```
1 C:\Users\jiepeng\anaconda3\python.exe "
  C:/Users/jiepeng/OneDrive - Yaojushi/
  CAU-No.455-Lab/case_study.py"
2 0000000000000000000
4 0000000sos
5 GORKGOGOTop20GOG
6 protein
               score
       9.2040
7 AKT1
8 HKT1 8.7653
9 TPC1 7.7803
10 KT2/3 7.6536
11 HAK5 7.2092
12 SOS3 6.2685
13 CBL1 6.1215
14 NHX1 6.0660
15 Name: GORK, dtype: float32
16 0000000000000000000
18 0000000col
20 protein
               score
       9.0849
21 AKT1
      8.3984
22 HKT1
23 TPC1 7.5799
24 KT2/3 7.3682
25 HAK5 7.2506
26 SOS3 6.0570
27 CBL1 5.9816
28 NHX1 5.9456
29 Name: GORK, dtype: float32
```

```
30 GORKUcolUsosUUUUUUUUUUUUUUUUUUUUU32,
           00000result000
31
32 000000000000000000
34 00000000sos
36 protein
                                                                        score
                               7.0292
37 HKT1
                              6.9503
38 TPC1
39 AKT1 6.6732
40 KT2/3 5.7522
41 HAK5 5.6962
42 NHX1 4.9432
43 NHX2 4.7601
44 KAT3 4.5895
45 Name: CNGC10, dtype: float32
46 0000000000000000000
48 0000000col
49 \( \text{CNGC10} \text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\tint{\text{\text{\text{\text{\text{\tint{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\tint{\text{\text{\text{\text{\text{\text{\text{\text{\text{\tint{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\tint{\text{\text{\tint{\text{\text{\tint{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\te}\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\tett}\x{\text{\text{\text{\texi}\text{\texict{\text{\ti}\tint{\tex{\texi}\text{\text{\texi}\text{\text{\text{\text{\text{\text{\te\
50 protein
                                                                        score
                              7.0753
51 TPC1
                              6.8784
52 HKT1
53 AKT1 6.8378
54 HAK5 5.9408
55 KT2/3 5.6645
56 NHX1 4.9916
57 NHX2 4.8038
58 KAT3 4.5126
59 Name: CNGC10, dtype: float32
```

```
00000result000
61
62 0000000000000000000
64 00000000sos
65 ØIMPA-20000Top20000
66 protein score
67 AT3G08943 3.7334
68 AT5G53480 3.7077
69 AT2G46520 3.5515
70 AT3G08947 3.3563
71 ATARCA 3.3182
72 ABH1
           3.2917
73 AT4G27640 2.8851
74 NRPA2 2.8428
75 Name: IMPA-2, dtype: float32
76 0000000000000000000
78 0000000col
79 ØIMPA-20000Top20000
80 protein score
81 AT3G08943 3.9597
82 AT5G53480 3.8942
83 AT2G46520 3.7686
84 AT3G08947 3.5878
      3.3543
85 ABH1
86 NOP56 3.2228
87 ATARCA 3.1932
88 AT4G27640 3.0813
89 Name: IMPA-2, dtype: float32
```

```
00000result000
91
92 000000000000000000
94 0000000sos
95 ØGLR2.70000Top200000
96 protein
              score
97 TPC1 8.0439
98 GLUR2 4.6981
99 GLR1.4 4.6343
100 GLR3.4 4.4036
101 GLR1.1 4.1878
102 GLR1.3 4.1353
103 GLR2.1 4.1193
104 AKT1
          3.9402
105 Name: GLR2.7, dtype: float32
108 00000000col
110 protein
              score
111 TPC1 8.1149
112 GLUR2 4.7950
113 GLR1.4 4.6639
114 GLR3.4 4.5912
115 GLR1.1 4.2980
116 GLR1.3 4.2623
117 GLR2.3 4.1437
118 GLR2.1 4.0590
119 Name: GLR2.7, dtype: float32
```

```
00000result000
121
122 0000000000000000000
124 00000000sos
125 UCIB5UUUUTop20UUU
126 protein
                                                                           score
127 CRY1 3.4410
128 HY5 3.3518
129 LKP2 3.3274
130 CRY2 3.3143
131 HFR1 3.2853
132 ZTL 3.2339
133 SPA1 3.2183
134 CIB5 3.1019
135 Name: CIB5, dtype: float32
136 0000000000000000000
138 00000000col
139 \( \text{CIB5} \text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\tinx{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\tinx{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\tinx{\tint{\text{\text{\text{\text{\tint{\text{\text{\text{\tint{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\tinx{\text{\text{\text{\text{\text{\text{\text{\tinx{\text{\tint{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\text{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinchint{\tinx{\tinit}\x{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\tinx{\ti
140 protein
                                                                           score
141 LKP2 3.2349
142 CRY1 3.2289
143 CRY2 3.2103
144 HY5 3.1986
145 SPA1 3.0902
146 HFR1 3.0746
147 ZTL 2.9987
148 PIF4 2.8844
149 Name: CIB5, dtype: float32
```

```
150 CIB50col0sos000000000000000000074,
  00000result000
151
152 0000000000000000000
154 00000000sos
156 protein
             score
157 IAR1
          5.3129
158 ZTP29 4.8613
159 IRT1 4.7432
160 AT3G08650 4.4206
161 NRAMP4 3.9439
162 FR02 3.8514
163 ZAT
          3.7658
164 VIT1 3.7347
165 Name: ZIP7, dtype: float32
168 00000000col
169 ZIP7000Top200000
170 protein score
          5.2238
171 IAR1
172 ZTP29 4.7942
173 IRT1 4.6931
174 AT3G08650 4.3546
175 NRAMP4 3.9003
176 FR02 3.7860
         3.7285
177 ZAT
178 VIT1 3.6364
179 Name: ZIP7, dtype: float32
```

180	ZIP70col0sos00000000000000000000000000000000					
	00000result000					
181						
182						
183	Process	finished	with	exit	code	0
184						