# Java module 1

## Bonus Exercises

### 1 - Number Analyzer

Instructions  
  
Ask the user to enter numbers until they enter -1.  
Store all numbers in an array.

<https://www.w3schools.com/java/java_arraylist.asp>

Then:  
- Count how many are even, how many are odd  
- Find the max and min  
- Calculate the average  
Print all results using printf.  
Bonus: Cast the average to int and also print the exact decimal value.

### 2 - Login & Menu System

Instructions  
  
Password is "java123". The user has 3 tries.  
After correct login, show a menu:  
  
1. Show a motivational quote  
2. Show the current time  
3. Exit  
  
Use switch to handle each menu option.  
Bonus: If user enters wrong menu choice, show “Invalid option” and ask again until they choose 3.

### 3 - String Challenge

Instructions  
  
Ask the user to type a sentence.  
Print:  
- Total number of characters  
- Total number of vowels  
- The sentence in reverse  
If the reversed sentence is the same as the original, print “It’s a palindrome!”  
Bonus: Ignore spaces and letter case when checking palindrome.

### 4 - Guess-the-Number Game (Advanced)

Instructions  
  
Pick a random number between 1 and 100 using { new Random() }.  
<https://www.geeksforgeeks.org/java/java-util-random-nextint-java/>

Let the user guess until they get it.  
After each guess, say “Too low” or “Too high”.  
Show how many attempts were used.  
If attempts ≤ 5 → print “Great job!”, else “You can be faster next time.”  
Bonus: Show a “score” = 100 - (attempts × 10).