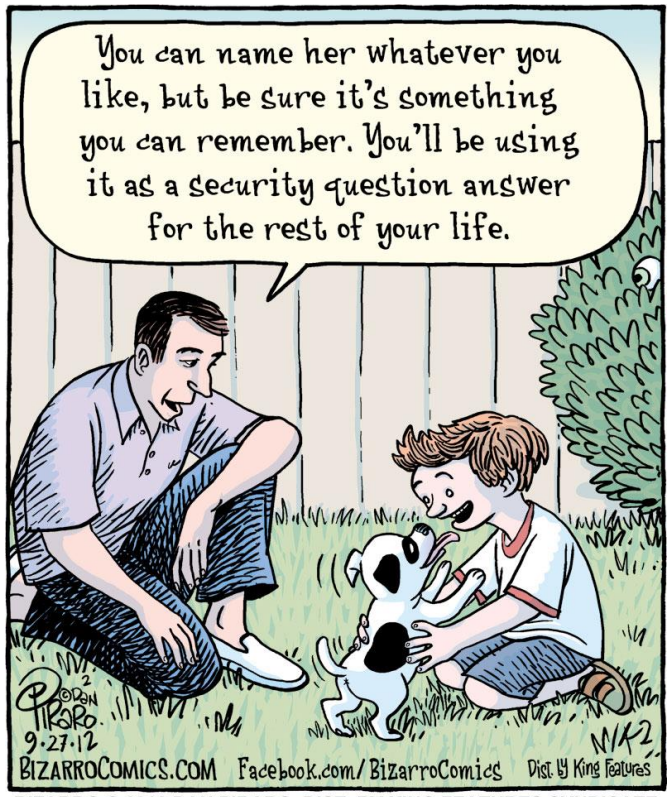
CSc 110, Spring 2018

Lecture 15: Strings

Adapted from slides by Marty Stepp and Stuart Reges



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Name border

- Prompt the user for full name
- Draw out the pattern to the left
- This should be resizable. Size 1 is shown and size 2 would have the first name twice followed by last name twice

Other `String` operations - length

- Syntax:

```
length = len(string)
```

- Example:

```
s = "Merlin"
count = len(s)     # 6
```

Looping through a string

- The `for` loop through a string using range:

```
major = "CSc"
for letter in range(0, len(major)):
    print(major[letter])
```

- You can also use a `for` loop to print or examine each character without range.

```
major = "CSc"
for letter in major:
    print(letter)
```

Output:

```
C
S
c
```

`String` tests

Method	Description
`startswith(`**`str`**`)`	whether one contains other's characters at start
`endswith(`**`str`**`)`	whether one contains other's characters at end

```
name = "Voldermort"
if name.startswith("Vol"):
    print("He who must not be named")
```

- The `in` keyword can be used to test if a string contains another string.

  example: `"er" in name` `# true`

`String` question

- A *Caesar cipher* is a simple encryption where a message is encoded by shifting each letter by a given amount.
  - e.g. with a shift of 3, A $\rightarrow$ D, H $\rightarrow$ K, X $\rightarrow$ A, and Z $\rightarrow$ C

- Write a program that reads a message from the user and performs a Caesar cipher on its letters:

```
Your secret message: Brad thinks Angelina is cute
Your secret key: 3
The encoded message: eudg wklqnv dqjholqd lv fxwh
```

`Strings` and `ints`

- All `char` values are assigned numbers internally by the computer, called *ASCII* values.
  - Examples:
    `'A'` is 65, `'B'` is 66, `' '` is 32
    `'a'` is 97, `'b'` is 98, `'*'` is 42
  - One character long `Strings` and `ints` can be converted to each other
    `ord('a')` is 97, `chr(103)` is 'g'
  - This is useful because you can do the following:
    `chr(ord('a' + 2))` is `'c'`