



Lab 2: *Remake of “Colossal Cave Adventure”*

DV1357 (DV1305) Programming in the UNIX environment

(Charlie Svahnberg)

1. Goal and Purpose

While solving the task in this laboratory assignment, you will get acquainted with things like:

- Reading and parsing data files
- Memory management
- Concurrent programming and network programming.

In the process you will be able to use a substantial subset of the complete UNIX programming interface and be able to develop programs to run in a UNIX environment using C.

2. Rules

- The laboratory assignment should be performed in groups of two.
- All source code that is handed in should contain a header, naming the authors of the respective files.
- Source code that is handed in should be produced by the group members.
- The implementation should be performed in C or C++.

3. Background

Your task is to implement a remake of the historical adventure game: “Colossal Cave Adventure”, using the original data-file. At <http://www.rickadams.org/adventure/> you will find plenty of information about the game itself, and its variants.

For solving the task we recommend that you go to a site like <http://www.web-adventures.org>, to get a feel for the game. After a while you would probably also want to search for a walkthrough.

Warning: There are many different variants available, not all true to the original. Do not be surprised if understanding of the original data-file does not match with other references.

4. Task

For this task you will use the original data-file (containing, among other things, long and short text descriptions of the rooms and how you can navigate between them).

- You are also provided with the original FORTRAN implementation, which is worth reading, since it contains quite detailed information on how the data is structured in the data file.
- You need to understand the format of the data-file, and parse it in a suitable way, so that you can build relevant structures in your program.
- Players of the game navigate in the world using a verb-noun combination. I.e. the interpreter need not be very advanced.



- The following examples need to be interpreted correctly:
 - GET LAMP get lamp NORTH TAKE KEYS
 - While more complex sentences do not need to be handled, like:
 - catch bird with cage
 - Relevant verbs and nouns (and when they can be used) can be found in the data file.

5. Grading

5.1 Update

Given the number of special cases that need to be dealt with, the initial requirement of creating a full working remake of the game is in retrospect too ambitious.

- The new requirement limits how far the game should be playable.
- The remake should be true to the original to the point where the player enters the caves, i.e. to the “Hall of Mists” (location 15).
- There is also no need to be able to jump to “Y2” room (location 33).

5.2 Grade: E

You need to implement a working subset (playable to “The Hall of Mists”) of “Colossal Cave Adventure” with the following additions:

- The program should run as a server. Which you can connect to using, for instance, telnet.
- The server should be able to handle any number of simultaneously connected players.
- The different players should be separate from each other, i.e. each player is operating in his/her own copy of the world.

5.3 Grade: C

Following additions should also be implemented:

- For each player joining/leaving the game, an appropriate entry in syslog should be produced.
- Make the server a daemon process.
- If the signal **SIGHUP** is caught by the server, it should wait 30 seconds, and then nicely terminate all player connections.

5.4 Grade: A

Following additions should also be implemented:

- Extend the game to the “Hall of MT (Mountain) King”.
- Preserve the game state: it means that the player should:
 - Start from the point where it was at the time of exit
 - Start the game from initial point.
 - Each player should have unique ID

COLOSSAL CAVE ADVENTURE -- 350 PT VERSION
WILL CROWTHER (C1975);
WILL CROWTHER AND DON WOODS (1976)
MAP BY MARI MICHAELIS (C2009)
www.spitenet.com/cave

