

PYTHHON PROGRAMMING

Lab-32 Answers

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1. Write a python program to read the radius from the below .csv file and then Calculate the Area of a Circle using SciPy Constants. After that display the first 5 records and also save the calculated result into a new .csv file. Input:

https://raw.githubusercontent.com/AnudipAE/DANLC/master/radius_data.csv

Code:

```
import pandas as pd #import pandas as pd.
from scipy.constants import pi
url =
"https://raw.githubusercontent.com/AnudipAE/DANLC/master/radius_data.csv"# Read the CSV file.
data = pd.read_csv(url)
data['Area'] = pi * data['Radius']**2 # Calculate the area of a circle using the radius.
print("First 5 records:") # Display the first 5 records.
print(data.head())
data.to_csv("area_data.csv", index=False)# Save the calculated result into a new CSV file.
print("Data saved successfully.")
```

Output:

First 5 records:

	CircleName	Radius	Area
0	SAY	3.798717	45.333960
1	PSN	9.958397	311.550720
2	JDP	5.142711	83.087197
3	AUO	3.319584	34.619210
4	OHG	1.138395	4.071325

Data saved successfully.

2. Write a python program to read the celsius from the below .csv file and then Convert Celsius to Fahrenheit using SciPy Constants. After that display the first 5 records and also save the calculated result into a new .csv file. Input:
https://raw.githubusercontent.com/AnudipAE/DANLC/master/city_temperatures.csv

Code:

```
import pandas as pd #importing pandas as pd.

from scipy.constants import convert_temperature
url =
"https://raw.githubusercontent.com/AnudipAE/DANLC/master/city_temperatures.csv"# Read the CSV file.
data = pd.read_csv(url)
print("Columns present in the CSV file:")# Check the columns present in the CSV file.
print(data.columns)
if 'Temperature (°C)' in data.columns:# Convert Celsius to Fahrenheit using SciPy's constants.
    data['Fahrenheit'] = convert_temperature(data['Temperature (°C)'], 'C', 'F')
    print("\nFirst 5 records:")# Display the first 5 records.
    print(data.head())
    data.to_csv("temperatures_fahrenheit.csv", index=False) # Save the calculated result into a new CSV file.
    print("Data saved successfully.")
else:
    print("Error: 'Temperature (°C)' column not found in the CSV file.")
```

Output:

Columns present in the CSV file:

```
Index(['City', 'Temperature (°C)'], dtype='object')
```

First 5 records:

	City	Temperature (°C)	Fahrenheit
0	Los Angeles	35.8	96.44
1	Chicago	8.1	46.58
2	San Francisco	0.2	32.36
3	Chicago	36.2	97.16
4	Boston	37.9	100.22

Data saved successfully.

3. Write a python program to read the Inches from the below .csv file and then Convert Inches to Centimeters using SciPy Constants. After that display the first 5 records and also save the calculated result into a new csv file. Input:
https://raw.githubusercontent.com/AnudipAE/DANLC/master/people_heights.csv

Code:

```
import pandas as pd #importing pandas as pd.
from scipy.constants import inch
url =
"https://raw.githubusercontent.com/AnudipAE/DANLC/master/people_heights.csv"# Read the CSV file.
data = pd.read_csv(url)
print("Columns present in the CSV file:") # Check the columns
present in the CSV file.
print(data.columns)
if 'Height (inches)' in data.columns:# Convert inches to
centimeters using SciPy's constants.
```

```

data['Centimeters'] = data['Height (inches)'] * inch * 100
print("\nFirst 5 records:") # Display the first 5 records.
print(data.head())
data.to_csv("heights_centimeters.csv", index=False) # Save the
calculated result into a new CSV file.
print("Data saved successfully.")
else:
    print("Error: 'Height (inches)' column not found in the CSV
file.")

```

Output:

Columns present in the CSV file:

```
Index(['Name', 'Height (inches)'], dtype='object')
```

First 5 records:

	Name	Height(inches)	Centimeters
0	Person 1	60.03	152.4762
1	Person 2	49.51	125.7554
2	Person 3	82.97	210.7438
3	Person 4	64.19	163.0426
4	Person 5	54.42	138.2268

Data saved successfully.

4. Write a python program to read the GB from the below .csv file and then Convert GB to MB using SciPy Constants. After that display the first 5 records and also save the calculated result into a new csv file.

Input: https://raw.githubusercontent.com/AnudipAE/DANLC/master/file_size.csv

Code:

```
import pandas as pd #importing pandas as pd.
```

```

from scipy.constants import mega
url =
"https://raw.githubusercontent.com/AnudipAE/DANLC/master/file_size.csv"# Read the CSV file.
data = pd.read_csv(url)
print("Columns present in the CSV file:") # Check the columns
present in the CSV file.
print(data.columns)
if 'Size (GB)' in data.columns:# Convert GB to MB using SciPy's
constants.
    data['Size (MB)'] = data['Size (GB)'] * mega
    print("\nFirst 5 records:") # Display the first 5 records.
    print(data.head())
    data.to_csv("file_size_MB.csv", index=False) # Save the
calculated result into a new CSV file
    print("Data saved successfully.")
else:
    print("Error: 'Size (GB)' column not found in the CSV file.")

```

Output:

Columns present in the CSV file:

Index(['Filename', 'Size (GB)'], dtype='object')

First 5 records:

	Filename	Size(GB)	Size (MB)
0	file_1.txt	9.72	9720000.0
1	file_2.txt	9.81	9810000.0
2	file_3.txt	5.61	5610000.0
3	file_4.txt	4.58	4580000.0
4	file_5.txt	5.52	5520000.0

Data saved successfully.