

SESSION TWENTY

Bioinformatics internship

HAYASHI SPIDER LAB

- Many other researchers work in our lab
- Sandra will be chatting with us
- Questions for her!

COLLECTIONS

What is a collection?

TUPLES

- Represent collection of items
- Order is maintained
- Can be different item types (string, integers, floats, etc)
- Immutable
- Syntax:
 - (item 1, item 2, item 3, ...)
 - Tuple(<collection>)

LISTS

- Same as tuple EXCEPT MUTABLE
- Methods:
 - Append
 - Insert
 - Extend
 - Reverse
 - Remove
- Syntax:
 - [item 1, item 2, item 3]
 - List(<collection>)

METHODS FOR TUPLES AND LISTS

- Indexing
- Slicing
- “in”
- len
- .count
- sorted

SETS

- collection of items
- Unordered
- Mutable
- Unique only
- Syntax:
 - Set(<collection>)

SET OPERATIONS

- Many similar to lists
- Subset: `set1.issubset(set2)` – check every item of `s1` IN `s2`
- Superset: `set1.issuperset(set2)` – check every item of `s2` IN `s1`
- Union: `set1.union(set2)` – new set with items from `s1` and `s2`
- Intersection: `set1.intersection(set2)` – new set with items common between `s1` and `s2`
- Difference: `set1.difference(set2)` – new set with `s1` items that are not in `s2`

DICTIONARIES

- Collection of items
- Unordered
- All items are considered values and associated with a key
 - Key must be unique but can be any type
 - Can only store ONE VALUE per key but like return can be a collection
- Empty dictionary:
 - {}
 - Dict()

DICTIONARIES (CONT.)

- Populated dictionary:
 - {key1 : value1, key2 : value2, key3 : value3}
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DICTIONARIES OPERATIONS

- Dict[key] - get value associated with key
- Dict[key] = value – set value associated with key
- Dict.pop(key) – removes key and associated values, returns value key had
- Len(dict) – number of items (pairs) in dictionary
- Key in set – check for existence of key in dictionary
- Dict.get(key,default) – returns value associated with key, if nothing set then returns default

DICTIONARY OPERATIONS (CONT.)

- `Dict.setdefault(key, default)` – if key in dictionary returns value, if not sets default to key
- `Dict.keys()` - return a view of all keys
- `Dict.values()` – return view of values
- `Dict.items()` – return pairs

LAB GOALS

- Create EACH collection
- Perform operations on EACH collection