

Lab 11 summary

Jhonatan Parada

ET574

1.

```
labs > Jhonatan_LAB11 > lab11_1.py > ...
1 # lab11_1.py - Jhonatan Parada
2
3 stuInfo = {
4     'name': 'John Smith',
5     'gpa': 3.456,
6     'age': 20
7 }
8
9 for k,v in stuInfo.items():
10     print(f'{k.upper()}\t{v}')
11 else: print()
12
13 stuInfo.update({'gpa': 4.0})
14
15 for k in stuInfo.keys():
16     print(f'{k.upper()}\t{stuInfo[k]}')
17 else: print()
18
19 stuInfo.setdefault('major', 'CSIS')
20
21 for v in stuInfo.values():
22     print(v, end='|')
23 else: print('\n')
24
25 stuInfo.pop('gpa')
26 del stuInfo['age']
27
28 print(stuInfo)
```

```
@jhonatanparada499 → /workspaces/ET574 (main) $ python
NAME    John Smith
GPA      3.456
AGE      20

NAME    John Smith
GPA      4.0
AGE      20

John Smith|4.0|20|CSIS|

{'name': 'John Smith', 'major': 'CSIS'}
@jhonatanparada499 → /workspaces/ET574 (main) $
```

labs > Jhonatan_LAB11 > lab11_2.py > ...

```
1 # lab11_2.py - Jhonatan Parada
2
3 rank = {
4     1:"Freshman",
5     2:"Sophmore",
6     3:"Junior",
7     4:"Senior"
8 }
9
10 years = input(
11     f'Enter the # of years in the school <1-{len(rank)}>: '
12 )
13
14 try:
15     years = int(years)
16 except:
17     print('Invalid input')
18
19 if isinstance(years, int):
20     if 1 < years > len(rank):
21         print('Invalid years.')
22     else:
23         print(f'Year {years} = {rank[years]}')
```

```
@jhonatanparada499 → /workspaces/ET574 (main) $ python
Enter the # of years in the school <1-4>: 1
Year 1 = Freshman
@jhonatanparada499 → /workspaces/ET574 (main) $ python
Enter the # of years in the school <1-4>: 4
Year 4 = Senior
@jhonatanparada499 → /workspaces/ET574 (main) $ python
Enter the # of years in the school <1-4>: 3
Year 3 = Junior
@jhonatanparada499 → /workspaces/ET574 (main) $ python
Enter the # of years in the school <1-4>: abc
Invalid input
@jhonatanparada499 → /workspaces/ET574 (main) $ python
Enter the # of years in the school <1-4>: 44
Invalid years.
@jhonatanparada499 → /workspaces/ET574 (main) $
```

labs > Jhonatan_LAB11 > lab11_3a.py > ...

```
1 # lab11_3a.py - Jhonatan Parada
2
3 import string
4
5 chars = [c for c in string.ascii_lowercase]
6 nums = [n for n in range(1, 26 + 1)]
7
8 charNum = dict(zip(chars, nums))
9
10 for k,v in charNum.items():
11     print(k,v, end='|')
12 else: print()
```

```
@jhonatanparada499 → /workspaces/ET574 (main) $ python labs/Jhonatan_LAB11/lab11_3a.py
a 1|b 2|c 3|d 4|e 5|f 6|g 7|h 8|i 9|j 10|k 11|l 12|m 13|n 14|o 15|p 16|q 17|r 18|s 19|t 20|u 21|v 22|w 23|x
24|y 25|z 26|
@jhonatanparada499 → /workspaces/ET574 (main) $
```

labs > Jhonatan_LAB11 > lab11_3b.py > ...

```
1 # lab11_3b.py - Jhonatan Parada
2
3 import string
4 from lab11_3a import charNum
5
6 chars = [
7     c for c in string.ascii_uppercase
8 ]
9
10 nums = [
11     n for n in range(100, 2600 + 100, 100)
12 ]
13
14 numChar = dict(zip(nums, chars))
15
16 for k,v in numChar.items():
17     print(k,v,end='|')
18 else: print()
19
20 charNum.update(numChar)
21
22 print(charNum)
```

```
@jhonatanparada499 → /workspaces/ET574 (main) $ python labs/Jhonatan_LAB11/lab11_3b.py
a 1|b 2|c 3|d 4|e 5|f 6|g 7|h 8|i 9|j 10|k 11|l 12|m 13|n 14|o 15|p 16|q 17|r 18|s 19|t 20|u 21|v 22|w 23|x
24|y 25|z 26|
100 A|200 B|300 C|400 D|500 E|600 F|700 G|800 H|900 I|1000 J|1100 K|1200 L|1300 M|1400 N|1500 O|1600 P|1700
Q|1800 R|1900 S|2000 T|2100 U|2200 V|2300 W|2400 X|2500 Y|2600 Z|
{'a': 1, 'b': 2, 'c': 3, 'd': 4, 'e': 5, 'f': 6, 'g': 7, 'h': 8, 'i': 9, 'j': 10, 'k': 11, 'l': 12, 'm': 13,
'n': 14, 'o': 15, 'p': 16, 'q': 17, 'r': 18, 's': 19, 't': 20, 'u': 21, 'v': 22, 'w': 23, 'x': 24, 'y': 25,
'z': 26, 100: 'A', 200: 'B', 300: 'C', 400: 'D', 500: 'E', 600: 'F', 700: 'G', 800: 'H', 900: 'I', 1000:
'J', 1100: 'K', 1200: 'L', 1300: 'M', 1400: 'N', 1500: 'O', 1600: 'P', 1700: 'Q', 1800: 'R', 1900: 'S', 2000:
'T', 2100: 'U', 2200: 'V', 2300: 'W', 2400: 'X', 2500: 'Y', 2600: 'Z'}
@jhonatanparada499 → /workspaces/ET574 (main) $
```

```
labs > Jhonatan_LAB11 > lab11_4.py > ...
1 # lab11_4.py - Jhonatan Parada
2 class Stu:
3     def __init__(self, name, gpa):
4         self.stuInfo = {
5             'name': name,
6             'gpa': gpa
7         }
8
9 stu_1 = Stu('tom cat', 3.456)
10 stu_2 = Stu('jerry mouse', 4.0)
11 stu_3 = Stu('Sponge bob', 3.99)
12
13 stuClass = [stu_1.stuInfo, stu_2.stuInfo, stu_3.stuInfo]
14
15 print('All students in this list:')
16 print(stuClass, end='\n\n')
17 print('All students information:')
18 for stuInfo in stuClass:
19     print(
20         'Student',
21         stuClass.index(stuInfo) + 1,
22         stuInfo
23     )
24 else: print()
25
26 print('All gpa information:')
27 for stuInfo in stuClass:
28     print(stuInfo['gpa'], end='|')
29 else: print('\n')
30
31 stuClass[-1]['gpa'] = 4.0
32 stu_4 = Stu('John Smith', 3.99)
33 stuClass.append(stu_4.stuInfo)
34
35 print('All updated information:')
36 for stuInfo in stuClass:
37     print(
38         f'{stuInfo["name"]:<15}{stuInfo["gpa"]:>5.2f}'
39     )
40
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```

```
@jhonatanparada499 →/workspaces/ET574 (main) $ python labs/Jhonatan_LAB11/lab11_4.py
All students in this list:
[{'name': 'tom cat', 'gpa': 3.456}, {'name': 'jerry mouse', 'gpa': 4.0}, {'name': 'Sponge bob', 'gpa': 3.99}]

All students information:
Student 1 {'name': 'tom cat', 'gpa': 3.456}
Student 2 {'name': 'jerry mouse', 'gpa': 4.0}
Student 3 {'name': 'Sponge bob', 'gpa': 3.99}

All gpa information:
3.456|4.0|3.99|

All updated information:
tom cat      3.46
jerry mouse  4.00
Sponge bob   4.00
John Smith   3.99
@jhonatanparada499 →/workspaces/ET574 (main) $
```

```
labs > Jhonatan_LAB11 > lab11_5.py > ...
1 # lab11_5.py - Jhonatan Parada
2
3 def createUser(**kwargs): return kwargs
4
5 def printUser(user):
6     for k, v in user.items():
7         print(f'{k}: {v}')
8
9 user_1 = createUser(
10     name='John',
11     age=43,
12     job='Programmer',
13     hobby='Biking'
14 )
15 printUser(user_1); print()
16
17 user_2 = createUser(
18     name='Sara',
19     age=20,
20     school='QCC',
21     major='CSIS'
22 )
23
24 printUser(user_2)
```

```
@jhonatanparada499 →/workspaces/ET574 (main) $ python
name: John
age: 43
job: Programmer
hobby: Biking

name: Sara
age: 20
school: QCC
major: CSIS
@jhonatanparada499 →/workspaces/ET574 (main) $
```

2. I made a mistake in lab11_2.py in regards of the order of execution of the code. This happened because I usually prefer not to put code that I know it will not return error inside a try statement, in other words, I only put code that might generate errors inside a try statement, but I forgot to add an if statement afterwards to verify that the variable years was of type integer, without handling this exception, the code would function partially.

b. I had a conflict understanding `**kwargs` and `[for k,v in dict.items()]` at the beginning, but after the class of 11/26/2024, I came to the following conclusion:

`**kwargs` is a special parameter that accepts any number of arguments if the given arguments are written as `[variable=value,...]`. It is interesting because at first I tried `[variable:value]` or `["variable":value]` since that is the syntax of the items of a dictionary, but that is not a valid syntax for an argument, so, the behavior ends up being something like using optional parameters when calling a function, therefore, I think one will not be able to create keys of type integer since this is not allowed to perform: `[1=value]` nor `['1'=value]`, but we know that the keys of a dictionary can be of type integer, I even wonder whether it is possible to write any key as a number no matter its data type.

Finally, the reason why there are two variables and it works fine in the syntax `k,v` when referring to `dict.items()` is because every item of the dictionary is going to be transformed into a tuple, therefore, that's why they don't conflict with each other. In other words:

`K, v = (a, b)` (also equal to) `k, v = a, b`

Therefore:

For `k,v in dict.items()` (is equal to) `for k,v in [(a, b),...]`