R Notebook

library(base)  
library(tidyverse)

## -- Attaching packages --------------------------------------- tidyverse 1.3.0 --

## v ggplot2 3.3.3 v purrr 0.3.4  
## v tibble 3.0.6 v dplyr 1.0.4  
## v tidyr 1.1.2 v stringr 1.4.0  
## v readr 1.4.0 v forcats 0.5.1

## -- Conflicts ------------------------------------------ tidyverse\_conflicts() --  
## x dplyr::filter() masks stats::filter()  
## x dplyr::lag() masks stats::lag()

library(dplyr)  
library(readr)  
library(lubridate)

##   
## Attaching package: 'lubridate'

## The following objects are masked from 'package:base':  
##   
## date, intersect, setdiff, union

SDDF <- read.csv("/Users/fahadalnasser/Desktop/week3- task 1/Week4 task 2 -SD.csv", header=TRUE)  
SDDF <- SDDF %>%  
 separate(x, c('x\_l', 'x\_u'), '-')%>%  
 mutate(x\_l = as.numeric(x\_l), x\_u= as.numeric(x\_u))  
SDDF

## x\_l x\_u f  
## 1 20 30 6  
## 2 30 40 18  
## 3 40 50 11  
## 4 50 60 11  
## 5 60 70 3  
## 6 70 80 1

SDDF <- SDDF%>%  
 mutate(Midpoint\_X = (((x\_u - x\_l)/2) + x\_l))%>%  
 mutate(f.X = f\*Midpoint\_X)  
SDDF

## x\_l x\_u f Midpoint\_X f.X  
## 1 20 30 6 25 150  
## 2 30 40 18 35 630  
## 3 40 50 11 45 495  
## 4 50 60 11 55 605  
## 5 60 70 3 65 195  
## 6 70 80 1 75 75

Mid <- sum(SDDF$Midpoint\_X)  
Total\_f<- sum(SDDF$f)  
X <- sum(SDDF$f.X)/Total\_f  
N <- nrow(SDDF)  
Mid

## [1] 300

N

## [1] 6

Total\_f

## [1] 50

X

## [1] 43

Var <- (Total\_f\*(Mid-X)^2)/N  
SD <- sqrt(Var)  
Var

## [1] 550408.3

SD

## [1] 741.8951