Student Alcohol Consumption

Introduction:

This time you will download a dataset from the UCI.

Step 1. Import the necessary libraries

```
import pandas as pd
```

Step 2. Import the dataset from this <u>address</u>.

```
url = "https://raw.githubusercontent.com/thieu1995/csv-files/main/data/pandas/student-mat.csv"
```

Step 3. Assign it to a variable called df.

```
df = pd.read_csv(url)
```

 ✓ Step 4. For the purpose of this exercise slice the dataframe from 'school' until the 'guardian' column

```
df = df.iloc[:, :12]
print(df)
\overline{2}
                      age address famsize Pstatus
                                                     Medu
                                                            Fedu
                                                                       Mjob
                                                                                 Fjob
         school sex
             GP
                       18
                                U
                                       GT3
                                                                   at home
                                                                              teacher
             GP
                       17
                                 U
                                       GT3
                                                               1
                                                                   at home
                                                                                other
             GP
                       15
                                 U
                                       LE3
                                                                   at home
                                                                                other
     3
             GP
                       15
                                 U
                                       GT3
                                                                    health
                                                                            services
     4
             GP
                       16
                                 U
                                       GT3
                                                  Τ
                                                        3
                                                                     other
                                                                                other
                                                                  services
     390
     391
             MS
                                                                  services
     392
             MS
                       21
                                       GT3
     393
             MS
                                       LE3
                                                                  services
                                                                                other
                       18
             MS
                                                                              at_home
                                                                     other
          reason guardian
     0
          course
                    mother
          course
                    father
     2
           other
                    mother
     3
             home
     4
            home
     390
          course
     391
          course
                    mother
     392
          course
                     other
     393
                    mother
          course
          course
                    father
     [395 rows x 12 columns]
```

Step 5. Create a lambda function that will capitalize strings.

```
capitalize = lambda x: x.capitalize()
```

Step 6. Capitalize both Mjob and Fjob

```
df[['Mjob', 'Fjob']] = df[['Mjob', 'Fjob']].applymap(capitalize)
print(df)
₹
         school sex
                    age address famsize Pstatus
                                                 Medu Fedu
                                                                 Mjob
                                                                           Fjob
                     18
                              U
                                    GT3
                                                    4
                                                              At_home
                                                                        Teacher
                                                                          Other
             GΡ
                     15
                                                                          Other
             GΡ
                                                               Health
     4
                     16
                              U
                                    GT3
                                              Т
                                                    3
                                                          3
                                                                0ther
                                                                          0ther
     390
            MS
                 Μ
                                                          2 Services
                                                                      Services
```

```
391
        MS
                 17
                           U
                                 LE3
                                                  3
                                                            Services Services
392
        MS
             М
                 21
                           R
                                 GT3
                                            Т
                                                  1
                                                        1
                                                               0ther
                                                                          Other
393
        MS
             Μ
                 18
                           R
                                 LE3
                                            Т
                                                  3
                                                        2
                                                            Services
                                                                         0ther
                                                               Other
                                                                        At_home
     reason guardian
0
              mother
     course
1
     course
              father
2
      other
              mother
3
       home
              mother
4
       home
              father
390
     course
               other
391
     course
              mother
     course
               other
393
     course
              mother
394
              father
    course
[395 rows x 12 columns]
<ipython-input-13-54578b1a9087>:1: FutureWarning: DataFrame.applymap has been deprecated. Use DataFrame.map instead.
  df[['Mjob', 'Fjob']] = df[['Mjob', 'Fjob']].applymap(capitalize)
```

Step 7. Print the last elements of the data set.

```
print(df.tail(1))
                      age address famsize Pstatus Medu Fedu
                                                                  Miob
\overline{2}
         school sex
                                                                            Fiob
     394
             MS
                  М
                      19
                                U
                                       LE3
                                                 Т
                                                        1
                                                              1
                                                                 0ther
                                                                        At home
          reason guardian
     394 course
                    father
```

Step 8. Did you notice the original dataframe is still lowercase? Why is that? Fix it and capitalize Mjob and Fjob.

```
df['Mjob'] = df['Mjob'].apply(lambda x: x.capitalize())
df['Fjob'] = df['Fjob'].apply(lambda x: x.capitalize())
print(df)
₹
                      age address famsize Pstatus
                                                                                  Fjob
         school sex
                                                      Medu
                                                             Fedu
                                                                       Miob
     0
             GP
                       18
                                 U
                                        GT3
                                                   Α
                                                         4
                                                               4
                                                                    At home
                                                                               Teacher
     1
              GP
                       17
                                 U
                                        GT3
                                                   Т
                                                         1
                                                                1
                                                                    At home
                                                                                 Other
     2
              GP
                   F
                       15
                                 U
                                        IF3
                                                   Т
                                                         1
                                                               1
                                                                    At home
                                                                                 0ther
     3
              GP
                   F
                       15
                                 U
                                        GT3
                                                   Т
                                                         4
                                                                     Health
                                                                              Services
     4
              GΡ
                                 U
                                                   Т
                                                         3
                                                                      0ther
     390
             MS
                                        LE3
                                                                   Services
                                                                              Services
     391
             MS
                       17
                                 U
                                        LE3
                                                   Т
                                                         3
                                                               1
                                                                   Services
                                                                              Services
     392
             MS
                       21
                                        GT3
                                                   Т
                                                                      0ther
                                                                                 0ther
                                 R
     393
             MS
                   Μ
                       18
                                 R
                                        LE3
                                                         3
                                                                2
                                                                   Services
                                                                                 Other
     394
             MS
                                                                      0ther
                                                                               At_home
                       19
                                        LE3
           reason guardian
     0
           course
                    mother
     2
            other
     3
             home
             home
                    father
     390
                     other
          course
     391
          course
                    mother
     392
          course
                     other
     393
          course
                    mother
     394
          course
                    father
     [395 rows x 12 columns]
```

Step 9. Create a function called majority that returns a boolean value to a new column called legal_drinker (Consider majority as older than 17 years old)

```
df['legal_drinker'] = df['age'].apply(lambda x: x > 17)
print(df)
\overline{2}
          school sex
                       age address
                                    famsize Pstatus
                                                       Medu
                                                              Fedu
                                                                         Mjob
                                                                                    Fjob
     0
                        18
                                  U
                                         GT3
                                                           4
                                                                      At_home
                                                                                 Teacher
              GΡ
                        17
                                                    Т
     1
                                  U
                                         GT3
                                                           1
                                                                 1
                                                                      At home
                                                                                   0ther
              GP
                                                                      At home
                        15
                                  U
                                         LE3
                                                                                   0ther
                        15
                                                                       Health
                                                                               Services
                                         GT3
```

```
3
                                                   3
4
       GP
                16
                        U
                               GT3
                                                           Other
                                                                    0ther
390
                20
                               LE3
                                              2
                                                    2 Services Services
                               LE3
                                                    1 Services Services
392
       MS
            Μ
                21
393
       MS
               18
                               LE3
                                                       Services
                                                                    0ther
                19
                                                           Other
                                                                  At_home
    reason guardian legal_drinker
0
    course
             mother
                              True
                             False
1
    course
             father
2
     other
             mother
                             False
3
      home
             \quad \text{mother} \quad
                             False
4
      home
             father
                             False
390 course
             other
391 course
            mother
                             False
392 course
             other
                              True
393 course
             mother
                              True
394 course father
                              True
[395 rows x 13 columns]
```


I know this makes no sense, don't forget it is just an exercise

```
df[['age', 'Medu', 'Fedu']] = df[['age', 'Medu', 'Fedu']].apply(lambda x: x * 10)
print(df)
```

		school	sex	age	address	famsize	Pstatus	Medu	Fedu	Mjob	Fjob	\
_	0	GP	F	180	U	GT3	Α	40	40	At_home	Teacher	
	1	GP	F	170	U	GT3	T	10	10	At_home	Other	
	2	GP	F	150	U	LE3	Т	10	10	At_home	Other	
	3	GP	F	150	U	GT3	Т	40	20	Health	Services	
	4	GP	F	160	U	GT3	T	30	30	Other	Other	
	390	MS	М	200	U	LE3	Α	20	20	Services	Services	
	391	MS	М	170	U	LE3	T	30	10	Services	Services	
	392	MS	М	210	R	GT3	Т	10	10	0ther	Other	
	393	MS	М	180	R	LE3	Т	30	20	Services	Other	
	394	MS	М	190	U	LE3	Т	10	10	Other	At home	

	reason	guardian	legal_drinker
0	course	mother	True
1	course	father	False
2	other	mother	False
3	home	mother	False
4	home	father	False
390	course	other	True
391	course	mother	False
392	course	other	True
393	course	mother	True
394	course	father	True

[395 rows x 13 columns]