Certified Python Programmer - PCEP

Montgomery College

Workforce Development & Continuing Education

Information Technology Institute

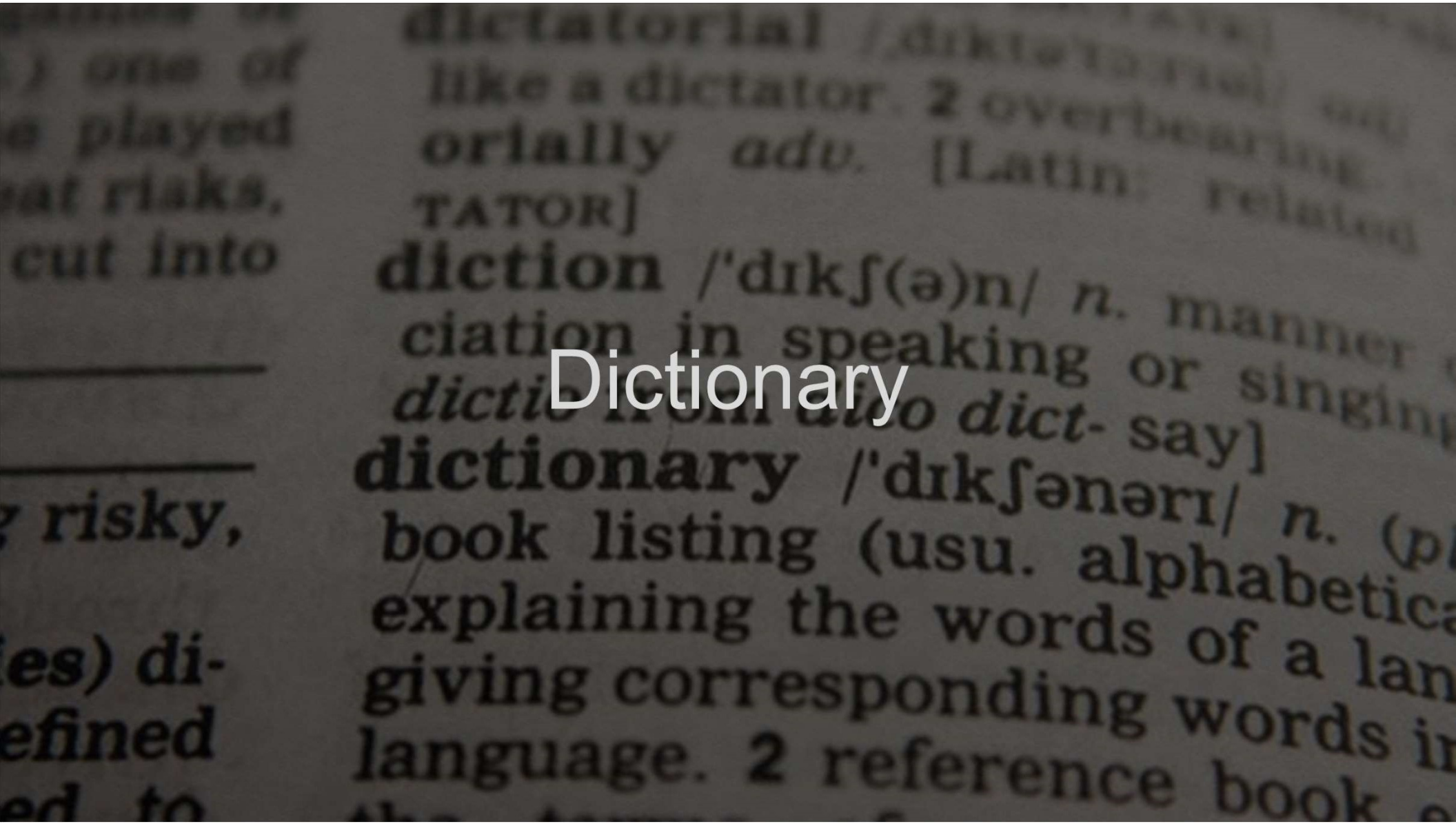
kahoot.it

Basic Python

Lesson Objectives

Dictionary

Nested Dictionary


dictatorial
like a dictator. 2 overbearing
orially adv. [Latin: related
TATOR]
diction /'dɪkʃ(ə)n/ n. manner
ciation in speaking or singing
dictionary /'dɪkʃənərɪ/ n.
book listing (usu. alphabetica
explaining the words of a lan
giving corresponding words in
language. 2 reference book
Dictionary

Dictionary

List

- Collection of ordered items
- By index
- [ ]

Dictionary

- Collection of unordered items
- By key-value pairs
- { }

Dictionary

```
{ key 1 : value 1,
  key 2 : value 2,
  ...
  key n : value n }
```

Dictionary

```
product = { “prod id” :  12365401,
            “brand” :  “Browny”,
            “qty” :  97,
            “price” :  15.99 }

spanish_123 = { 1 : “uno”,  2 : “dos”, 3 : “tres” }

student = { “name” : “Big Bird”,
            “M number” : 1234567,
            “courses” : [“iti100”, “iti470”] }
```

Dictionary

```
product = { “prod id” :  12365401,
            “brand” :  “Browny”,
            “qty” :  97,
            “price” :  15.99 }

item = product [ “prod id” ]          # 12365401
qty = product [ “qty” ]               # 97
avail = product [ “stock” ]           # KeyError
```

Dictionary

```
product = { “prod id” :  12365401,
            “brand” :  “Browny”,
            “qty” :  97,
            “price” :  15.99 }

product [ “qty” ] = 19          # { “prod id” :  12365401,
                                    “brand” :  “Browny”,
                                    “qty” :  19,
                                    “price” :  15.99 }
```

Dictionary

```
product = { “prod id” :  12365401,
            “brand” :  “Browny”,
            “qty” :  97,
            “price” :  15.99 }

product [ “stock” ] = True    # { “prod id” :  12365401,
                                “brand” :  “Browny”,
                                “qty” :  19,
                                “price” :  15.99,
                                “stock” : True }
```

Dictionary

```
product = { “prod id” :  12365401,
            “brand” :  “Browny”,
            “qty” :  97,
            “price” :  15.99 }

in_stock = product [ “stock” ]          # KeyError

If “stock” in product :                 # checks key
    print (“In stock” )
else :
    print (“Not in stock” )
```

Classwork

- Exercise 1

Create an empty dictionary named book. Then, store information about a book's title, authors, genre, and ISBN. Print out the dictionary

.get(key, *default*)

Dictionary Method

```
states = { ”MD” : “Maryland”, “VA” : “Virginia” }

states.get( “MD” )
# “Maryland”

states.get( “NY” )
# None

states.get( “NY”, “Not Available” )
# “Not Available”
```

Key

returned value

.pop (key, *default*)

Dictionary Method

```
states = { ”MD” : “Maryland”, “VA” : “Virginia” }

states.pop( “MD” )
# “Maryland”; states → {“VA” : “Virginia” }

states.pop( “NY” )
# KeyError

states.pop( “NY”, “Not Available” )
# “Not Available”
```

.popitem ()

Dictionary Method

states = { ”MD” : “Maryland”, “VA” : “Virginia” }

states.popitem()
# (“VA”, “Virginia”) ; states → {“MD”, “Maryland”}

states.popitem()
# (“MD”, “Maryland”) ; states → {}

states.popitem()
# KeyError

.clear()

Dictionary Method

states = { ”MD” : “Maryland”, “VA” : “Virginia” }

states.clear()
# { }

del *object*

Built-In Function

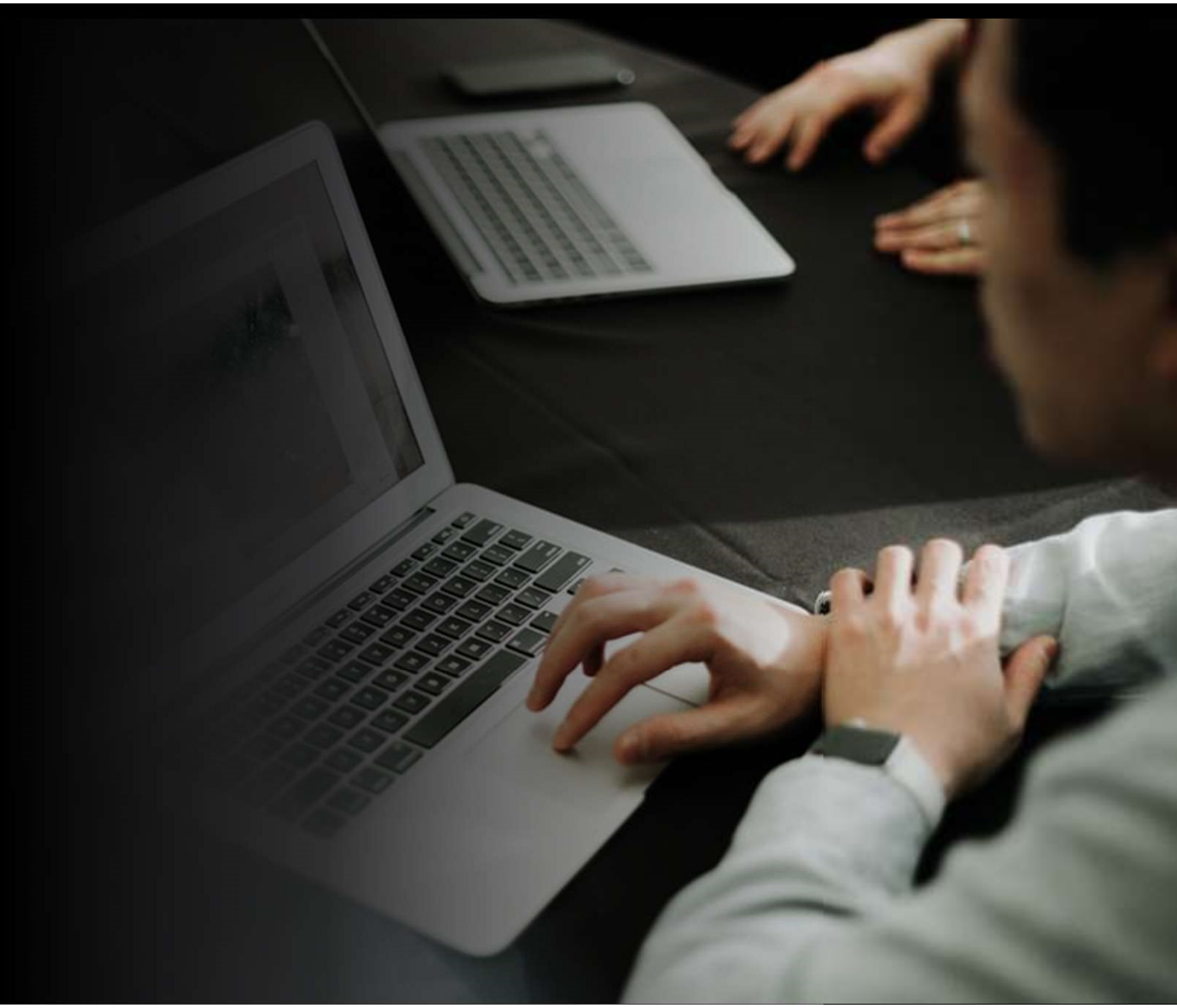
```
states = { ”MD” : “Maryland”, “VA” : “Virginia” }

del states[ “MD” ]                  # { “VA” : “Virginia” }
del states                          #

print (states)                      # NameError
```

Classwork

Exercise 2

Create a dictionary to store information about a book: title, author, genre and ISBN.

Then, print out each item in the dictionary using a loop. (You can use your code from exercise 1)



.keys ()

Dictionary Methods

```
product = { “prod id” :  12365401,
            “brand” :  “Browny”,
            “qty” :  97,
            “price” :  15.99 }

for item in product.keys() :
    print( item )                    # prod id
                                     # brand
                                     # qty
                                     # price
```

.values ()

Dictionary Methods

```
polls = { “Bart” :  “pizza”,
          “Marge” :  “chicken”,
          “Lisa” :  “chicken” }

for item in polls.values() :
    print( item )              # “pizza”
                               # “chicken”
                               # “chicken”
```

.items ()

Dictionary Methods

```
product = { “prod id” :  12365401,
            “brand” :  “Browny”,
            “qty” :  97,
            “price” :  15.99 }

product.items()
# dict_values( [ ( “prod id”, 12365401 ),
                 ( “brand”, “Browny” ) ,
                 ( “qty”, 97 )
                 ( “price”, 15.99 ) ] )
```

Classwork

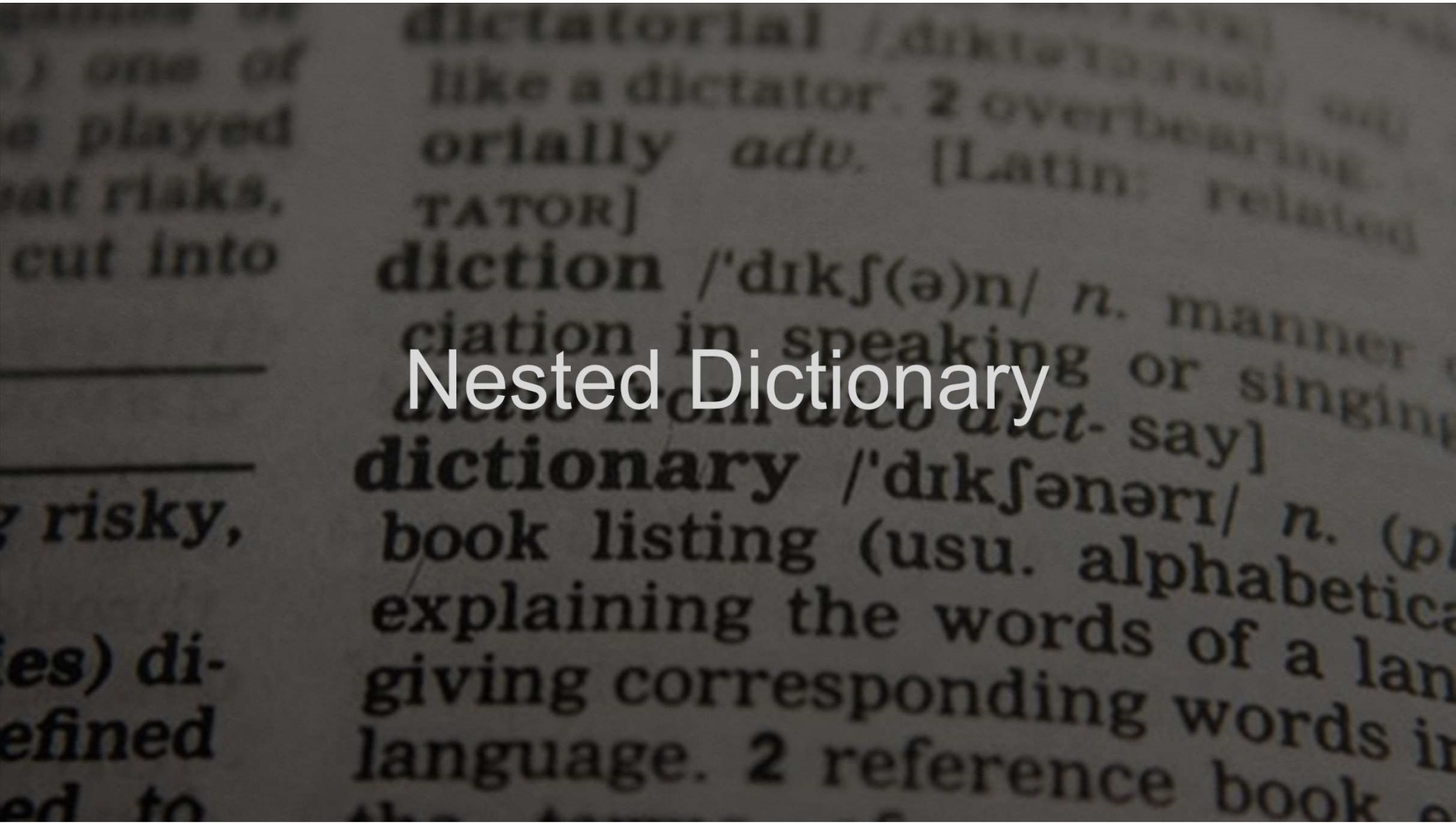
- Exercise 3

Create a program to ask several people for their name and their favorite drink. Then, summarize your finding.

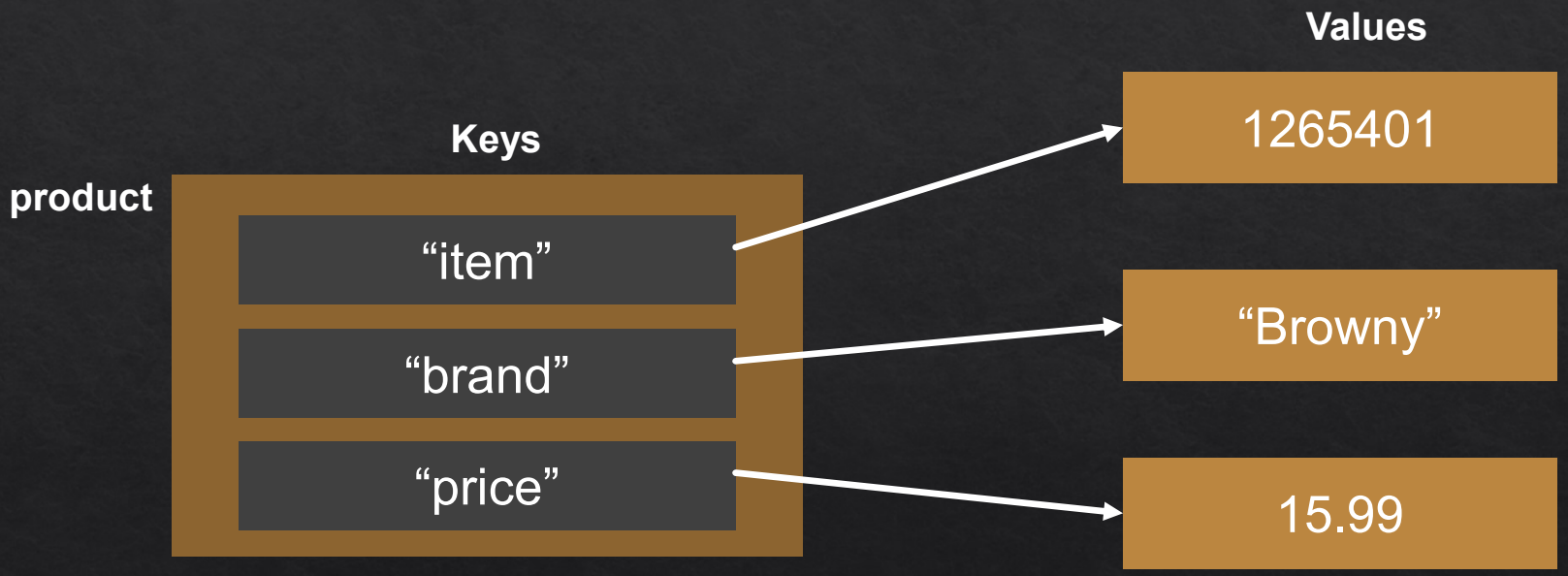
Fix errors and run to show it works.

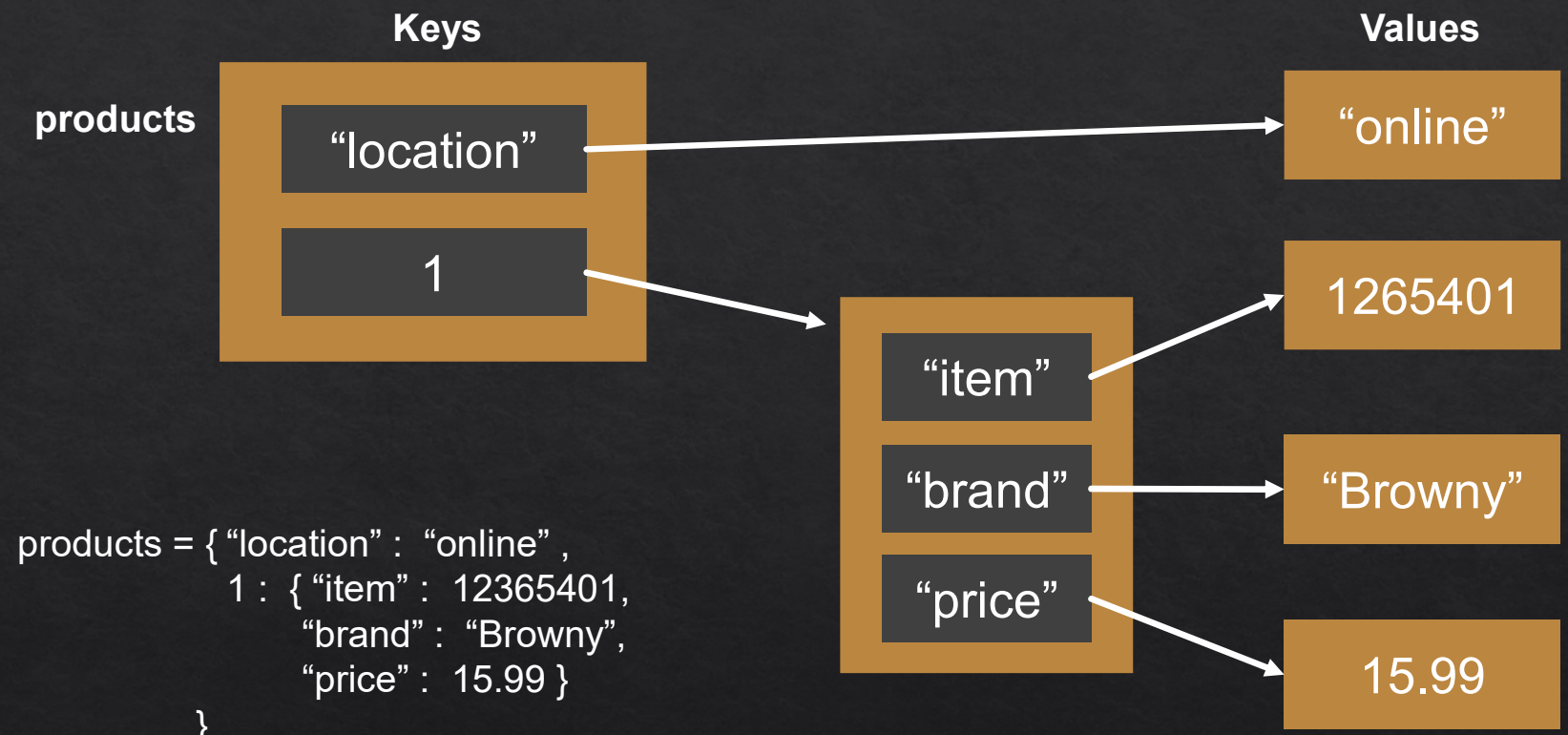
Break

Take a 5-minute break


Nested Dictionary

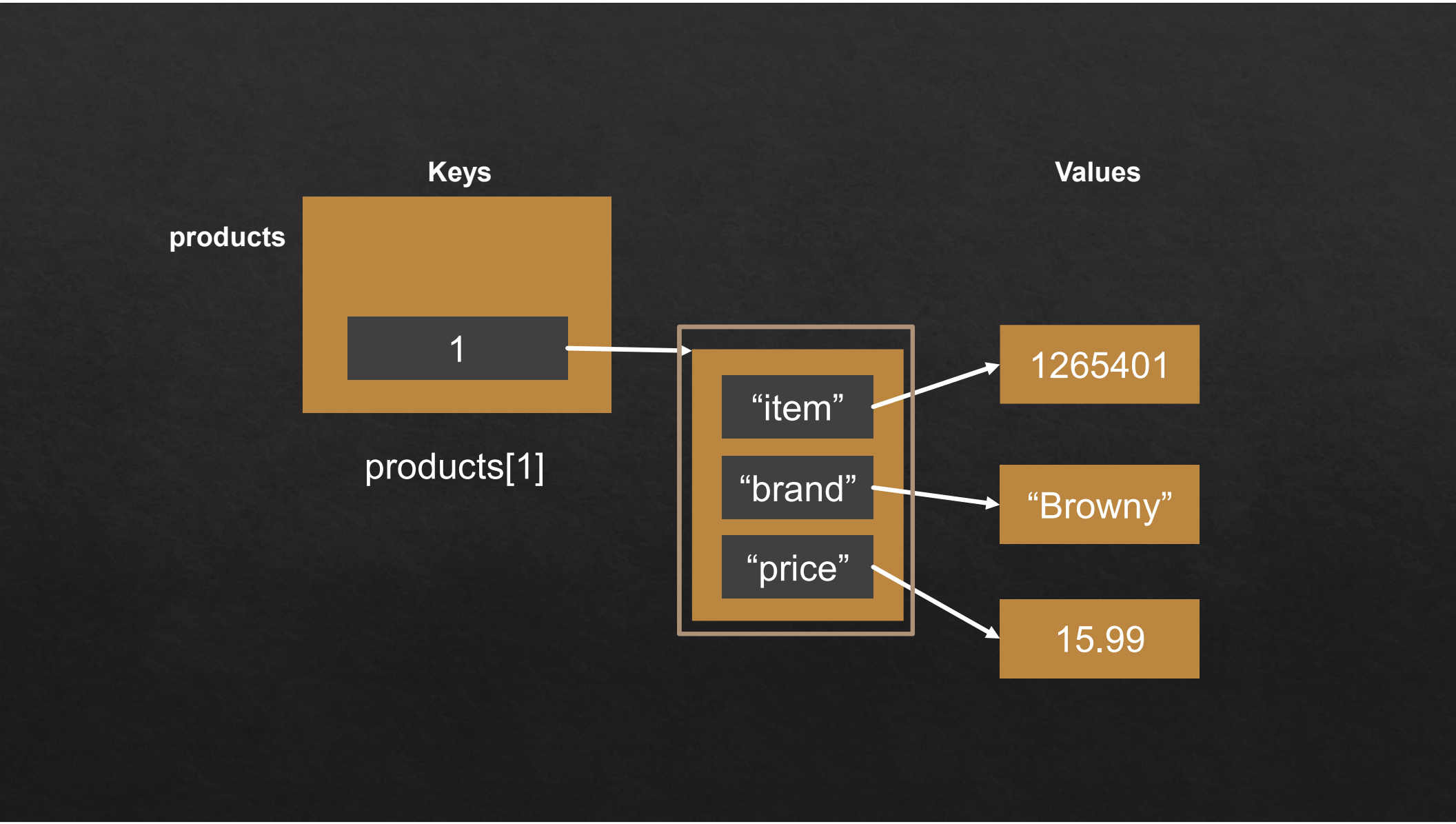
```
product = { “item” :  12365401,
            “brand” :  “Browny”,
            “price” :  15.99 }
```

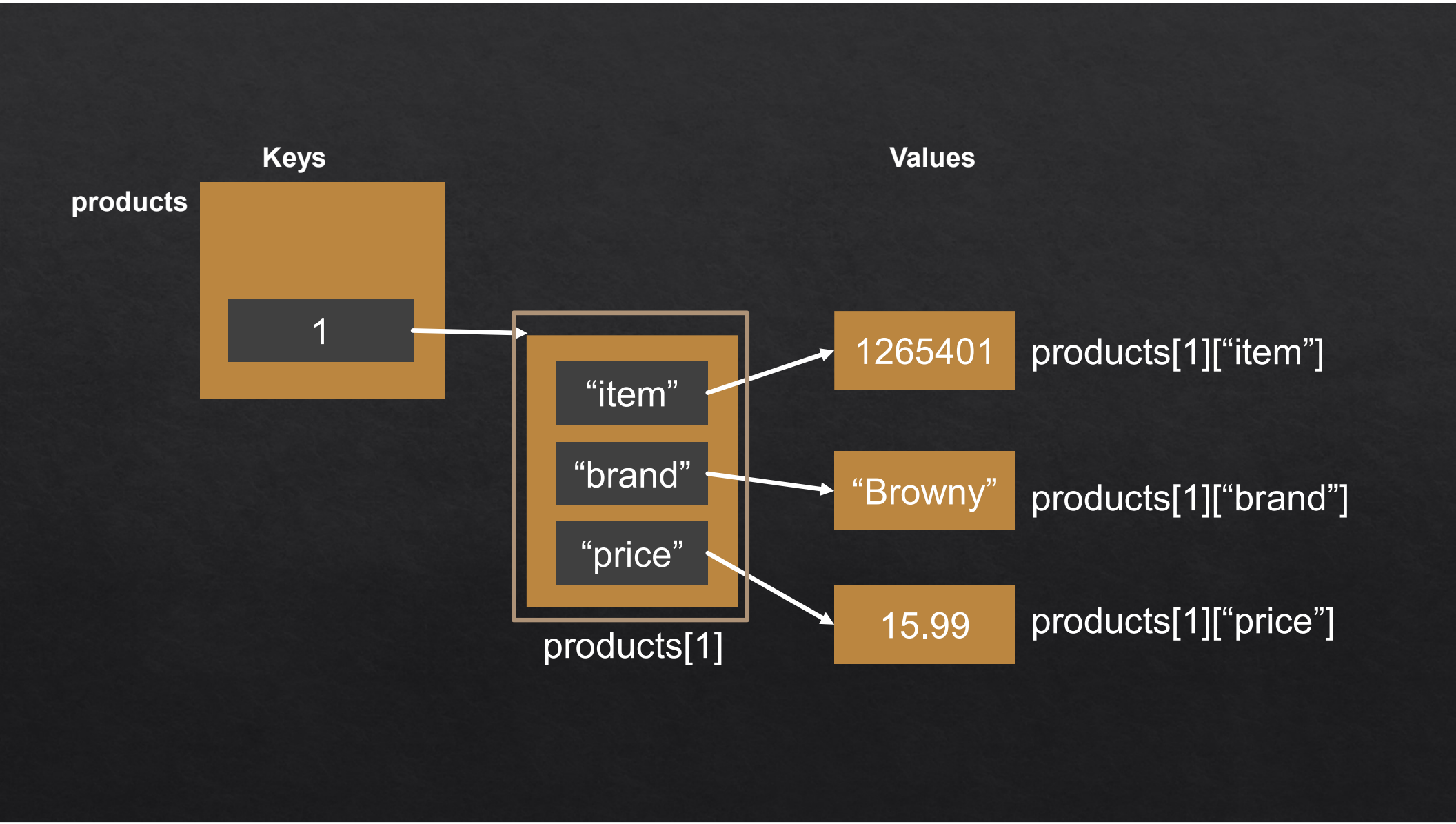


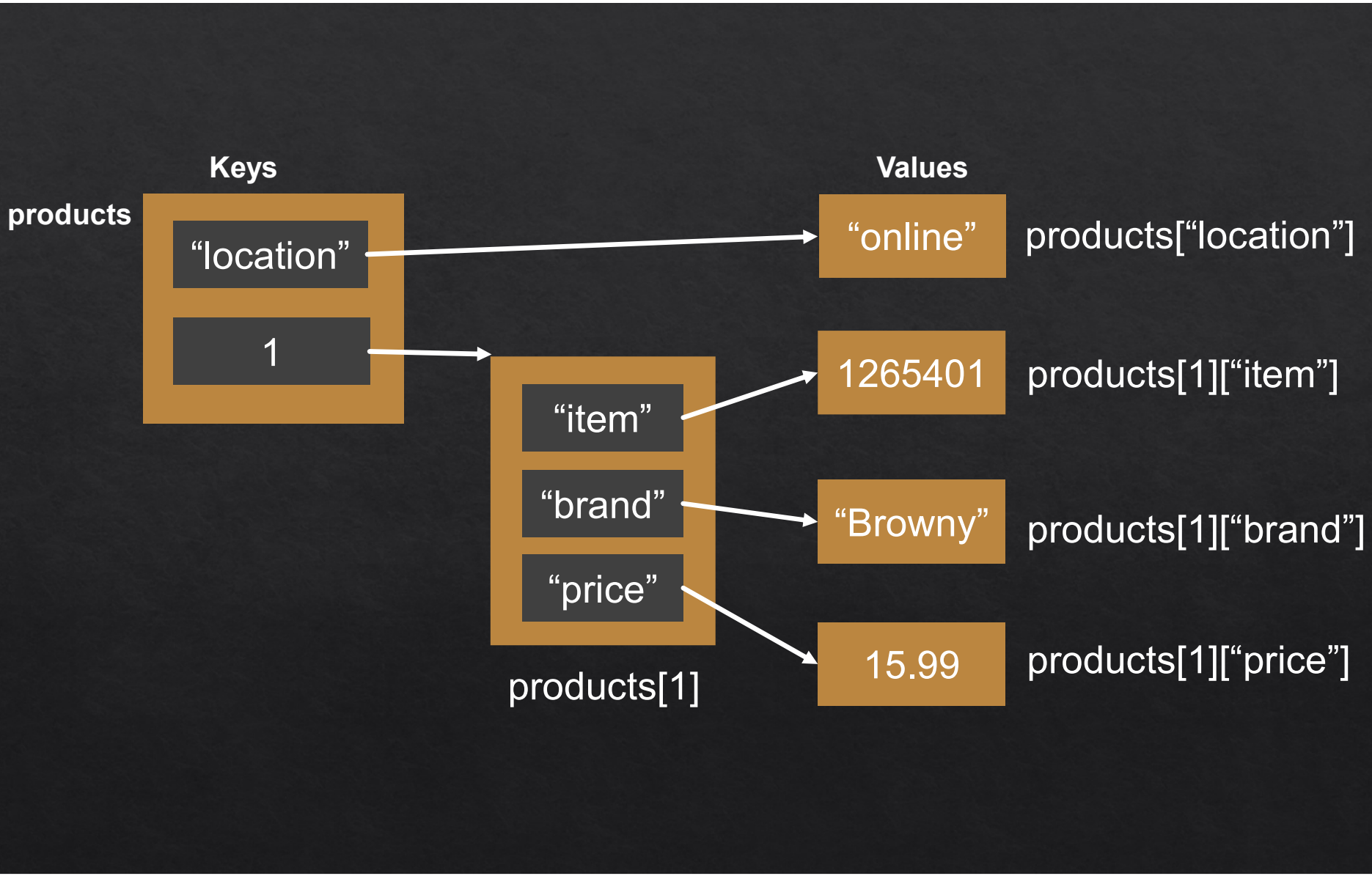


products = { “location” : “online” ,
1 : { “item” : 12365401,
“brand” : “Browny”,
“price” : 15.99 }
}

products[“location”]

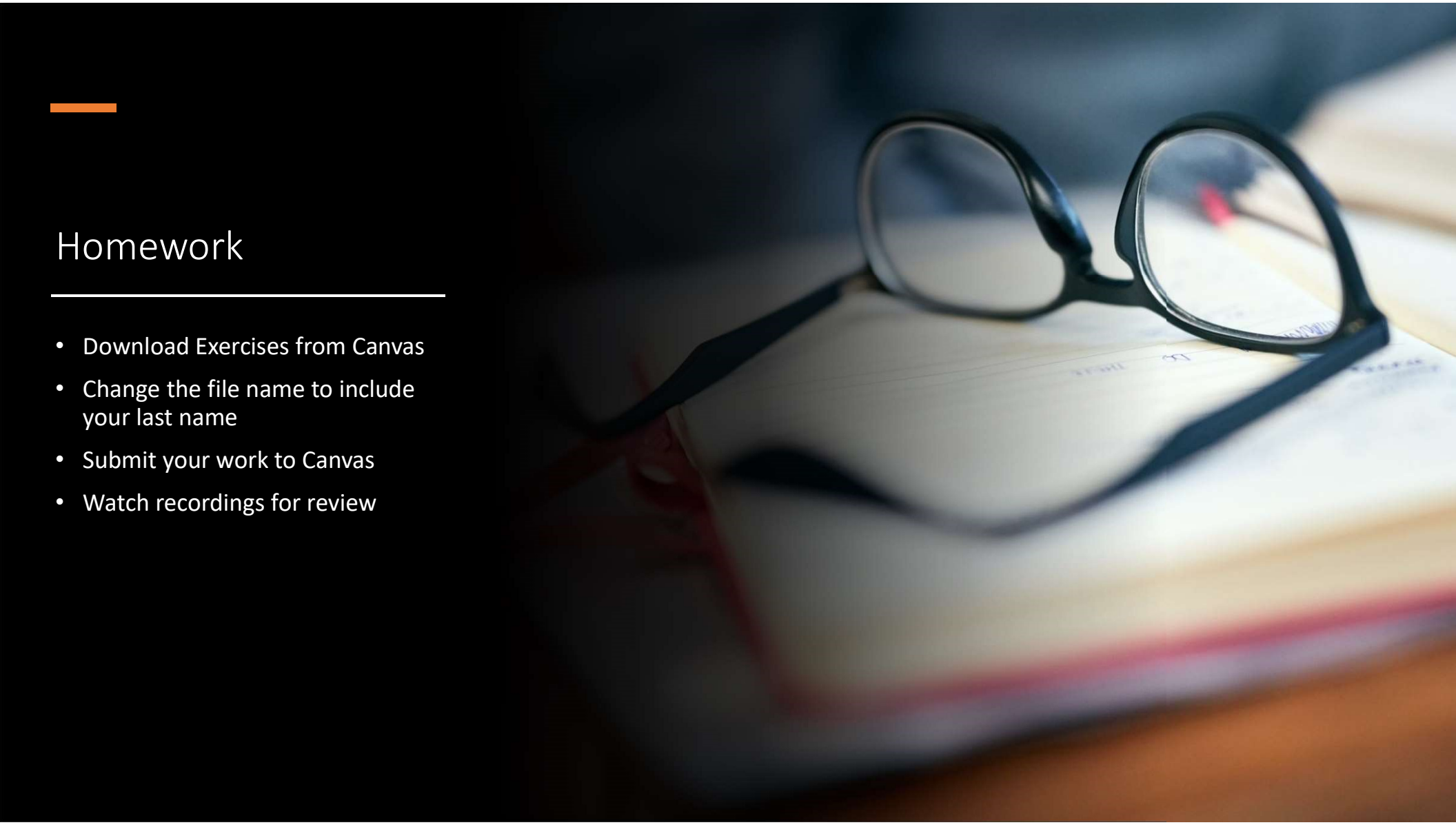

Keys
Values
products
1
products[1]
“item”
“brand”
“price”
1265401
“Browny”
15.99


Keys
Values
products
1
"item"
"brand"
"price"
products[1]
1265401
"Browny"
15.99
products[1]["item"]
products[1]["brand"]
products[1]["price"]


Keys
Values
products
“location”
1
“online”
products[“location”]
1265401
products[1][“item”]
“item”
“brand”
“price”
“Browny”
products[1][“brand”]
15.99
products[1][“price”]
products[1]

Homework

- Download Exercises from Canvas
- Change the file name to include your last name
- Submit your work to Canvas
- Watch recordings for review



Questions?


Thank you!