**Lab 23 (Pointers and Arrays)**

**Lab Task 2.**

Complete the practice exercises at the end of lecture ‘pointers and arrays’.

**Lab Task 3.**

For each of the following, write C++ statements that perform the specified task. Assume that double-precision, floating-point (i.e. type double) numbers are stored in 8 bytes and that the starting address of the array is at location 1002500 in memory. Each part of the exercise should use the results of previous parts where appropriate.

* + - 1. Declare an array of type double called numbers with 10 elements, and initialize the elements to the values 0.0, 1.1, 2.2, …, 9.9. Assume that the symbolic constant SIZE has been defined as 10.
      2. Declare a pointer nPtr that points to a variable of type double.
      3. Use a for statement to print the elements of array numbers using array subscript notation, i.e. arr[i].
      4. Write two separate statements that each assign the starting address of array *numbers* to the pointer variable nPtr.
      5. Use a for statement to print the elements of array *numbers* using the **pointer offset** notation with pointer nPtr (i.e. \*(nPtr+i) notation).
      6. Use a for statement to print the elements of array *numbers* using the **pointer offset** notation (i.e. \*(*numbers*+i)) with the array name as the pointer.
      7. Use a for statement to print the elements of array *numbers* using **pointer subscript** notation with pointer nPtr (i.e. nPtr[i]).
      8. Refer to the fourth element of array *numbers* using the **array subscript** notation, **pointer offset** notation with the array name as the pointer, **pointer subscript** notation with nPtr and **pointer offset** notation with nPtr.
      9. Assuming that nPtr points to the beginning of array numbers, what address is referenced by nPtr + 8? What value is stored at that location?
      10. Assuming that nPtr points to numbers[5], what address is referenced by nPtr after nPtr -= 4 is executed? What’s the value stored at that location?