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> #b. Is there any significant difference in duration of last call between?
> # people having housing loan or not?
>
> #finding average of duration for loan value 1 and 2.
> library(sqldf)
> loan1<- sqldf("SELECT duration
+             FROM bank_data4
+             WHERE `loan` = 1")
> #calculate mu1 which is the mean of duration with loan = 1
> x1bar<- mean(loan1$duration)
> x1bar
[1] 259.5593
>
> #calculate mu2 which is the mean of duration with loan = 2
> loan2<- sqldf("SELECT duration
+             FROM bank_data4
+             WHERE `loan` = 2")
> x2bar<-mean(loan2$duration)
> x2bar
[1] 250.8454
> #calculation standard deviation for both samples loan1 and loan2
> temp1 <- (loan1$duration)
> sd1<- sd(temp1)
> sd1
[1] 258.2741
> temp2 <-loan2$duration
> sd2<-sd(temp2)
> sd2
[1] 253.4726
> #calculate t
>
> numerator = x1bar - x2bar
>
> #denominator
>
> denominator <- sqrt((sd1^2)/37967 + (sd2^2)/7244)
> #hence t is
> t<-numerator/denominator
> t
[1] 2.673158
> #t value is 2.67.
> #Considering significance of 0.05 we have critical z value as +1.96.
> #As calculated z value 2.67 is bigger than 1.96 we reject the null hypothesis
> #and conclude that there is a significant difference in duration of last call
> #between people having housing loan and not.

```