

Name: \_\_\_\_\_ Session: \_\_\_\_\_

## Programming II

### Lab Exercise 5/30/2023

1. Create a program that will play the “cows and bulls” game with the user. The game works like this:

Randomly generate a 4-digit number. Ask the user to guess a 4-digit number. For every digit that the user guessed correctly in the correct place, they have a “cow”. For every digit the user guessed correctly in the wrong place is a “bull.” Every time the user makes a guess, tell them how many “cows” and “bulls” they have. Once the user guesses the correct number, the game is over. Keep track of the number of guesses the user makes throughout the game and tell the user at the end. Say the number generated by the computer is 1038. An example interaction could look like this:

Welcome to the Cows and Bulls Game!

Enter a number:

>>> 1234

2 cows, 0 bulls

>>> 1256

1 cow, 1 bull

...

Note: For simplicity, the 4-digit number will not contain duplicate numbers.

2. Write a program that allows the user to select a country and the program displays the capital of that country.
3. Write a program that allows 2 players to play the card game of War. The rules of the game are such that a deck of 52 cards is shuffled and dealt to the two players. Each player turns up the top card in their hand. The one with the highest face value takes the hand. The face values go from 2 to Ace with Ace being the highest. At the end of the game the player with the most hands won is the winner. In the event of a tie, the hand is set aside, and the next hand winner takes any hands set aside.
4. Modify problem 4 so that it plays the game automatically.
5. Create a game called five dice. This is a dice rolling game where the player has 5 dice. And rolls them. The roll is scored as such:
  - 5 of a kind = 50 points
  - 4 of a kind = 25 points
  - 3 of a kind = 10 points

The goal is to get 1000 points total in as few of rolls as possible. At the end of the game, you program should report the total number of rolls to obtain 1000 points as well as the number of 3 of a kind, 4 of a kind, and 5 of a kind.