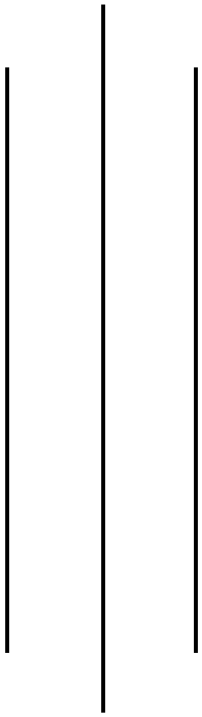
Assignment – I

Data Cleaning Using String Functions for Variables and Data Structures



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Submitted At

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1. Remove Space

Assignment: Remove leading and trailing spaces from a string using strip().

```
DP-Python > Assignment-1.py > ...
1   text = "    Rajendra Chimala      "
2   cleanData = text.strip()
3
4   print(f"Data Before Cleaning :  {text}")
5   print(f"Data After Cleaning :  {cleanData}")
6
```

Click here to run my code on browser

Output

```
PS F:\DP AI ML\Python-for-ML-AI\dp-python> py Assignment-1.py
Data Before Cleaning :     Rajendra Chimala      
Data After Cleaning :  Rajendra Chimala
```

2. Remove Leading Characters

Assignment: Remove all leading asterisks from a string using lstrip().

```
DP-Python > Assignment-1.py > ...
1   text = "*****###Rajendra Chimala"
2   cleanData = text.lstrip("*#")
3
4   print(f"Data Before Cleaning :  {text}")
5   print(f"Data After Cleaning :  {cleanData}")
6
7
```

Click here to run my code on browser

Output:

```
PS F:\DP AI ML\Python-for-ML-AI\dp-python> py Assignment-1.py
Data Before Cleaning :  *****###Rajendra Chimala
Data After Cleaning :  Rajendra Chimala
```

3. Remove Trailing Characters

Assignment: Remove all trailing exclamation marks from a string using rstrip().

```
DP-Python > Assignment-1.py > ...
1   text  = "Rajenrda Chimala**$$!!"
2   cleanData = text.rstrip("**$$!!")
3
4   print(f"Data Before Cleaning :  {text}")
5   print(f"Data After Cleaning :  {cleanData}")
```

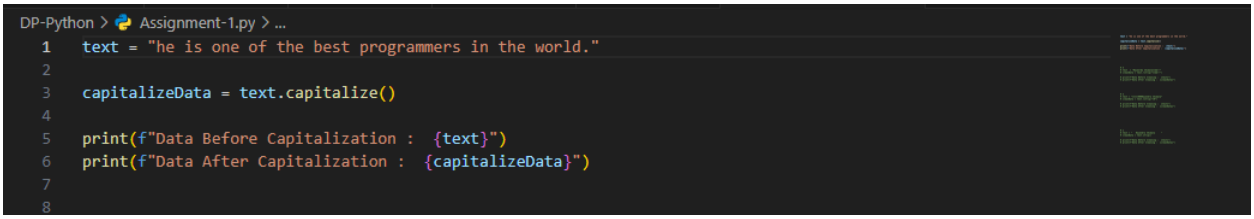
Output:

```
PS F:\DP AI ML\Python-for-ML-AI\dp-python> py Assignment-1.py
Data Before Cleaning :  Rajenrda Chimala**$$!!
Data After Cleaning :  Rajenrda Chimala
```

Click here to run my code on browser

4. Capitalize a Sentence

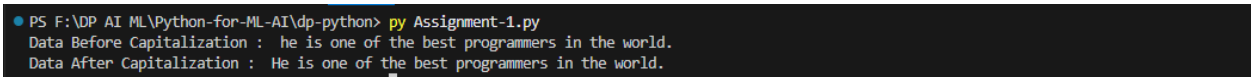
Assignment: Capitalize only the first letter of a lowercase sentence using capitalize().



```
DP-Python > Assignment-1.py > ...
1  text = "he is one of the best programmers in the world."
2
3  capitalizeData = text.capitalize()
4
5  print(f"Data Before Capitalization :  {text}")
6  print(f"Data After Capitalization :  {capitalizeData}")
7
8
```

Click here to run my code on browser

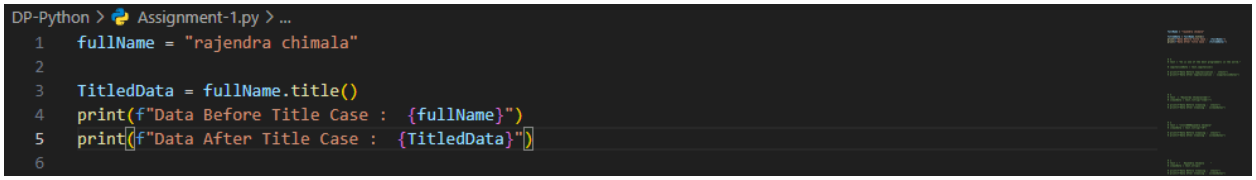
Output:



```
PS F:\DP AI ML\Python-for-ML-AI\dp-python> py Assignment-1.py
Data Before Capitalization :  he is one of the best programmers in the world.
Data After Capitalization :  He is one of the best programmers in the world.
```

5. Title Case a Name

Assignment: Convert a name to title case using title().



```
DP-Python > Assignment-1.py > ...
1  fullName = "rajendra chimala"
2
3  TitledData = fullName.title()
4  print(f"Data Before Title Case :  {fullName}")
5  print(f"Data After Title Case :  {TitledData}")
6
```

Click here to run my code on browser

Output:

```
PS F:\DP AI ML\Python-for-ML-AI\dp-python> py Assignment-1.py
Data Before Title Case :  rajendra chimala
Data After Title Case :  Rajendra Chimala
```

6. Clean List of Names

Assignment: Remove leading and trailing spaces from each name in a list

```
DP-Python > Assignment-1.py > ...
1  fruitNames = [" Apple        ", "    Banana    ", " Mango", "  Pomegranet   ", "  Pineapple   "]
2
3  cleanedNames = [fName.strip() for fName in fruitNames]
4
5  print("Cleaned Fruit Names:")
6  for name in cleanedNames:
7      print(name)
8
```

Click here to run my code on browser

Output

```
PS F:\DP AI ML\Python-for-ML-AI\dp-python> py Assignment-1.py
Cleaned Fruit Names:
Apple
Banana
Mango
Pomegranet
Pineapple
PS F:\DP AI ML\Python-for-ML-AI\dp-python>
```

7. Remove Custom Characters

Assignment: Remove # and $ from both ends of a string using strip().

```
DP-Python > Assignment-1.py > ...
1   text = " *$!#  Rajendra Chimala    **$$!! "
2
3   cleanText = text.strip("*$!# ")
4
5   print(f"Data After Cleaning :  {cleanText}")
6
```

Click here to run my code on browser

Output

```
PS F:\DP AI ML\Python-for-ML-AI\dp-python> py Assignment-1.py
Data After Cleaning :  Rajendra Chimala
PS F:\DP AI ML\Python-for-ML-AI\dp-python>
```

8. Capitalize All Names in List

Assignment: Capitalize each name in a list using capitalize().

```
DP-Python > Assignment-1.py > ...
1   rawNames = ["rajendra","binod","suresh","karthik","ram","sita","gita","sanjay"]
2
3   capitalizeData = [name.capitalize() for name in rawNames]
4   print("Names After Capitalization:")
5   for name in capitalizeData:
6       print(name)
```

Click here to run my code on browser

Output:

```
PS F:\DP AI ML\Python-for-ML-AI\dp-python> py Assignment-1.py
Names After Capitalization:
Rajendra
Binod
Suresh
Karthik
Ram
Sita
Gita
Sanjay
PS F:\DP AI ML\Python-for-ML-AI\dp-python>
```

9. Clean Dictionary Values

Assignment: Remove trailing spaces from all values in a dictionary.

```
DP-Python > Assignment-1.py > ...
1   data = {"name": "Rajendra    ", "city": "Dhanghadhi   ", "country": "Nepal   ","age": "25   "}
2   cleanedData = {k: v.rstrip() for k, v in data.items()}
3   print("Data After Cleaning:")
4   for key, value in cleanedData.items():
5       print(f"{key}: {value}")
```

Click here to run my code on browser

Output

```
PS F:\DP AI ML\Python-for-ML-AI\dp-python> py Assignment-1.py
Data After Cleaning:
name: Rajendra
city: Dhanghadhi
country: Nepal
age: 25
```

10. Title Case Sentences in List

Assignment: Convert each sentence in a list to title case.

```
DP-Python > Assignment-1.py > ...
1   myList = ["hello world", "good morning", "python programming", "data science"]
2   result = [ml.title() for ml in myList]
3   print("Data After Title Case:")
4   for item in result:
5       print(item)
```

Click here to run my code on browser

Output

```
PS F:\DP AI ML\Python-for-ML-AI\dp-python> py Assignment-1.py
Data After Title Case:
Hello World
Good Morning
Python Programming
Data Science
PS F:\DP AI ML\Python-for-ML-AI\dp-python>
```

11. Clean and Title Case

Assignment: Remove spaces and convert to title case

```
DP-Python > Assignment-1.py > ...
    You, 2 minutes ago | 1 author (You)
1   text = " WellCome to dIGITAl PathShala "
2   formatedData = text.strip().title()
3
4   print("Formated Data : ",formatedData)
5
```

Click here to run my code in browser

Output

```
PS F:\DP AI ML\Python-for-ML-AI\dp-python> py Assignment-1.py
Formated Data :  Wellcome To Digital Pathshala
PS F:\DP AI ML\Python-for-ML-AI\dp-python>
```

12. Clean List of Emails

Assignment: Remove leading/trailing spaces from each email in a list.

```
DP-Python > Assignment-1.py > ...
    You, 9 seconds ago | 1 author (You)
1   raw_emails = [" ram@gmail.com", "sita@yahoo.com ","          rajendra@xmail.com"]
2   cleanedEmails = [e.strip() for e in raw_emails]
3   print(cleanedEmails)
4
```

Click here to run my code on browser

Output:

```
PS F:\DP AI ML\Python-for-ML-AI\dp-python> py Assignment-1.py
['ram@gmail.com', 'sita@yahoo.com', 'rajendra@xmail.com']
PS F:\DP AI ML\Python-for-ML-AI\dp-python>
```

13. Remove Leading Numbers

Assignment: Remove all leading digits from a string using lstrip().

```
DP-Python > Assignment-1.py > ...
    ...
1   text = "12345Welcome to Digital Pathshala"
2   cleaned = text.lstrip("1234")
3   print("Data After Cleaning:", cleaned)
4
```

Click here to run my code on browser

Output:

```
PS F:\DP AI ML\Python-for-ML-AI\dp-python> py Assignment-1.py
Data After Cleaning: Welcome to Digital Pathshala
PS F:\DP AI ML\Python-for-ML-AI\dp-python>
```

14. Clean Nested List

Assignment: Remove spaces from each string in a nested list

```
DP-Python > Assignment-1.py > ...
    You, 6 seconds ago | 1 author (You)
1   nestedList = [["  Rajendra Chimala  ", "  Binod Kumar  "], ["  Suresh Yadav  ", "  Karthik Sharma  "], ["  Ram
    Prasad  ", "  Sita Devi  "], ["  Gita Kumari  ", "  Sanjay Singh  "]]
2   cleaned = [[item.strip() for item in sublist] for sublist in nestedList]
3
4   print("Cleaned Nested List:", cleaned)
```

Click here to run my code on browser

Output:

```
PS F:\DP AI ML\Python-for-ML-AI\dp-python> py Assignment-1.py
Cleaned Nested List: [['Rajendra Chimala', 'Binod Kumar'], ['Suresh Yadav', 'Karthik Sharma'], ['Ram Prasad', 'Sita Devi'], ['Gita Kumari', 'Sanja
y Singh']]
PS F:\DP AI ML\Python-for-ML-AI\dp-python>
```

15. Capitalize After Cleaning

Assignment: Clean a string and capitalize the first letter.

Click here to run my code on browser

Output:

```
PS F:\DP AI ML\Python-for-ML-AI\dp-python> py Assignment-1.py
Data After Cleaning and Capitalize :  Good morning!
PS F:\DP AI ML\Python-for-ML-AI\dp-python>
```

16. Clean Dictionary Keys

Assignment: Remove trailing underscores from all dictionary keys.

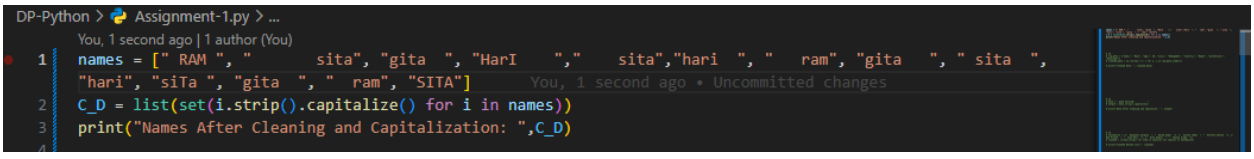
Click here to run my code on browser

Output:

```
PS F:\DP AI ML\Python-for-ML-AI\dp-python> py Assignment-1.py
Cleaned Data:  {'name': 'Raju', 'age': 20, 'city': 'Dhangadhi', 'country': 'Nepal', 'profession': 'Developer'}
PS F:\DP AI ML\Python-for-ML-AI\dp-python>
```

17. Clean and Deduplicate the Names

Assignment: Clean, capitalize, and deduplicate names in a list.



Click here to run my code on browser

Output:

```
PS F:\DP AI ML\Python-for-ML-AI\dp-python> py Assignment-1.py
Names After Cleaning and Capitalization:  ['Hari', 'Ram', 'Gita', 'Sita']
PS F:\DP AI ML\Python-for-ML-AI\dp-python>
```

18. Remove Multiple Character

Assignment: Remove *, -, and spaces from both ends of a string.

```
DP-Python > Assignment-1.py > ...
    You, 1 second ago | 1 author (You)
1   raw_data = "$$$$@@@@&!!!Rajendra*___*---*^^^"
2   cleaned_data = raw_data.strip("*-$!_-^@&")      You, 1 second ago • Uncommitted changes
3   print("Cleaned Data: ", cleaned_data)
4
```

Click here to run my code on browser

Output:

```
PS F:\DP AI ML\Python-for-ML-AI\dp-python> py Assignment-1.py
Cleaned Data:  Rajendra
PS F:\DP AI ML\Python-for-ML-AI\dp-python>
```

19. Conditional Cleaning in List

Assignment: Remove leading # only if present in each string in a list.

```
DP-Python > Assignment-1.py > ...
    You, 7 seconds ago | 1 author (You)
1
2   my_list = ["#Development", "#AI", "ML","#DSA","NLP"]
3   C_D = [x.lstrip("#") if x.startswith("#") else x for x in my_list]
4
5   print("Cleaned Data: ", C_D)
```

Click here to run my code on browser

Output:

```
PS F:\DP AI ML\Python-for-ML-AI\dp-python> py Assignment-1.py
Cleaned Data:  ['Development', 'AI', 'ML', 'DSA', 'NLP']
PS F:\DP AI ML\Python-for-ML-AI\dp-python>
```

20. Clean and Group By First Letter

Assignment: Clean and group product names by their first letter (case-insensitive).

```python
products = [" apple", "-Banana", "apricot", "banana ","mango","momo","------orange"]
cleaned_data = [p.strip(" -").capitalize() for p in products]
grouped_data = {}
for p in cleaned_data:
 key = p[0].upper()
 grouped_data.setdefault(key, []).append(p)

print(grouped_data)
```

Click here to run my code on browser

Output:

```
PS F:\DP AI ML\Python-for-ML-AI\dp-python> py Assignment-1.py
{'A': ['Apple', 'Apricot'], 'B': ['Banana', 'Banana'], 'M': ['Mango', 'Momo'], 'O': ['Orange']}
PS F:\DP AI ML\Python-for-ML-AI\dp-python>
```

21. Clean Set of String

Assignment: Clean all strings in a set of special-character-laden strings

```python
raw_data = {"***ram***", "  sita    ", " Gita@@@@@@@@@@@@@@@ ","333333333hari-----"}
cleaned_data = {rd.strip("*@3- ").capitalize() for rd in raw_data}
print("Cleaned Data: ", cleaned_data)
```

Click here to run my code on browser

Output:

```
PS F:\DP AI ML\Python-for-ML-AI\dp-python> py Assignment-1.py
Cleaned Data:  {'Gita', 'Sita', 'Ram', 'Hari'}
PS F:\DP AI ML\Python-for-ML-AI\dp-python>
```

22. Complex Nested Cleaning

Assignment: Clean and title-case all strings in dictionary values (lists).

```python
raw_data = {"animals": [" rat", "rabbit ","  tiger"], "plants": ["palm ", " apple","neem"]}
cleaned_data = {i: [j.strip().title() for j in x] for i, x in raw_data.items()}

print("Cleaned Data: ", cleaned_data)
```

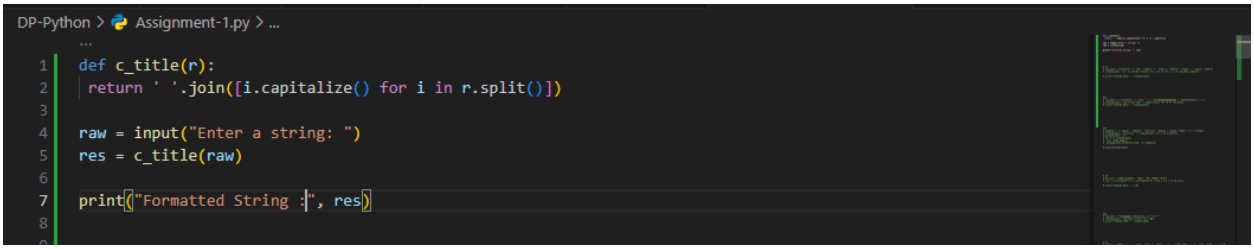
Click here to run my code on browser

Output:

```
PS F:\DP AI ML\Python-for-ML-AI\dp-python> py Assignment-1.py
Cleaned Data:  {'animals': ['Rat', 'Rabbit', 'Tiger'], 'plants': ['Palm', 'Apple', 'Neem']}
PS F:\DP AI ML\Python-for-ML-AI\dp-python>
```

23.Custom Title Function

Assignment: Implement your own title() using only capitalize() and loops.



```
DP-Python > Assignment-1.py > ...
...
1  def c_title(r):
2      return ' '.join([i.capitalize() for i in r.split()])
3
4  raw = input("Enter a string: ")
5  res = c_title(raw)
6
7  print("Formatted String :", res)
8
```

Click here to run my code on browser

Output:

```
PS F:\DP AI ML\Python-for-ML-AI\dp-python> py Assignment-1.py
Enter a string: hello everyone i am rajendra chimala
Formatted String:  Hello Everyone I Am Rajendra Chimala
PS F:\DP AI ML\Python-for-ML-AI\dp-python>
```

24. Clean and Format Emails

Assignment: Clean emails (strip spaces, lowercase all, except capitalize first letter before @).

```
DP-Python > Assignment-1.py > ...
You, 1 second ago | 1 author (You)
1  raw_emails = [" Ram@Example.com", "sitA@EXAMPLE.COM "]
2  cleaned_emails = [i.strip().split("@")[0].capitalize() + "@" + i.strip().split("@")[1].lower() for i in
   raw_emails]
3
4  print("Cleaned Emails: ", cleaned_emails)
```

Click here to run my code on browser

25. Multi Step Cleaning

Assignment: Remove leading numbers, trailing punctuation, and title-case the string.

```
You, 1 second ago | 1 author (You)
1  raw_data = "345235good morning!$234          "
2  cleaned_data = raw_data.strip("0123456789").rstrip("0123456789!$ ").title()
3
4  print("Data After Cleaning and Title Case: ", cleaned_data)
5
```

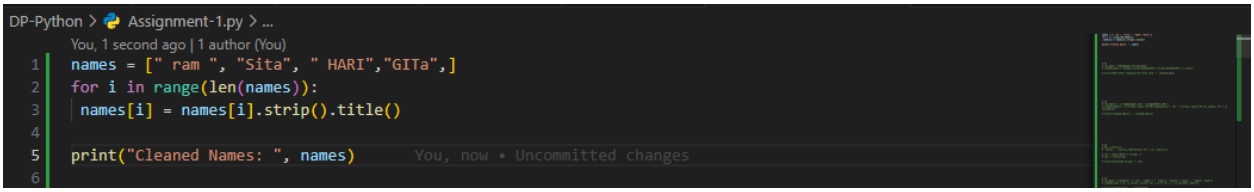
Click here to run my code on browser

Output:

```
PS F:\DP AI ML\Python-for-ML-AI\dp-python> py Assignment-1.py
Data After Cleaning and Title Case:  Good Morning
PS F:\DP AI ML\Python-for-ML-AI\dp-python>
```

26. In-Place Cleaning

Assignment: Clean and title-case a list of strings in place (no new list).

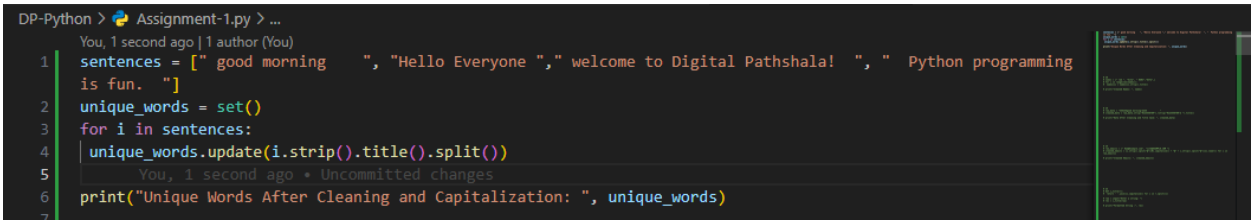


Click here to run my code in browser

Output:

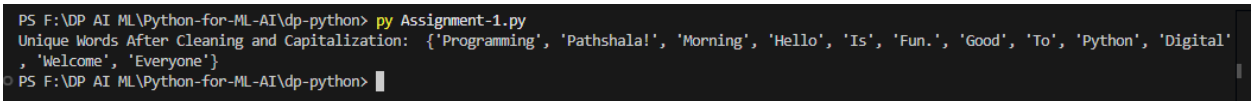
27. Clean and Count Unique Word

Assignment: Clean sentences, split into words, count unique words.



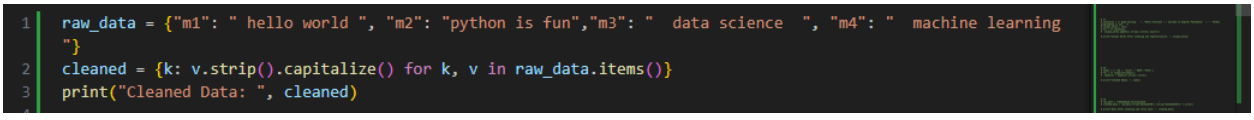
Click here to run my code on browser

Output:



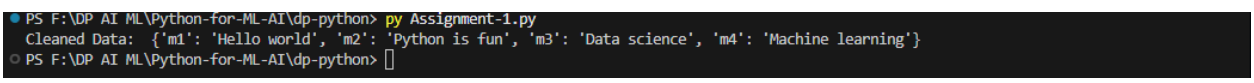
28. Clean Dictionary Sentences

Assignment: Clean and capitalize only the first word of each dictionary value.



Click here to run my code on browser

Output:



29. Selective Character Removal

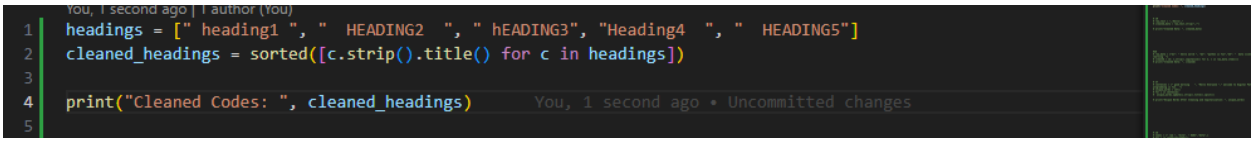
Assignment: Remove only leading/trailing underscores and dashes.

Click here to run my code on browser

Output:

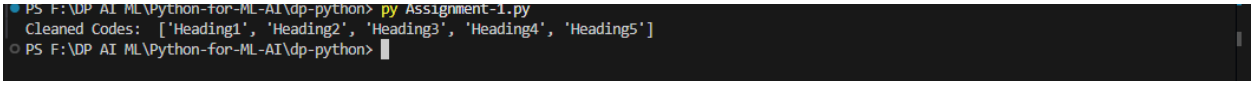
30. Batch Clean and Sort

Assignment: Clean and title-case product codes, then sort.



Click here to run my code on browser

Output:



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