

- If you have questions during this lab do not hesitate to ask your lab demonstrator.
- All classes **must** have comments at the beginning containing your name and student number.

**Instructions:**

Develop a program named SampleVariance that calculates the variance for a sample of observations.

Replace the contents of Readme.txt with the following observations

3 21 98 203 17 9

This sample was taken from this web [page](#). Once you are finished you can compare your answer to theirs.

Read the file and store the integers in an ArrayList.

Report the size of the sample (i.e. the size of the ArrayList - this is **N**)

Calculate  $\sum X$  and  $\sum X^2$

- Iterate through the list
  - summing the numbers and report the total
  - summing the squares of the numbers and report the total.

Now calculate and display the variance of this sample. The calculation is

$$\frac{\sum X^2 - \frac{(\sum X)^2}{N}}{N - 1}$$

Programming notes:

- You must have a loop using hasNext() and nextInt() to get values from Readme.txt
- You must use an ArrayList<Integer> to store the values from Readme.txt
- You must iterate through the list to determine  $\sum X$  and  $\sum X^2$

**Sample output:**

Number of observations = 6

Sum of observations = 351

Sum of squares of observations = 51633

Sample variance = 6219.9

**Submit the file**

SampleVariance.java

to the email corresponding **to your lab section** with a **Subject line** Lab9

E.g. if you are registered in lab ACS-1903L-070 then the email address to send to is

1903L-070@acs.uwinnipeg.ca