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Data Engineering
Batch-1
2/2/24

Coding Challenge -2 Question-2

Execute with one example Lambda Functions in Python

- Lambda functions, also known as anonymous functions, are concise functions defined using the lambda keyword in Python.
- They are used for creating small, one-time-use functions without the need to formally define a function using the def keyword.
- Lambda functions are often used in conjunction with functions like map(), filter(), and reduce() to perform operations on iterable objects like lists.

```
from functools import reduce
#lambda map
numbers = [1, 2, 3, 4, 5]
squared_numbers = list(map(lambda x: x ** 2, numbers))
print("squared_numbers",squared_numbers)

numbers = [1, 2, 3, 4, 5, 6, 7, 8, 9]
# Using filter() with lambda to get even numbers
even_numbers = list(filter(lambda x: x % 2 == 0, numbers))
print("even_numbers",even_numbers)

# Using filter() with lambda to get odd numbers
odd_numbers = list(filter(lambda x: x % 2 != 0, numbers))
print("odd_numbers",odd_numbers)

#using reduce() with lambda
numbers = [1, 2, 3, 4, 5]
product = reduce(lambda x, y: x * y, numbers)
print(product)
```

Output

```
PS D:\DataEngineeringhexa\Python>
squared_numbers [1, 4, 9, 16, 25]
even_numbers [2, 4, 6, 8]
odd_numbers [1, 3, 5, 7, 9]
120
PS D:\DataEngineeringhexa\Python>
```

Read JSON Strings to Python dicts or lists

- In Python, you can use the json module to read JSON strings and convert them into Python dictionaries or lists.
- The json module provides the loads() function (load string) for this purpose.
- The json.loads() function is used to convert the JSON string into a Python dictionary (data_dict).
- If your JSON represents an array or a list, the result would be a Python list.

```
import json

# JSON string
json_string = '{"name": "John", "age": 30, "city": "New York"}'

# Convert JSON string to Python dictionary
data_dict = json.loads(json_string)

# Display the resulting dictionary
print(data_dict, "\n")
print("Name ", data_dict['name'])
```

Output

```
PS D:\DataEngineeringhexa\Python> python a.py
{'name': 'John', 'age': 30, 'city': 'New York'}
```

```
Name John
```

```
PS D:\DataEngineeringhexa\Python>
```

```
# JSON array string
json_array_string = '[{"name": "Alice", "age": 25}, {"name": "Bob", "age": 30}]'

# Convert JSON array string to Python list
data_list = json.loads(json_array_string)

# Display the resulting list
print("List ",data_list,"\n")
#list first index value
print(data_list[0])
```

Output

```
Name John
```

```
List [{'name': 'Alice', 'age': 25}, {'name': 'Bob', 'age': 30}]
```

```
{'name': 'Alice', 'age': 25}
```

```
PS D:\DataEngineeringhexa\Python>
```