Programming Languages 1
Lesson 9

Exercises:

1. Write a C program in which you generate a random number between 0 and 100, and the user has to find out what the number is. When the users tips, you have to tell that the number he entered is lower or greater than your number and ask again. If he finds the number exit.
   - Learn how to generate random numbers with the use of the rand() funtion
   - Program the logic

2. Write a C program in which you read in numbers until 0. After the user prints 0 print out the numbers reversed.
   - Learn how to create dynamic arrays in C
   - Learn the use of the malloc(), realloc() and free() (also mention calloc())
   - Write the program

3. Write a C program that can add entries to a phone book. The phone book is stored in a file named `phonebook.txt`. Use a structure to store the read data before you write it to the file. The first- and lastnames are 49 chars long max. The fields of data are separated by space characters in the file.
   - Learn the basics of structures (also mention union).
   - Create the structure to hold the data of one person
   - (first name, last name, phone number)
   - Write the program. Put the write out of the data into a function.

   Homework: Add an extra function to your code that can search phone numbers by lastname. Change the main program so that it asks what you want to do and you can chose if you want to add a new entry or search for a number.
   - Change the main function. (switch statement)
   - Learn where to find the basic string functions (strcmp(), strcpy(), strchr())
   - Write the search function.

   Homework: Add extra functions to your program. Make it able to search by firstname, or by phone number, or by first- AND lastname.