

Name: Abhishek Kanoujia

DATA ENGINEERING BATCH 1

DAY 8 ASSIGNMENT

Modules in PYTHON

```
project/
├── modules/
│   ├── __init__.py
│   ├── greetings.py
│   ├── math_operations.py
│   └── calculator.py
├── packages/
│   ├── __init__.py
│   ├── geometry/
│   │   ├── __init__.py
│   │   └── shapes.py
│   ├── module1.py
│   └── module2.py
├── data/
│   ├── example.txt
│   ├── example.csv
│   └── schema.json
├── scripts/
│   ├── read_file.py
│   ├── csv_reader.py
│   ├── process_lists.py
│   ├── usage_of_lambda.py
│   └── pandas_processing.py
├── main.py
└── requirements.txt
```

1. modules/greetings.py

```
# greetings.py  
  
def greet(name):  
    return f"Hello, {name}!"
```

2. modules/math_operations.py

```
# math_operations.py  
  
def square(x):  
    return x ** 2
```

3. modules/calculator.py

```
# calculator.py  
  
def add(x, y):  
    return x + y  
  
if __name__ == "__main__":  
    result_calculator = add(3, 4)  
    print(f"The sum is: {result_calculator}")
```

4. packages/geometry/shapes.py

```
# packages/geometry/shapes.py  
  
def area_of_circle(radius):  
    return 3.14 * radius ** 2
```

5. packages/module1.py

```
# packages/module1.py
```

```
from . import module2
```

```
def function1():
```

```
    print("Function 1 in Module 1")
```

```
    module2.function2()
```

6. packages/module2.py

```
# packages/module2.py
```

```
def function2():
```

```
    print("Function 2 in Module 2")
```

7. scripts/read_file.py

```
# scripts/read_file.py
```

```
with open("../data/example.txt", "r") as file:
```

```
    content = file.read()
```

```
    print(content)
```

8. scripts/csv_reader.py

```
# scripts/csv_reader.py

import csv

def read_csv(file_path):
    with open(file_path, "r") as file:
        reader = csv.reader(file)
        data_list = [row for row in reader]
    return data_list

csv_data = read_csv("../data/example.csv")
print("Data from CSV file:")
for row in csv_data:
    print(row)
```

9. scripts/process_lists.py

```
# scripts/process_lists.py

numbers = [1, 2, 3, 4, 5]
```

10. scripts/usage_of_lambda.py

```
# scripts/usage_of_lambda.py

square_lambda = lambda x: x**2

print("Using Lambda Function:", square_lambda(5))
```

11. main.py

```
# main.py
```

```
from modules import greetings, math_operations, calculator
```

```
from packages.geometry import shapes
```

```
from packages import module1
```

```
from scripts import read_file, csv_reader, process_lists,  
usage_of_lambda
```

```
# Example 1: Greetings Module
```

```
name = "Alice"
```

```
greeting_result = greetings.greet(name)
```

```
print(greeting_result)
```

```
# Example 2: Math Operations Module
```

```
number = 7
```

```
square_result = math_operations.square(number)
```

```
print(f"The square of {number} is: {square_result}")
```

```
# Example 3: Calculator Module
```

```
sum_result = calculator.add(10, 5)
```

```
print(f"The sum is: {sum_result}")
```

```
# Example 4: Shapes Module (Package)
```

```
radius = 3
area_result = shapes.area_of_circle(radius)
print(f"The area of the circle with radius {radius} is: {area_result}")
```

Example 5: Module1 in Package

```
module1.function1()
```

Example 6: Read File Script

```
read_file_example = read_file.read_file("../data/example.txt")
```

Example 7: CSV Reader Script

```
csv_reader_example = csv_reader.read_csv("../data/example.csv")
print("Data from CSV file:")
for row in csv_reader_example:
    print(row)
```

Example 8: Process Lists Script

```
process_lists_example = process_lists.process_list([1, 2, 3, 4, 5])
```

Example 9: Usage of Lambda Script

```
usage_of_lambda_example = usage_of_lambda.use_lambda(6)
```

12. requirements.txt

makefile

Copy code

```
# requirements.txt
```

```
pandas==1.3.3 # Add more dependencies if needed
```

13. data/example.txt

This is an example text file.

.

14. data/example.csv

Name, Age, City

John, 25, New York

Jane, 30, Los Angeles

Bob, 28, Chicago

15. data/schema.json

```
{  
  "columns": [  
    {"name": "Name", "type": "string"},  
    {"name": "Age", "type": "integer"},  
    {"name": "City", "type": "string"}  
  ]  
}
```