CS23021 CS I – Programming and Problem Solving

Project #1

Due by 11:59pm on Tuesday, January 29, 2008

Objective

This project should be done individually. In this project you will create a project directory under subversion control, use `gdb` (a debugger) for tracing program execution and `script` (a unix command) that allows you to save your interactive work to a file. You will use gdb and script to trace the execution of a program called echoinput. The program echoinput asks the user to input a number and then prints this number to the terminal, it then asks the user to enter a character and print out the entered character to the terminal. The project is worth a total of 20 points.

Project step-by-step

- **Set up your account and learn versioning software:** attend the lab session, learn to login to your account and use `subversion`.
- **Obtain a copy of the source code and compile it:** the file `echoinput.cpp` is available from the course website at:

  http://www.cs.kent.edu/~volkert/cs23021/S08/

  You must compile the program so that the debugging information is included in the executable – use the –g option when compiling to do this. You can read more about this option by executing the `man` command (i.e. `man g++`) to read the g++ on-line manual. Note: `man` can be used to get information about most unix commands (e.g. `man script` or `man gdb`).
- **Trace the program:** as proof that you successfully traced the program you will submit the transcript of the tracing session. The utility that makes transcripts is called script. Start the scripting utility:

  ```
  prompt% script
  ```

  Output:

  ```
  Script started, file is typescript
  ```

  Indicates that the utility has started successfully. Now, everything that appears on the screen will be copied to a file named `typescript` in your current directory.

  Launch the debugger (gdb), set a breakpoint at the beginning of the program and trace line-by-line the execution of the program. While tracing through each line of your program issue gdb commands to print the value of the variable "number" **before** and **after** it was assigned the value you entered as user input, do the same for the variable named "character". Quit the debugger after the program terminates.

  Exit from script by typing:

  ```
  prompt% exit
  ```

  Output:

  ```
  Script done, file is typescript
  ```

  Indicates that script has finished successfully and your tracing session is saved in the file.

- **To submit your project:** create directory `Project1` in your local repository. Store your files `typescript` and `echoinput.cpp` there. Issue an svn commit to transfer a copy of your project from your local repository *working directory* into the master repository.
- **Verify your project submission:** verify your submission on the web at: **http://classes.cs.kent.edu/courses/cs23021/svn/***yoursection***/***yourloginid***/cs23021_student/Project1**