

AdaptIT Communications Team - Coding Exercise for Understanding Skill Level

### Hello there

### If you have this document, then you are considering joining my dev team in Cape Town! I know your career and next job is very important to you. And time is limited for all of us.

### This excersice is to help both of us get some insight into your current experience. It complements your CV. The aim is to understand your approach to problem solving and coding (we have lots of challenging problems to solve in our team)

### Regards

### Lisa Basel

### (Please feel free to look me up and get an idea of who I am - www.linkedin.com/in/lisabasel)

## How to approach this exercise?

* It is not expected that these should take longer than a few hours.
* Language used should be C# and MS SQL Server like for database excercise.
* Compiling code is expected for problem 1 and 2. Please send whole project

OR – send us a small project you are working on in your spare time if that works better for you

## Problem 1

There is a list of items in a system that are identified by one or more words. A user wants to search through the items by entering parts of the words.

The items in the system are described by the following words:

Users, User Groups, User Activity Log, Report Designer, Report Activity Log.

Here are some examples of how the system should match the users search words to items.

|  |  |
| --- | --- |
| **User Search Words** | **Matched Items** |
| u | Users, User Groups, User Activity Log |
| u l | User Activity Log |
| u gr | User Groups |

Write a simple console application that solves this problem.

## Problem 2

A company has a hierarchical employee structure with each employee having a line manager. The structure looks like this:

Write a function that takes an employee name as an argument and returns all employees that report to them all the way down the hierarchy. (Note not only their direct sub-ordinates but all sub-ordinates right up to the leaf level)

As an example the function would return Chang, Mary and Alfonse for an argument of Harry.

Database Exercise

Consider the following scenario: A doctor consults with many patients on a day. After each consultation the doctor needs to enter the diagnosis for each patient. There can be more than one diagnosis per patient. The patient’s consultation fee is calculated as the sum of each diagnosis captured by the doctor plus a standard time based fee. The doctor charges R200 per 15 minutes of his time.  
  
Design a database that can store the data from above scenario and allow each patient to receive a bill once per month showing the total amount owing.

A diagram is all that’s needed for this exercise.