
# We'll Be Starting Shortly!

To help us run the workshop smoothly, kindly:

- Submit all questions using the Q&A function
- If you have an urgent request, please use the "Raise Hand" function
- Materials at https://bit.ly/3jD5G1w


# Python Basic Data Structures

by

Learn to Code, Code to Learn
CODING ACADEMY


# Hi!

We are Juliana and Melvin
from LCCL Coding Academy

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# What You Will Learn

**19:30 Segment 1**

- String
- List
- Hands-on #1
- Hands-on #2
- Hands-on #3

**20:05 Break, Q&A**

**20:10 Segment 2**

- Tuple
- Set
- Dictionary
- Hands-on #4
- Hands-on #5
- Hands-on #6
- Hands-on #7

**20:50 Feedback, Q&A**

**21:00 End**

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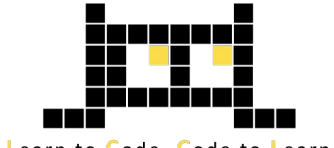
# Hands-On #1





A string is a palindrome if it is identical forward and backward.

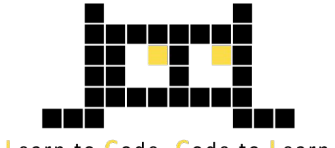
For example, “anna”, “civic”, “level” and “hannah” are all examples of palindromic words.

Write a program that reads a string from the user and uses a loop to determine whether or not it is a palindrome. Display the result, including a meaningful output message.

```
Enter string: anna
“anna” is a palindrome

Enter string: mama
“mama” is NOT a palindrome
```

# Hands-On #2





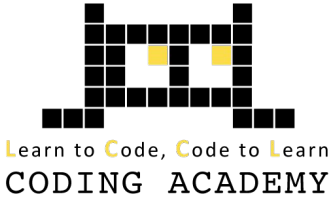
Write a program that reads numbers from the user until a blank line is entered.

Your program should display the average of all of the values entered by the user.

Then the program should display all of the below average values, followed by all of the average values (if any), followed by all of the above average values.

An appropriate label should be displayed before each list of values.

# Hands-On #3





There are 52 cards in a deck. Each card has one of four suits along with a value. The suits are spades, hearts, diamonds and clubs while the values are 2 through 10, Jack, Queen, King and Ace.

Each playing card can be represented using two characters. The first character is the value of the card, with the values 2 through 9 being represented directly. The characters “T”, “J”, “Q”, “K” and “A” are used to represent the values 10, Jack, Queen, King and Ace respectively.

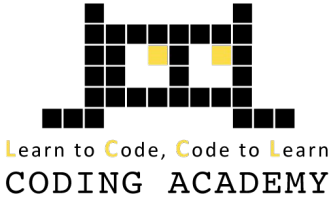
The second character is used to represent the suit of the card. It is normally a lowercase letter: “s” for spades, “h” for hearts, “d” for diamonds and “c” for clubs.

Examples of cards and their two-character representations:

- Jack of spades : Js
- Two of clubs : 2c
- Ten of diamonds : Td
- Ace of hearts : Ah
- Nine of spades : 9s

Write a function named create_deck to create a complete deck of cards by storing the two-character abbreviations for all 52 cards into a list. Return the list of cards as the function’s only result. Your function will not take any parameters.

# Hands-On #4





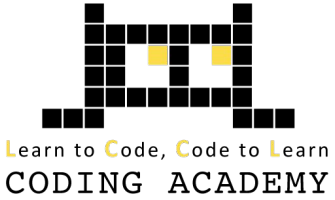
Print the number of unique case-sensitive characters in a string.

```
String: AppLe
Unique chars: 4

String: aPple
Unique chars: 5

String: aaa
Unique chars: 1
```

# Hands-On #5





Create a Pig Latin translator. Rules to convert English to Pig Latin:

(1) Words that start with a vowel will end with ‘ay’ e.g. ‘eggs’ → ‘eggsay’

(2) Words that start with a consonant will have its consonant group move to the end and appended with ‘ay’ e.g. ‘shop’ → ‘opshay’

(3) Treat ‘y’ as a vowel

```
Enter a sentence: i love the elegance of python
iay ovelay ethay eleganceay ofay ythonpay
```

# Hands-On #6

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Take an input string and report groups of words that start with the same letter.

```
report('''
    Someday I'll wish upon a star
    Wake up where the clouds are far behind me
    Where trouble melts like lemon drops
    High above the chimney top
    That's where you'll find me
    ''')
```

```
{
      'S': {'someday', 'star'},
      'I': {"i'll"},
      'W': {'where', 'wake', 'wish'},
      'U': {'upon', 'up'},
      'A': {'are', 'above', 'a'},
      'T': {'top', 'trouble', "that's", 'the'},
      'C': {'chimney', 'clouds'},
      'F': {'find', 'far'},
      'B': {'behind'},
      'M': {'melts', 'me'},
      'L': {'lemon', 'like'},
      'D': {'drops'},
      'H': {'high'},
      'Y': {"you'll"}
}
```

# Hands-On #7

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Create a function that behaves this way:

```
foo(["run","jump","run","jump","run"],"_|_|_")          # "_|_|_"
foo(["run","jump","run","run","run"],"_|_|_")           # "_|_/_"
foo(["run","run","run","run","run"],"_|_|_")            # "_/_/_"
foo(["jump","jump","jump","jump","jump"],"_|_|_")       # "x|x|x"
foo(["jump","run","jump","run","jump"],"_|_|_")         # "x/x/x"
```

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bit.ly/3hmJ3Nr