

DSW_ASSIGNMENT-1

1. Differentiate between the followings with proper examples

- a. all() vs any()
- b. dictionary vs default dictionary
- c. *args and **kwargs
- d. Data science vs data engineers

ANS-

a. all() vs any()

`all()` and `any()` are two built-in functions in Python that are used to check the truthiness of elements in an iterable.

`all()` returns `True` if all elements in the iterable are true. If at least one element is false, it returns `False`.

#ALL

```
numbers = [1, 2, -1, 4, 5]
print(all(x > 0 for x in numbers))
```

#ANY

```
numbers = [1, 2, -1, 4, 5]
print(any(x > 0 for x in numbers))
```

```
numbers = [1, 2, -1, 4, 5]
print(all(x > 0 for x in numbers))
```

✓ 0.0s

False

```
numbers = [1, 2, -1, 4, 5]
print(any(x > 0 for x in numbers))
```

True

b. Dictionary (dict):

- A standard dictionary in Python.
- When you try to access or modify a key that doesn't exist, Python raises a `KeyError`.
- You need to explicitly check if a key exists before accessing it.

```
d = {'name': 'Abha', 'age': 20}
```

```
print(d['name'])
```

defaultdict:

- A subclass of the dictionary class (`dict`) available in the `collections` module.
- Automatically assigns a default value if a key has not been set yet.
- Prevents `KeyError` by creating the key with the specified default value.
- You can specify a factory function (usually a `lambda`) to generate the default value.

```
from collections import defaultdict
```

```
d = defaultdict(int)d = defaultdict(int)
```

```
print(d['name']) # 0 (default value)print(d['name']) # 0 (default value)
```

```
d = defaultdict(lambda: 'Unknown')d = defaultdict(lambda: 'Unknown')
```

```
print(d['name']) # Unknown (default value)
```

```
d = {'name': 'Abha', 'age': 20}
print(d['name'])
```

[5] Python

... Abha

```
from collections import defaultdict

d = defaultdict(int)
print(d['name']) # 0 (default value)

d = defaultdict(lambda: 'Unknown')
print(d['name']) # Unknown (default value)
```

[6] Python

... 0
Unknown

C.

Arbitrary Arguments, *args

If you do not know how many arguments that will be passed into your function, add a `*` before the parameter name in the function definition.

```
def func(*args):
    for arg in args:
        print(arg)
func(1, 2, 3, 4, 5)
```

Arbitrary Keyword Arguments, **kwargs

If you do not know how many keyword arguments that will be passed into your function, add two asterisk: `**` before the parameter name in the function definition.

```
def func(**kwargs):
    for key, value in kwargs.items():
        print(f"{key} -> {value}")
func(name='ABHA', age=20, city='DHANBAD')
```

```
def func(*args):
    for arg in args:
        print(arg)

func(1, 2, 3, 4, 5)
```

1
2
3
4
5

```
def func(**kwargs):
    for key, value in kwargs.items():
        print(f"{key} -> {value}")

func(name='ABHA', age=20, city='DHANBAD')
```

name -> ABHA
age -> 20
city -> DHANBAD

d. DATA SCIENCE

Data science combines math and statistics, specialized programming, advanced [analytics](#), [artificial intelligence \(AI\)](#) and [machine learning](#) with specific subject matter expertise to uncover actionable insights hidden in an organization's data. These insights can be used to guide decision making and strategic planning.

DATA ENGINEERS

Data engineering refers to the building of systems to enable the collection and usage of data. This data is usually used to enable subsequent analysis and data science; which often involves machine learning.^{[1][2]} Making the data usable usually involves substantial compute and storage, as well as data processing.

2. Consider the data containing the salary and tenure of some employees. salaries and tenures = [(83000, 8.7), (88000, 8.1), (48000, 0.7), (76000, 6), (69000, 6.5), (76000, 7.5), (89000, 8.7), (60000, 1.8), (83000, 3.5), (68000, 8.1), (48000, 0.7), (63000, 1.8), (25000, 3.5)]

- a. Find the average salary of each tenure
- b. Group together the salaries corresponding to the following bucket of tenures, less than two, between two and five, more than 5
- c. Compute the average salary for each group(bucket of tenures)



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