0 to x=1

# set line and axis label color to blue

# label x and y

# set limits of x axis, x=0 to x=1

curve(dbeta(x, 8, 2.58), from=0, to=1, col="blue", col.lab="blue", xlab="Negative Skew", ylab="Frequency", xlim=c(0,1))

# Individual Plot of Positive Skew

# alpha=2.58

# beta=8

# calculated over the range, x=0 to x=1

# set line and axis label color to purple

# label x and y

# set limits of x axis, x=0 to x=1

curve(dbeta(x, 2.58, 8), from=0, to=1, col='purple', col.lab="purple", xlab="Positive Skew", ylab="Frequency", xlim=c(0,1))

# Plotting all three curves on the same plot

# Normal distribution

# mean=0.5

# std.dev.=0.125

# plotted from x=0 to x=1

# set line color to light green

# leave the y-axis label color as standard black

# set limits of x-axis

# Shifting the mean and std.dev. of the normal distribution plot to get all three plots to be proportional on the same graph

curve(dnorm(x, 0.5, .125), from=0, to=1, col="darkgreen", ylab="Frequency", xlim=c(0, 1), ylim=c(0, 3.5))

# Negative skew

# alpha=8

# beta=2.58

# plotted over the range x=0 to x=1

# set color to dark blue

# added to the normal distribution plot from line 22

curve(dbeta(x, 8, 2.58), from=0, to=1, col="darkblue", add=TRUE)

# Positive skew

# alpha=2.58

# beta=8

# plotted over the range x=0 to x=1

# set color to purple

# added to the normal distribution plot from line 22

curve(dbeta(x, 2.58, 8), from=0, to=1, col='purple', add=TRUE)

# label all three lines on the x-axis in their respective colors

mtext("Normal Distribution", side=1, col="darkgreen")

mtext("Negative Skew", side=1, adj=0.88, col="darkblue")

mtext("Positive Skew", side=1, adj=0.12, col="purple")

A graph with purple line

Description automatically generatedA graph with a blue line

Description automatically generatedA green line graph with numbers

Description automatically generated

A diagram of a positive distribution

Description automatically generated