Home work

1. (Initializing arrays with input values)
2. (Initializing arrays with random values)
3. (Printing arrays)
4. (Summing all elements)
5. (Finding the largest element)
6. (Finding the smallest index of the largest element)
7. (*Random shuffling*)
8. (*Shifting elements*)

LAB

- What is IntelliJ?
- Find it.
- Install It.
- Create a Project called Lab1_<Date>_<name>
- Your program when ran should:
- Print your name:
- Print your programing background and experience
- If your are an experience Java programmer
  - Create a menu
  - User can choose: 1,2,3 or exit
  - 1: your name
  - 2: your programing background
  - 3: some projects you worked on?
  - User can go back to main menu at any point

Problem 1

Write a program that randomly generates an integer between 0 and 100, inclusive. The program prompts the user to enter a number continuously until the number matches the randomly generated number. For each user input, the program tells the user whether the input is too low or too high, so the user can choose the next input intelligently.

Problem2

- Problem: Write a program that prompts the user to enter two positive integers and finds their greatest common divisor.
- Solution: Suppose you enter two integers 4 and 2, their greatest common divisor is 2. Suppose you enter two integers 16 and 24, their greatest common divisor is 8. So, how do you find the greatest common divisor? Let the two input integers be n1 and n2. You know number 1 is a common divisor, but it may not be the greatest commons divisor. So you can check whether k (for k = 2, 3, 4, and so on) is a common divisor for n1 and n2, until k is greater than n1 or n2.

Problem 3

- Problem: Write a program that displays the first 50 prime numbers in five lines, each of which contains 10 numbers. An integer greater than 1 is *prime* if its only positive divisor is 1 or itself. For example, 2, 3, 5, and 7 are prime numbers, but 4, 6, 8, and 9 are not.
- Solution: The problem can be broken into the following tasks:
  - For number = 2, 3, 4, 5, 6, ..., test whether the number is prime.
  - Determine whether a given number is prime.
  - Count the prime numbers.
  - Print each prime number, and print 10 numbers per line.

Problem 4

- Command line calculator
- Get one double from user eq 12
- Get one operation symbol eq +
- Get one another double from user eq 92
- User enters = sign and compute the result;

Bonus:
User can enter as many numbers and operation symbols as they want.

Eg:

enter number: 5
enter opr : *
enter number 6
enter opr: +
enter number: 12
enter opr: =

Bonus

- In problem 4 apply bedmas
- Factor out the brain functionality of the calculator to another class. Call it calBrain.