Read through to the end of Part 1 of the Shell assignment:

https://cs.wellesley.edu/~cs240/f20/assignments/shell/

and answer the following questions.

1. What is the difference between a built-in command and an executable command?

2. What are the three built-in commands described in the assignment?

3. To be sure you understand the nature of built-in commands, try some at the command prompt in a Terminal window:

   help
   (note: your own help command need only print usage message for the few built-in commands in the assignment).

   cd ..  //back one

   cd /bin  //brings to bin folder in home directory

   cd     //changes to home directory

   exit //closes terminal

4. Each of the executable commands is implemented in the system, and there is an executable file (these are called binaries) that is run when the command is entered.

   To find the path the operating system uses to execute a command when you enter it on the command line, use the which command. For example:

   which pwd

   Try this with a few commands. What directory do the binaries seem to be stored in?
5. Try the following:

   \textit{which help}

   \texttt{no help in (/net/bin:/usr/local/smlnj/bin:/usr/local/racket/bin:/usr/lib64/qt-3.3/bin:/usr/local/bin:/usr/bin:/bin/usr/local/sbin:/usr/sbin:/sbin:/opt/bin:.:/students/mhood/bin}

   Why do you think there no binary for \textit{help}?

6. The binaries exist on the system, but you do not need to know where they are to execute system commands. You usually simply type the name of the command. The system finds the binary by using the \texttt{PATH} environmental variable in Linux to tell the shell which directories to search for executable files in response to commands issued by a user.

To see what your $\texttt{PATH}$ currently:

   \textit{printenv PATH}

You should see a list of paths or directories, separated by colons. Display your result:

7. Why might the following C functions:

   \texttt{strcmp(3), exit(3), chdir(2), getenv(3)}

be useful for implementing the built-in commands? To answer this, you will have to look up each of these commands.