```
 1 C:\Users\91788\AppData\Local\Programs\Python\Python39
   \python.exe "C:\Users\91788\OneDrive\Desktop\
   Statistical Learning\models_missingvalues.py"
 2 <class 'pandas.core.frame.DataFrame'>
 3 RangeIndex: 4341 entries, 0 to 4340
 4 Data columns (total 39 columns):
 5  #   Column        Non-Null Count   Dtype
 6 ---  ------        --------------   -----
 7  0   region        4341 non-null    object
 8  1   province      4341 non-null    object
 9  2   name          4335 non-null    object
10  3   tc            4341 non-null    float64
11  4   cres          4289 non-null    float64
12  5   csor          4274 non-null    float64
13  6   istat         4341 non-null    int64
14  7   area          4335 non-null    float64
15  8   pop           4341 non-null    int64
16  9   alt           4335 non-null    float64
17  10  isle          4335 non-null    float64
18  11  sea           4335 non-null    float64
19  12  pden          4335 non-null    float64
20  13  wden          4335 non-null    float64
21  14  urb           4335 non-null    float64
22  15  fee           4341 non-null    object
23  16  d_fee         4341 non-null    int64
24  17  sample        4341 non-null    int64
25  18  organic       3829 non-null    float64
26  19  paper         4316 non-null    float64
27  20  glass         4308 non-null    float64
28  21  wood          3246 non-null    float64
29  22  metal         4095 non-null    float64
30  23  plastic       4302 non-null    float64
31  24  raee          4027 non-null    float64
32  25  texile        3328 non-null    float64
33  26  other         4205 non-null    float64
34  27  msw_so        4341 non-null    float64
35  28  msw_un        4341 non-null    int64
36  29  msw           4341 non-null    int64
37  30  sor           4341 non-null    float64
38  31  geo           4056 non-null    float64
39  32  roads         3898 non-null    float64
40  33  s_wteregio    4056 non-null    float64
41  34  s_landfill    4056 non-null    float64
42  35  gdp           3955 non-null    float64
```

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43  36  proads     3898 non-null    float64
44  37  wage       4056 non-null    float64
45  38  finance    3955 non-null    float64
46 dtypes: float64(29), int64(6), object(4)
47 memory usage: 1.3+ MB
48 None
49
50
51 <class 'pandas.core.frame.DataFrame'>
52 Int64Index: 4341 entries, 0 to 4340
53 Data columns (total 38 columns):
54  #   Column     Non-Null Count   Dtype
55 ---  ------     --------------   -----
56  0   region     4341 non-null    object
57  1   province   4341 non-null    object
58  2   tc         4341 non-null    float64
59  3   cres       4341 non-null    float64
60  4   csor       4341 non-null    float64
61  5   istat      4341 non-null    int64
62  6   area       4341 non-null    float64
63  7   pop        4341 non-null    int64
64  8   alt        4341 non-null    float64
65  9   isle       4341 non-null    float64
66  10  sea        4341 non-null    float64
67  11  pden       4341 non-null    float64
68  12  wden       4341 non-null    float64
69  13  urb        4341 non-null    float64
70  14  fee        4341 non-null    object
71  15  d_fee      4341 non-null    int64
72  16  sample     4341 non-null    int64
73  17  organic    4341 non-null    float64
74  18  paper      4341 non-null    float64
75  19  glass      4341 non-null    float64
76  20  wood       4341 non-null    float64
77  21  metal      4341 non-null    float64
78  22  plastic    4341 non-null    float64
79  23  raee       4341 non-null    float64
80  24  texile     4341 non-null    float64
81  25  other      4341 non-null    float64
82  26  msw_so     4341 non-null    float64
83  27  msw_un     4341 non-null    int64
84  28  msw        4341 non-null    int64
85  29  sor        4341 non-null    float64
86  30  geo        4341 non-null    float64
```

```
87  31  roads       4341 non-null   float64
88  32  s_wteregio  4341 non-null   float64
89  33  s_landfill  4341 non-null   float64
90  34  gdp         4341 non-null   float64
91  35  proads      4341 non-null   float64
92  36  wage        4341 non-null   float64
93  37  finance     4341 non-null   float64
94 dtypes: float64(29), int64(6), object(3)
95 memory usage: 1.3+ MB
96 None
97
98
99 Numerical Attributes: ['cres', 'csor', 'istat', '
   area', 'pop', 'alt', 'isle', 'sea', 'pden', 'wden
   ', 'urb', 'd_fee', 'sample', 'organic', 'paper', '
   glass', 'wood', 'metal', 'plastic', 'raee', 'texile
   ', 'other', 'msw_so', 'msw_un', 'msw', 'sor', 'geo
   ', 'roads', 's_wteregio', 's_landfill', 'gdp', '
   proads', 'wage', 'finance']
100 Categorical Attributes: ['region', 'province', 'fee
    ']
101 Numerical Discrete Attributes: ['isle', 'sea', 'urb
    ', 'd_fee', 'sample', 'geo']
102 Numerical Continuous Attributes: ['cres', 'csor', '
    istat', 'area', 'pop', 'alt', 'pden', 'wden', '
    organic', 'paper', 'glass', 'wood', 'metal', '
    plastic', 'raee', 'texile', 'other', 'msw_so', '
    msw_un', 'msw', 'sor', 'roads', 's_wteregio', '
    s_landfill', 'gdp', 'proads', 'wage', 'finance']
103
104
105 ----cres----
106 Mean: 54.030022574906085
107 Median: 41.68999862670898
108 Mode: 0    41.689999
109 dtype: float64
110 Minimum: 4.269999980926514
111 Maximum: 670.3200073242188
112 Standard Deviation: 42.95309460596633
113
114
115 ----csor----
116 Mean: 52.62428352965157
117 Median: 48.875
```

```
118 Mode: 0     48.875
119 dtype: float64
120 Minimum: 3.390000104904175
121 Maximum: 582.1599731445312
122 Standard Deviation: 32.81076172202085
123
124
125 ----istat----
126 Mean: 47469.93319511633
127 Median: 42015.0
128 Mode: 0            1272
129 1          2158
130 2          3001
131 3          3002
132 4          3006
133            ...
134 4336     111096
135 4337     111102
136 4338     111103
137 4339     111105
138 4340     111107
139 Length: 4341, dtype: int64
140 Minimum: 1272
141 Maximum: 111107
142 Standard Deviation: 30089.7981693163
143
144
145 ----area----
146 Mean: 40.96979956280983
147 Median: 22.72999954223633
148 Mode: 0      4.59
149 1     16.01
150 2     22.73
151 dtype: float64
152 Minimum: 0.119999997317791
153 Maximum: 1287.390014648438
154 Standard Deviation: 56.74881812616184
155
156
157 ----pop----
158 Mean: 10203.83736466252
159 Median: 3535.0
160 Mode: 0     2288
161 dtype: int64
```

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162 Minimum: 34
163 Maximum: 2617175
164 Standard Deviation: 53426.39659335975
165
166
167 ----alt----
168 Mean: 309.95530983644323
169 Median: 240.0
170 Mode: 0     5.0
171 dtype: float64
172 Minimum: 1.0
173 Maximum: 1816.0
174 Standard Deviation: 280.35240386442115
175
176
177 ----pden----
178 Mean: 404.6975610591222
179 Median: 151.32362365722666
180 Mode: 0     151.323624
181 dtype: float64
182 Minimum: 2.4799941606521606
183 Maximum: 12122.826171875
184 Standard Deviation: 770.7363383726579
185
186
187 ----wden----
188 Mean: 191886.79603804083
189 Median: 68342.5859375
190 Mode: 0     68342.585938
191 dtype: float64
192 Minimum: 892.1847534179688
193 Maximum: 4978556.5
194 Standard Deviation: 358782.5769514283
195
196
197 ----organic----
198 Mean: 22.592803205933166
199 Median: 24.96855410228353
200 Mode: 0     24.968554
201 dtype: float64
202 Minimum: 0.0137124352063956
203 Maximum: 61.63912210305654
204 Standard Deviation: 12.00141371314534
205
```

```
206
207 ----paper----
208 Mean: 10.96079484339745
209 Median: 10.87904550064858
210 Mode: 0     10.879046
211 dtype: float64
212 Minimum: 1.1456026516e-05
213 Maximum: 45.28812961738167
214 Standard Deviation: 3.871953664993397
215
216
217 ----glass----
218 Mean: 9.404318903769694
219 Median: 9.101589088836707
220 Mode: 0     9.101589
221 dtype: float64
222 Minimum: 1.1071704046e-06
223 Maximum: 39.83636894906009
224 Standard Deviation: 3.6935778440735945
225
226
227 ----wood----
228 Mean: 4.090842293209851
229 Median: 4.023800986812828
230 Mode: 0     4.023801
231 dtype: float64
232 Minimum: 7.96919809307e-09
233 Maximum: 25.11700170233176
234 Standard Deviation: 2.349273808586821
235
236
237 ----metal----
238 Mean: 1.7517567570006147
239 Median: 1.54091967465224
240 Mode: 0     1.54092
241 dtype: float64
242 Minimum: 5.14018141223e-06
243 Maximum: 20.67145744441949
244 Standard Deviation: 1.312512652821334
245
246
247 ----plastic----
248 Mean: 6.109290695921452
249 Median: 5.792267781368102
```