Bulls and Cows Design

Task 1: Creating a vector to guess

Variables:

- int rseed
- vector<int> vals
- vector<int> numRefs

Calculations:

Random number generator

Procedures:

- Get seed number from user
- Create a vector with 4 random values with no digits being the same

Output:

- Number to guess

Task 2: Get a valid guess integer from the user

Variables:

- int userGuess

Procedures:

- Get input integer from the user
- If the input is not int, then ask again

Task 3: Making sure that the user input has less than 4 digits

Variables:

- vector<int> userG
- int userGuess

Procedures:

- If user guess has more than 9999, ask again
- If the user guess is less than 999, replace the missing digits with zeros
- Convert the correct input to a vector

Task 4: Making sure that the user input digits are not repeated

Variables:

- vector<int> userG
- int userGuess
- char a
- char b
- char c

Procedures:

- With a series of for loops and conditionals, check to see if userG at index i is the same at any other location
- Convert the correct input to a vector

Task 5: Checking to see for bulls and cows

Variables:

- int bulls

- int cows
- vector<int> vals
- vector<int> userG

Procedures:

- if userG at i matches vals at j, and i does not equal j, then add one to cows
- if userG at i matches vals at j, and i equals j, then add one to bulls
- if 4 bulls, then game over

Output:

- bulls and cows
- winning guess

Task 6: Play again

Variables:

- char userIn

Procedures:

- ask user if they want to play again
- if the anser is ‘y’, then play game again, otherwise, end game

Output:

- Goodbye