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### Homework #1 Questions and Answers

1. Can you combine the compile and run steps? How?

You can combine both steps by clicking the third icon on the second row in Dev C++. Also this can be accomplished by pressing the f9 key. Note- In Code runners on Mac OSX, there are only two options for this software, run and custom run.

Once this is done you can execute your program in the terminal.

2. Where does the symbol EXIT SUCCESS come from?

This comes from earlier versions of the language. Also, it is used to show successful completion of the program, it returns the user to the host environment, and terminates all strings used in the program.

3. What happens if you leave out the system("Pause") statement?

On a Windows executable it will cause the command window to close immediately after completion of the final line of the program (usually so quickly that the user cannot see the final text output statements). However, on a Mac it has to be removed in order to run correctly. As the OS will not allow a System() to run without enabled permissions.

4. Are there any syntax errors?

Yes, there are several. The first is the missing open parentheses on the Boolean statement: while. The second was in the notes at the end of the program labeled as homework #0. I don't know if this was an intended error or not.

5. Are there any logic errors?

Yes many. First are the missing libraries at the beginning of the program (cstdlib and ctime). Second is the statement seeding the variable for the random number generator allowing it function properly (this is why the cstdlib and ctime are needed.) Also only for Mac OSX, the system("PAUSE") function will cause a minor error if left in the code, however it will not stop it from running in CodeRunner.

6. Does the program handle bad user data gracefully? Why or why not?

In my opinion it does not. If a letter is inputted when prompted it will cause the all of the user's guesses to be used, regardless of how many are left. This is the same if an integer is inputted that is too large for the type to handle.

7. Suggest 3 ways to improve how the program does what it does.

First I would attempt to limit the users inputs to numbers and those that only fit between 0 and 9. Second I would try to shorten the statements to using one if else series. Third, I would remove the system(pause) statement and use exit. Running a system() statement will cause on some machines the program to run with the same permissions as the user. This could potentially cause a security

risk if the user was running with administrative permissions. ( I learned this the hard way from rooting my Android smart phone). Finally I would try to shorten the number of chances to guess the number. Currently the user has a ninety percent chance of guessing correctly.