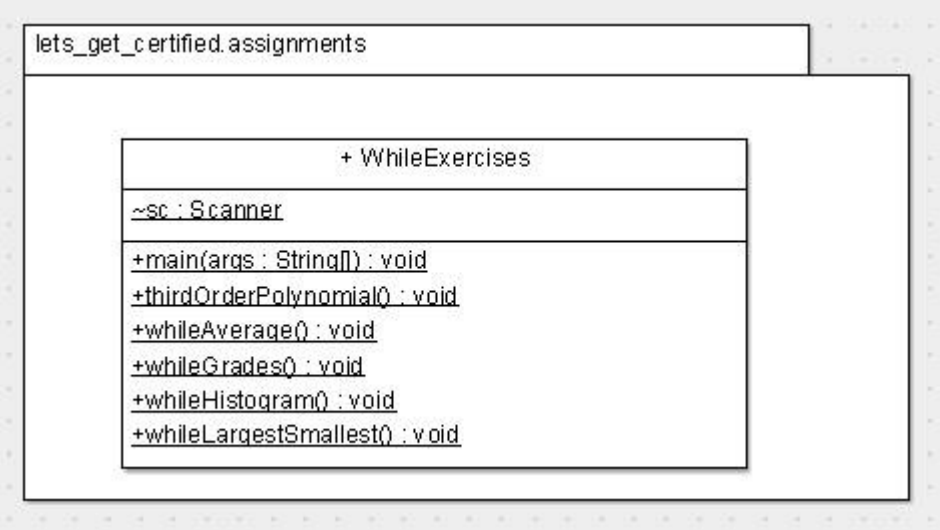
while exercises



1. In a method called *thirdOrderPolynomial()*, calculate the third order polynomial of *x* (the formula is $fx = ax^3 + bx^2 + cx + d$. Get the coefficients (*a,b,c* and *d*) from the user. Inside a *while* loop, ask the user for *x*. Calculate the *fx* value and output the result. Ask the user if he/she wished to continue. Use a *String* variable to control the loop. Note: all types are *double*.

2. In a method called *whileAverage()*, calculate the average of *n* numbers where *n* is based on user input i.e. ask the user for the number of numbers in the sequence. If *n* is <= 0 flag an error; otherwise, using a *while* loop, loop for that number of iterations *n*. In each iteration, get in a number *num* from the user. Keep a running *total*. When the loop is finished, calculate the average without losing decimal places. Do not divide by 0.

3. In a method called *whileGrades()*, code a while loop that asks the user for a grade (a-f). Use the *toLowerCase()* method to deal with lowercase letters only. Using a *switch* statement, count up the number of A's, B's, C's, D's, E's and F's entered. "x" or "X" exits the loop. After the loop exits, output the count of each grade.

4. In a method called *whileHistogram()*, ask the user for the number of rows and columns. Using *while* loops, output a histogram i.e. if rows is 3 and columns is 4, then output 3 rows, each row containing 4 stars each.
   Sample output:
   ```
   Enter number of rows --> 2
   Enter number of cols --> 5
   *****
   *****
   ```

5. Write a method called *whileLargestSmallest()*. Ask the user for *n* which will determine the number of numbers in the sequence. If *n* is <= 0 flag an error; otherwise, using a *while* loop, figure out the largest and smallest numbers in the sequence (which will be entered by the user). Cater for the following situations: if the user enters **all** negative/positive numbers, 0 should not be either the largest or smallest number. For example:
   Enter n: 2
   Enter a number: -2
   Enter a number: -4 The
   largest number is -2.
   The smallest number is -4.