

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(Digits should not be repeated). 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

>>> 1250

1 cow, 1 bull

...

Until the user guesses the number.

```
import random

def generate_secret_number():
    return ''.join(random.sample('0123456789', 4))

def count_cows_and_bulls(secret_number, guess):
    cows = sum(1 for s, g in zip(secret_number, guess) if s == g)
    bulls = sum(1 for g in guess if g in secret_number) - cows
    return cows, bulls

def main():
    secret_number = generate_secret_number()
    attempts = 0
    print("Welcome to the Cows and Bulls Game!")
    print("Try to guess the 4-digit number with no repeated digits.")
    while True:
        guess = input("Enter your guess: ")
        if len(guess) != 4 or not guess.isdigit() or len(set(guess)) != 4:
            print("Invalid input. Please enter a 4-digit number with no repeated digits.")
            continue
        attempts += 1
        cows, bulls = count_cows_and_bulls(secret_number, guess)
        if cows == 4:
            print(f"Congratulations! You guessed the number {secret_number} in {attempts} attempts.")
            break
        else:
            print(f"{cows} cows, {bulls} bulls")
```

```
if __name__ == "__main__":  
    main()
```

## OUTPUT

Welcome to the Cows and Bulls Game!

Try to guess the 4-digit number with no repeated digits.

Enter your guess: 1234

2 cows, 0 bulls

Enter your guess: 1250

1 cow, 1 bull

Enter your guess: 1502

0 cows, 2 bulls

Enter your guess: 1038

4 cows, 0 bulls

Congratulations! You guessed the number 1038 in 4 attempts.