CL19: Revisiting Commonly Missed Quiz 02 Concepts

Announcements

- CQ03 (Memory diagram from class) due *Wednesday*

Data structure	Allows duplicates?	Ordered?	Fast lookups?	Use Case
list [ ]	✅	✅	❌	Ordered collections
set {}	❌	❌	✅	Unique values, membership testing (fast lookups)
dictionary {key: value}	✅ (duplicate values allowed; keys must be unique!)	It's complicated	✅	Mappings, fast lookups, counting

Data structure	Add an item	Remove an item	Access value using subscription notation
list [ ]			
set {}			
dictionary {key: value}			

Consider this dictionary:

```
zoo: dict[str, str] = {
    "frog": "amphibian",
    "crocodile": "amphibian",
    "penguin": "bird",
    "elephant": "mammal",
}
```

Looks like we accidentally specified that crocodiles were amphibians!
How could we change the value associated with “crocodile” to “reptile”?

Consider this dictionary:

```
zoo: dict[str, str] = {
    "frog": "amphibian",
    "crocodile": "reptile",
    "penguin": "bird",
    "elephant": "mammal",
}
```

Great! Now, how could we remove “penguin” and “bird” from the dictionary?

```python
zoo: dict[str, str] = {
    "frog": "amphibian",
    "crocodile": "amphibian",
    "penguin": "bird",
    "elephant": "mammal",
}

zoo["crocodile"] = "reptile"  # Crocs are actually reptiles!
zoo.pop("penguin")  # Remove the key-value pair

def list_mammals(animals: dict[str, str]) -> list[str]:
    """Return a list of all animal species that are mammals."""
    # Add ourselves!
    animals["human"] = "mammal"

    mammals: list[str] = []
    group: str
    for a in animals:
        group = animals[a]
        if group == "mammal":
            mammals.append(a)
    return mammals

def main() -> None:
    mams: list[str] = list_mammals(animals=zoo)
    print(mams)

main()
```