# MASTERMIND GAME

```python
IMPORT RANDOM


DEF GENERATE_CODE():

    RETURN STR(RANDOM.RANDINT(1000, 9999))


DEF VALIDATE_INPUT(INPUT_STR):

    IF NOT INPUT_STR.ISDIGIT():

        RETURN FALSE

    IF LEN(INPUT_STR) != 4:

        RETURN FALSE

    RETURN TRUE


DEF GET_VALID_INPUT(PROMPT):

    WHILE TRUE:

        USER_INPUT = INPUT(PROMPT)

        IF VALIDATE_INPUT(USER_INPUT):

            RETURN USER_INPUT

        PRINT("PLEASE ENTER A VALID 4-DIGIT NUMBER.")


DEF CHECK_GUESS(SECRET_CODE, GUESS):

    RETURN SUM(A == B FOR A, B IN ZIP(SECRET_CODE, GUESS))


DEF PLAYER1_TURN():

    PRINT("PLAYER 1, SET YOUR CODE (4-DIGIT NUMBER):")

    RETURN GET_VALID_INPUT("ENTER YOUR CODE: ")
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DEF PLAYER2_TURN(SECRET_CODE):

    ATTEMPTS = 0

    WHILE TRUE:

        PRINT("PLAYER 2, GUESS THE CODE (4-DIGIT NUMBER):")

        GUESS = GET_VALID_INPUT("ENTER YOUR GUESS: ")

        ATTEMPTS += 1

        CORRECT_DIGITS = CHECK_GUESS(SECRET_CODE, GUESS)

        IF CORRECT_DIGITS == 4:

            PRINT("PLAYER 2 WINS IN", ATTEMPTS, "ATTEMPTS!")

            RETURN ATTEMPTS

        ELSE:

            PRINT("YOU GOT", CORRECT_DIGITS, "DIGITS CORRECT. TRY AGAIN.")


DEF MAIN():

    WHILE TRUE:

        SECRET_CODE = PLAYER1_TURN()

        PLAYER2_ATTEMPTS = PLAYER2_TURN(SECRET_CODE)

        IF PLAYER2_ATTEMPTS == 1:

            PRINT("PLAYER 2 WINS!")

            BREAK

        PRINT("\NNOW IT'S PLAYER 1'S TURN TO SET THE CODE.")

        SECRET_CODE = GENERATE_CODE()

        PLAYER1_ATTEMPTS = PLAYER2_TURN(SECRET_CODE)

        IF PLAYER1_ATTEMPTS < PLAYER2_ATTEMPTS:

            PRINT("PLAYER 1 WINS!")

        ELIF PLAYER1_ATTEMPTS > PLAYER2_ATTEMPTS:
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            PRINT("PLAYER 2 WINS!")

        ELSE:

            PRINT("IT'S A DRAW!")

        PLAY_AGAIN = INPUT("DO YOU WANT TO PLAY AGAIN? (YES/NO): ")

        IF PLAY_AGAIN.LOWER() != "YES":

            BREAK


IF __NAME__ == "__MAIN__":

    MAIN()
```

# OUTPUT:

PLAYER 1, SET YOUR CODE (4-DIGIT NUMBER):

ENTER YOUR CODE: 1234

PLAYER 2, GUESS THE CODE (4-DIGIT NUMBER):

ENTER YOUR GUESS: 5678

YOU GOT 0 DIGITS CORRECT. TRY AGAIN.

PLAYER 2, GUESS THE CODE (4-DIGIT NUMBER):

ENTER YOUR GUESS: 1234

PLAYER 2 WINS IN 2 ATTEMPTS!


DO YOU WANT TO PLAY AGAIN? (YES/NO): YES

PLAYER 1, SET YOUR CODE (4-DIGIT NUMBER):

ENTER YOUR CODE: 9876

PLAYER 2, GUESS THE CODE (4-DIGIT NUMBER):

ENTER YOUR GUESS: 1234

YOU GOT 0 DIGITS CORRECT. TRY AGAIN.

PLAYER 2, GUESS THE CODE (4-DIGIT NUMBER):

ENTER YOUR GUESS: 9876

**PLAYER 1 WINS!**

**DO YOU WANT TO PLAY AGAIN? (YES/NO): NO**