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Batch:CS6

Roll No: 84

EDS ACTIVITY NO.1

Dataset : The Blog Authorship Corpus

Problem Statements :-

```
EDS > EDS_ACT_NO1.py X  Untitled-2  Untitled-1
1 import pandas as pd
2 import numpy as np
3
4 df = pd.read_csv('blog_authorship_dataset(1).csv')
5
6 # 1. Find the total number of records (rows)
7 total_rows = df.shape[0]
8 print("1. Total rows:", total_rows)
9 print('\n')
10 print('\n')
11
12
13 # 2. Find the total number of unique authors
14 unique_authors = df['author'].nunique()
15 print("2. Unique authors:", unique_authors)
16 print('\n')
17 print('\n')
18
19
20 # 3. Number of missing values in each column
21 missing_values = df.isnull().sum()
22 print("3. Missing values per column:\n", missing_values)
23 print('\n')
24 print('\n')
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27
28 # 4. Top 5 authors with the most blog posts
29 top_5_authors = df['author'].value_counts().head(5)
30 print("4. Top 5 authors:\n", top_5_authors)
31 print('\n')
32 print('\n')
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34
35 # 5. Average length of blog titles
36 title_lengths = df['title'].astype(str).apply(len)
37 average_title_length = title_lengths.mean()
```

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EDS_ACT_NO1.py x Untitled-2 Untitled-1
EDS > EDS_ACT_NO1.py > ...
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44 # 6. Maximum and minimum lengths of content_snippet
45 content_lengths = df['content_snippet'].astype(str).apply(len)
46 print("6. Max content_snippet length:", content_lengths.max())
47 print("6. Min content_snippet length:", content_lengths.min())
48 print('\n')
49 print('\n')
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52
53 # 7. Blog posts with title length > 100
54 long_titles = df[title_lengths > 100]
55 print("7. Posts with title length > 100:\n", long_titles[['id', 'title']])
56 print('\n')
57 print('\n')
58
59
60 # 8. Number of blog posts with empty (NaN) titles
61 empty_titles_count = df['title'].isna().sum()
62 print("8. Number of empty titles:", empty_titles_count)
63 print('\n')
64 print('\n')
65
66
67
68 # 9. Create a new column counting words in content_snippet
69 content_word_counts = df['content_snippet'].astype(str).apply(lambda x: len(x.split()))
70 df['content_snippet_word_count'] = content_word_counts
71 print("9. Word counts added to DataFrame.")
72 print('\n')
73 print('\n')
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77 # 10. Top 10 blog posts with the longest content_snippet
78 top_10_content = df.sort_values(by='content_snippet_word_count', ascending=False).head(10)
79 print("10. Top 10 longest content_snippet posts:\n", top_10_content[['id', 'content_snippet_word_count']])
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EDS_ACT_NO1.py x Untitled-2 Untitled-1
EDS > EDS_ACT_NO1.py > ...

85 # 11. Average number of words per content_snippet for each author
86 avg_words_per_author = df.groupby('author')['content_snippet_word_count'].mean()
87 print("11. Average words per content_snippet per author:\n", avg_words_per_author)
88 print('\n')
89 print('\n')
90
91
92 # 13. Author who wrote the blog post with the longest content_snippet
93 longest_content_index = df['content_snippet_word_count'].idxmax()
94 longest_content_author = df.loc[longest_content_index, 'author']
95 print("13. Author with longest content_snippet:", longest_content_author)
96 print('\n')
97 print('\n')
98
99
100 # 14. Proportion of blog posts by top 5 authors
101 top5_total_posts = top_5_authors.sum()
102 proportion_top5 = top5_total_posts / total_rows
103 print("14. Proportion of posts by top 5 authors:", proportion_top5)
104 print('\n')
105 print('\n')
106
107 |
108 # 15. Mean and standard deviation of title lengths
109 mean_title_length = title_lengths.mean()
110 std_title_length = title_lengths.std()
111 print(f"15. Mean title length: {mean_title_length}, Std Dev title length: {std_title_length}")
112 print('\n')
113 print('\n')
114
115
116
117 # 16. Title with maximum number of words
118 df['title_word_count'] = df['title'].astype(str).apply(lambda x: len(x.split()))
119 max_title_words_row = df.loc[df['title_word_count'].idxmax()]
120 print("16. Title with maximum words:\n", max_title_words_row[['id', 'title', 'title_word_count']])
121 print('\n')
```

Ln 107, Col 1 Spaces: 4 UTF-8 CRLF {} Python 3.13.1 (my_venv: venv) Go Live

```
EDS_ACT_NO1.py x Untitled-2 Untitled-1
EDS > EDS_ACT_NO1.py > ...
124 # 17. List authors who have written more than 50 blog posts
125 authors_post_counts = df['author'].value_counts()
126 authors_more_than_50 = authors_post_counts[authors_post_counts > 50]
127 print("17. Authors with more than 50 posts:\n", authors_more_than_50)
128 print('\n')
129 print('\n')
130
131
132 # 18. Correlation between title length and content_snip word count
133 correlation = np.corrcoef(title_lengths, content_word_counts)[0, 1]
134 print("18. Correlation between title length and content_snip word count:", correlation)
135 print('\n')
136 print('\n')
137
138
139
140 # 19. Number of blog posts containing the word "data" in title
141 posts_with_data = df['title'].astype(str).str.contains('data', case=False, na=False)
142 num_posts_with_data = posts_with_data.sum()
143 print("19. Number of posts mentioning 'data' in title:", num_posts_with_data)
144 print('\n')
145 print('\n')
146
147
148
149 # 20. Find the ID of blog posts where content_snip is exactly empty ("")
150 empty_content_ids = df[df['content_snippet'].astype(str).str.strip() == '']['id']
151 print("20. IDs with empty content_snip:\n", empty_content_ids.values)
152 print('\n')
153 print('\n')
154
155
```

Solutions:-

```
PROBLEMS  DEBUG CONSOLE  OUTPUT  TERMINAL  PORTS
PS C:\Users\Engineers\Desktop\python_practice\python_practice> python -u "c:\Users\Engineers\Desktop\python_practice\python_practice\EDS\EDS_ACT_N01.py"
1. Total rows: 299

2. Unique authors: 46

3. Missing values per column:
id          0
author      0
title       0
content_snippet  0
word_count  0
avg_word_length  0
punctuation_count  0
post_date   0
sentiment   0
topic       0
device_used  0
reading_time_min  0
dtype: int64

4. Top 5 authors:
author
Gregory      16
Christopher  16
Karen        12
Derek        12
Patrick      11
Name: count, dtype: int64

Ln 107, Col 1  Spaces: 4  UTF-8  CRLF  {} Python  3.13.1 ('my_venv': venv)  Go Live
```

```
PROBLEMS  DEBUG CONSOLE  OUTPUT  TERMINAL  PORTS
Derek      12
Patrick    11
Name: count, dtype: int64

5. Average title length: 29.401337792642142

6. Max content_snippet length: 99
6. Min content_snippet length: 14

7. Posts with title length > 100:
Empty DataFrame
Columns: [id, title]
Index: []

8. Number of empty titles: 0

9. Word counts added to DataFrame.

10. Top 10 longest content snippet posts:
   id  content_snippet_word_count
90  91                        17
73  74                        17
6   7                         16
54  55                        16
27  28                        16
142 143                       16
156 157                       16
166 167                       16
189 190                       16
36  37                        15

11. Average words per content_snippet per author:
author
Aaron      12.250000

Ln 103, Col 1  Spaces: 4  UTF-8  CRLF  {} Python  3.13.1 ('my_venv': venv)  Go Live
```

```
PROBLEMS  DEBUG CONSOLE  OUTPUT  TERMINAL  PORTS
11. Average words per content_snippet per author:
author
Aaron      12.250000
Alex       8.000000
Amber      11.125000
Andrew     12.000000
Anthony    10.000000
Bernard    11.444444
Brianna    12.500000
Brittney   10.500000
Carolyn    8.250000
Christopher 11.875000
Colleen    10.600000
Crystal    13.500000
Danielle   9.444444
Denise     11.428571
Derek      10.666667
Erika      11.250000
Felicia    7.800000
George     10.333333
Grant      13.333333
Gregory    10.375000
Jacob      11.000000
Jessica    8.000000
John       9.000000
Jon        9.500000
Joseph     10.625000
Joshua     10.000000
Kara       11.888889
Karen      12.083333
Katherine  10.428571
Kenneth    11.500000
Kimberly   12.090909
Mark       10.000000
Michelle   11.285714
Nicole     11.250000
Null       13.500000
Patrick    10.363636
Paul       13.333333
Peggy      12.800000

Ln 103, Col 1  Spaces: 4  UTF-8  CRLF  {} Python  3.13.1 (my_venv: venv)  Go Live
```

```
PROBLEMS  DEBUG CONSOLE  OUTPUT  TERMINAL  PORTS
Nicole     11.250000
Null       13.500000
Patrick    10.363636
Paul       13.333333
Peggy      12.800000
Robert     11.428571
Ryan       9.222222
Sandra     10.800000
Sharon     12.222222
Stephen    10.750000
Tammy      11.142857
Theodore   12.428571
Tyler      9.000000
Name: content_snippet_word_count, dtype: float64

13. Author with longest content_snippet: Robert

14. Proportion of posts by top 5 authors: 0.22408026755852842

15. Mean title length: 29.401337792642142, Std Dev title length: 8.491970045359619

16. Title with maximum words:
id              135
title          Until interest investment sister TV heart such.
title_word_count 7
Name: 134, dtype: object

17. Authors with more than 50 posts:
Series([], Name: count, dtype: int64)

Ln 103, Col 1  Spaces: 4  UTF-8  CRLF  {} Python  3.13.1 (my_venv: venv)  Go Live
```

14. Proportion of posts by top 5 authors: 0.22408026755852842

15. Mean title length: 29.401337792642142, Std Dev title length: 8.491970045359619

16. Title with maximum words:

id	135
title	Until interest investment sister TV heart such.
title_word_count	7
Name: 134, dtype: object	

17. Authors with more than 50 posts:

Series([], Name: count, dtype: int64)

18. Correlation between title length and content_snip word count: 0.09305850521353563

19. Number of posts mentioning 'data' in title: 2

20. IDs with empty content_snip:

[]

PS C:\Users\Engineers\Desktop\python_practice\python_practice> []