

## Challenge Project: Cows and Bulls

**Specifications:** Create a program that will play the “cows and bulls” game with the user.

The game works like this:

1. Randomly generate a 4-digit number.
2. Ask the user to guess a 4-digit number.
3. For every digit that the user guessed correctly *in the correct place*, they have a “cow”.
4. 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.
5. 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.

For example, say the number generated by the computer is 7903. An interaction could look like this:

```
Welcome to the cows and bulls game!  
Guess a 4-digit number or type exit to leave: 0124  
You have 0 cows and 1 bulls.  
Try again!  
Guess a 4-digit number or type exit to leave: 7124  
You have 1 cows and 0 bulls.  
Try again!  
Guess a 4-digit number or type exit to leave: 7034  
You have 1 cows and 2 bulls.  
Try again!  
Guess a 4-digit number or type exit to leave: 7903  
You have 4 cows and 0 bulls.  
You won the game after 4 guesses.
```

*Hint:* Find and count the cows first. Consider replacing the matching digits with something else, then counting bulls.