

CSE 111 Bio
Lecture 24:
Dictionaries +

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Announcements

- Post class survey:
<https://goo.gl/hDYFJP>
- Teaching evaluations:
 To give you a bit of an incentive, you will receive 1 pt extra credit for completing the survey. Email a screen shot of the completion page to the TA Vahid to get the credit.

Bird Watching

- We want to keep track of how many of each bird we have seen
 – Robin: 3, Pigeon: 45, etc
- Could use parallel lists

```
birds = ['robin', 'pigeon', 'falcon']
counts = [3,45,2]
```

Adding a new bird sighting

```
def new_sighting(birds, counts, new_bird):
    if new_bird not in birds:
        birds.append(new_bird)
        missing code
    ind = birds.index(new_bird)
    counts[ind] = counts[ind] + 1
```

- A. counts.append(0)
- B. counts.append(1)
- C. counts.append(new_bird)
- D. No code necessary
- E. I don't know

Using Dictionaries

- A. bird_dict = {robin:3,pigeon:45,falcon:3}
- B. bird_dict = ["robin":3,"pigeon":45,"falcon":3]
- C. bird_dict = [{"robin",3}, {"pigeon",45}, {"falcon",3}]
- D. bird_dict = {"robin":3,"pigeon":45,"falcon":3}

Using Dictionaries

```
bird_dict = {"robin":3,"pigeon":45,"falcon":3}

def new_sighting(bird_dict, new_bird):
    if new_bird not in bird_dict:
        bird_dict[new_bird] = 0
    bird_dict[new_bird] = bird_dict[new_bird] + 1
```

Keys and Values

- Keys are immutable
- Values are mutable
- Use `d[k] = v` to add key `k` with value `v` to dictionary `d`
- If `k` is already present, its value is overwritten

After this code, d will be

```
d = {"a":1,"b":2}
d["c"] = 3
d["b"] = 4
```

- A. {"a":1, "b":2, "c":3}
- B. {"a":1, "b":4, "c":3}
- C. {"a":1, "b":2, "b":4, "c":3}
- D. This will cause an error
- E. I don't know

Getting Values from Dictionaries

- `d[k]` will return the value associated with key `k` in dictionary `d`
 - If `k` does not exist, this causes an error
- `d.get(k)` will also return the value associated with key `k` in dictionary `d`
 - Returns `None` if `k` does not exist

Keys, Values and Items

- `d.keys()` returns a dictionary's keys
- `d.values()` returns a dictionary's values
- `d.items()` returns a dictionary's key-value pairs
- These are similar to lists, but NOT lists. To turn into a list, `list(d.keys())`