CS2750 **System Programming and Tools**
Assignment # 2 Due Date: February 28, 2018

Unix shell scripts

Write the code in bash. Make sure that temporary files, if any, are removed in the event of an interrupt.

1. **Making email lists**. You are given a CSV file with the following format:

   ```
   Academic_Plan,Last_Name,First_Name,Id,Student_Level,UM_Email
   ```

   The `Academic_Plan` field contains `Computer Science BS`, the field `Id` contains student ID, and the field `Student_Level` contains the student's classification as `Freshman`, `Sophomore`, `Junior`, or `Senior`. Your job is to create two mailing lists named `cs-lower` and `cs-upper`; the first list contains all students with the classification Freshman or Sophomore while the second list contains the students with classification Junior or Senior. You can assume that the field is correctly coded and you do not have to perform any error chacking. The format of each mailing list is:

   ```
   UM Email        (First_Name Last_Name)
   ```

   Please also include a data file with at least ten students in total.

2. **Olympic Time Trials**. Write a script to determine if you will qualify for the Olympic team. Prompt the user to specify the name and assign it to a variable. Verify that the name is not blank.

   Input five trial times. For example, let the times for Carl be 12.2, 11.8, 12.5, 10.9, and 11.1 seconds. Compute the average of those five times.

   For every person who tries, compute the average of the trials. If the average is less than or equal to 11.5 seconds, print the name and a message to say "Welcome to the team." If the time is more than 11.5 seconds, the message should read "Close, but you did not make the cut."

   Test your script with the data for three runners as:

   ```
   Carlos   9.6 10.6 11.2 10.3 11.5
   Liu     10.6 11.2  9.4 12.3 10.1
   Timothy 12.2 11.8 12.5 10.9 11.1
   ```

3. **A Dice Game**. You can roll a virtual dice by generating a random number between 1 and 6. The score by rolling the dice twice is the sum of the two random numbers, and will range between 2 and 12.

   In the initialization phase of the script, compute the number of times each score can occur. You can achieve that in a nested loop. This loop will give you, for example, a count of 1 for the score of 2 (1 for each roll), a count of 2 for the score of 3 (1+2 and 2+1), and so on.

   Initialize your total reward to zero and enter a loop to play the game. Each iteration of the loop goes as follows. Roll the dice twice. If the two rolls are equal (you rolled a double), you receive a total

reward of zero and the game terminates. If your score is 4, you receive -50 points. If your score is 10, you receive -100 points. Otherwise, you receive $(10 - P(s)) \times 10$ points. $P(s)$ is the number of possible ways that you can get a score of s that you computed during the initialization phase. For example, $P(2) = 1$, $P(3) = 2$, and $P(12) = 1$.

Towards the end of each iteration in the loop, print the score, the reward for the current iteration, and the total reward so far. Ask the user if he/she wants to continue the game. If the user answers 'y', continue back in the loop; otherwise terminate the game.

Submission

Create a directory *username*`.2` in your home where *username* is your user name on delmar. Keep all programs and datafiles for this assignment in this directory.

You do not have to submit any hard copy of the code. Write the code in `bash` using `delmar`. Follow good programming principles and document your scripts well. Do not forget to take care of issues that can cause a wrong utility to execute than the one you intended.

After you are done with the assignment, execute the following commands:

```
% cd
% chmod 755 ~
% ~bhatias/bin/handin cs2750 2
% chmod 700 ~
```