

```

1 import random
2
3 def generate_number():
4     return str(random.randint(1000, 9999))
5
6 def calculate_cows_and_bulls(secret, guess):
7     cows = sum(1 for s, g in zip(secret, guess)
8         if s == g)
9     bulls = sum(1 for g in guess if g in secret
10 ) - cows
11     return cows, bulls
12
13 def main():
14     secret_number = generate_number()
15     guess_count = 0
16
17     print("Welcome to the Cows and Bulls Game!")
18 )
19
20 while True:
21     guess = input("Enter a 4-digit number: ")
22
23     if len(guess) !=
24 = 4 or not guess.isdigit():
25         print("Please enter a valid 4-digit num
26 ber.")
27         continue
28
29     guess_count += 1
30     cows, bulls = calculate_cows_and_bulls(se
31 cret_number, guess)
32
33     if cows == 4:
34         print(f"Congratulations! You've guessed
35 the number {secret_number} in {guess_count}
36 guesses.")
37         break
38     else:
39         print(f"{cows} cow(s), {bulls} bull(s)"
40 )
41
42 if __name__ == "__main__":
43     main()

```