```
import pandas as pd
import numpy as np
df = pd.read csv('hepatitis csv.csv')
df.head()
  age sex steroid antivirals fatigue malaise anorexia liver big
   30
         male False
                          False
                                  False
                                         False
                                                  False
                                                           False
0
1
   50 female
               False
                          False
                                   True
                                         False
                                                  False
                                                           False
2
   78 female
                True
                          False True
                                         False
                                                  False
                                                            True
   31 female
                 NaN
                           True
                                  False
                                         False
                                                  False
                                                            True
   34 female
                True
                           False
                                  False
                                         False
                                                  False
                                                            True
  liver_firm spleen_palpable spiders ascites varices
                                                  bilirubin \
0
      False
                     False
                            False
                                    False
                                           False
                                                       1.0
      False
                            False
                                                       0.9
1
                     False
                                    False
                                           False
2
      False
                     False
                            False
                                    False
                                           False
                                                       0.7
3
      False
                     False
                            False
                                    False
                                           False
                                                       0.7
4
      False
                     False
                            False
                                    False
                                           False
                                                       1.0
  alk phosphate
                 sgot
                       albumin
                               protime
                                        histology class
0
           85.0
                 18.0
                          4.0
                                   NaN
                                           False live
1
          135.0
                 42.0
                           3.5
                                   NaN
                                           False live
2
           96.0
                 32.0
                           4.0
                                   NaN
                                           False live
3
           46.0
                 52.0
                          4.0
                                  80.0
                                           False live
4
            NaN 200.0
                           4.0
                                           False live
                                   NaN
male df = df[df['sex'] == 'male']
female df = df[df['sex'] == 'female']
male df.head()
         sex steroid antivirals fatigue malaise anorexia
   age
liver big
    30 male
              False
                          False
                                                          False
                                 False
                                        False
                                                 False
20
    22
        male True
                          True
                                        False
                                                 False
                                                           True
                               True
24
    25
        male
              False
                          True
                                 False
                                        False
                                                 False
                                                           True
27
    58
        male
               True
                                                 False
                                                           True
                          False
                                  True
                                         False
32
    41
        male
               True
                          True
                                  True True
                                                  True
                                                           True
```

```
liver firm spleen palpable spiders ascites varices
                                                          bilirubin
0
        False
                         False
                                 False
                                          False
                                                  False
                                                                1.0
20
        False
                         False
                                 False
                                          False
                                                  False
                                                                0.9
24
                                                                0.4
        False
                         False
                                 False
                                          False
                                                  False
27
         True
                         False
                                  True
                                          False
                                                  False
                                                                1.4
32
        False
                         False
                                 False
                                          False
                                                  False
                                                                0.7
    alk phosphate
                    sgot
                          albumin
                                   protime
                                             histology class
                    18.0
                              4.0
0
                                                 False live
             85.0
                                        NaN
20
             48.0
                    20.0
                              4.2
                                       64.0
                                                 False
                                                        live
24
             45.0
                    18.0
                              4.3
                                       70.0
                                                 False
                                                        live
27
                    55.0
                              2.7
                                       36.0
                                                 False
                                                        live
            175.0
32
             81.0
                    53.0
                              5.0
                                       74.0
                                                 False
                                                        live
female df.head()
           sex steroid
                         antivirals fatigue malaise anorexia liver big
   age
1
    50
        female
                 False
                              False
                                        True
                                               False
                                                         False
                                                                   False
2
    78
       female
                              False
                                        True
                                               False
                                                         False
                   True
                                                                    True
3
    31
       female
                    NaN
                               True
                                       False
                                               False
                                                         False
                                                                    True
    34 female
                   True
                              False
                                       False
                                               False
                                                         False
                                                                    True
                                                         False
    34
        female
                   True
                              False
                                       False
                                               False
                                                                    True
                                                         bilirubin \
  liver firm spleen palpable spiders ascites varices
1
       False
                        False
                                False
                                         False
                                                 False
                                                               0.9
2
                        False
                                False
                                                               0.7
       False
                                         False
                                                 False
3
       False
                        False
                                False
                                         False
                                                 False
                                                               0.7
4
       False
                        False
                                False
                                         False
                                                 False
                                                               1.0
5
       False
                        False
                                False
                                         False
                                                 False
                                                               0.9
                          albumin
                                             histology class
   alk phosphate
                    sgot
                                   protime
1
                    42.0
           135.0
                              3.5
                                        NaN
                                                 False live
2
            96.0
                    32.0
                              4.0
                                        NaN
                                                 False
                                                        live
3
                    52.0
                              4.0
            46.0
                                       80.0
                                                 False
                                                        live
4
                   200.0
                              4.0
             NaN
                                        NaN
                                                 False
                                                        live
5
            95.0
                    28.0
                              4.0
                                       75.0
                                                 False live
merged df = pd.concat([male df, female df], ignore index=True)
merged df.head()
                       antivirals fatigue malaise anorexia liver big \
         sex steroid
   age
0
    30
        male
                False
                            False
                                     False
                                             False
                                                       False
                                                                 False
    22
        male
                True
                             True
                                      True
                                             False
                                                       False
                                                                  True
1
2
    25
        male
                False
                             True
                                     False
                                             False
                                                       False
                                                                  True
```

liver_firm spleen_palpable spiders ascites varices bilirubin \ 0			Γrue Γrue	Fals Tru				lse rue	True True
0	0 Fa ⁻ 1 Fa ⁻ 2 Fa ⁻	lse lse lse rue	— Fa Fa Fa Fa	lse lse lse lse	False False False True	False False False False	False False False False	1 0 0 1	. 0 . 9 . 4 . 4
ascending=[True, True, True]) sorted_df.head() age sex steroid antivirals fatigue malaise anorexia liver_big \ 110 7 female	0 1 2 3	85.0 48.0 45.0 175.0	18.0 20.0 18.0 55.0	4.0 4.2 4.3 2.7	N 64 R 70 W 36	aN .0 .0 .0	False l False l False l	ive ive ive ive	
age sex steroid antivirals fatigue malaise anorexia liver_big \ 110 7 female					'age',	'sgot',	'protime	'],	
liver_big \ 110 7 female True False False False False True True 37 20 male False False True True True False 121 20 female False False True True True True 148 20 female False False False False False False True True 20 22 male True True True False False False True False False 37 True True True True False False 3121 False False False True True True False False 1.0 148 NaN False False False False 0.9 20 False False False False False False 10.9 37 150.0 68.0 3.9 NaN True 150.0 68.0 3.9 NaN False 150.0 68.0 3.9 NaN True 150.0 68.0 3.9 NaN True 150.0 68.0 3.9 NaN 150.0 150.0 4.2 150.0 15									
37 20 male False False True True True False 121 20 female False False True True True 148 20 female False False False False False True 20 22 male True True True False False True liver_firm spleen_palpable spiders ascites varices bilirubin \ 110 True True False False False 0.7 37 True True True False False False 2.3 121 False False True True False False 1.0 148 NaN False False False False False 0.9 20 False False False False False False 0.9 alk_phosphate sgot albumin protime histology class 110 256.0 25.0 4.2 NaN True live 37 150.0 68.0 3.9 NaN False live 121 160.0 118.0 2.9 23.0 True live 148 89.0 152.0 4.0 NaN True live 148 89.0 152.0 4.0 NaN True live 20 48.0 20.0 4.2 64.0 False live	liver_big 110 7	\		antiv		J			
121 20 female False False True True True 148 20 female False False False False False True 20 22 male True True True False False True liver_firm spleen_palpable spiders ascites varices bilirubin \ 110 True True False False False 0.7 37 True True True False False False 2.3 121 False False True True False False 1.0 148 NaN False False False False False 0.9 False False False False False False 0.9 alk_phosphate sgot albumin protime histology class 110 256.0 25.0 4.2 NaN True live 37 150.0 68.0 3.9 NaN False live 121 160.0 118.0 2.9 23.0 True live 148 89.0 152.0 4.0 NaN True live	37 20	male	False		False	True	True	True	
148 20 female False False False False False True 20 22 male True True True False False True liver_firm spleen_palpable spiders ascites varices bilirubin \ 110 True True False False False 0.7 37 True True True False False False 2.3 121 False False True True False False 1.0 148 NaN False False False False False 0.9 20 False False False False False False 0.9 alk_phosphate sgot albumin protime histology class 110 256.0 25.0 4.2 NaN True live 37 150.0 68.0 3.9 NaN False live 121 160.0 118.0 2.9 23.0 True live 148 89.0 152.0 4.0 NaN True live 20 48.0 20.0 4.2 64.0 False live	121 20	female	False		False	True	True	True	
20 22 male True True True False False True liver_firm spleen_palpable spiders ascites varices bilirubin \ 110 True True False False False 0.7 37 True True True False False False 2.3 121 False False True True False 1.0 148 NaN False False False False 0.9 20 False False False False False 0.9 alk_phosphate sgot albumin protime histology class 110 256.0 25.0 4.2 NaN True live 37 150.0 68.0 3.9 NaN False live 121 160.0 118.0 2.9 23.0 True live 148 89.0 152.0 4.0 NaN True live 148 89.0 152.0 4.0 NaN True live 20 48.0 20.0 4.2 64.0 False live	148 20	female	False		False	False	False	False	
110 True True True True False False False 2.3 121 False False True True False 1.0 148 NaN False False False 0.9 20 False False False False 0.9 alk_phosphate sgot albumin protime histology class 0.9 37 150.0 68.0 3.9 NaN True live 121 160.0 118.0 2.9 23.0 True live 148 89.0 152.0 4.0 NaN True live 148 89.0 152.0 4.0 NaN True live 20 48.0 20.0 4.2 64.0 False live	20 22	male	True		True	True	False	False	
110	110 37 121 148	True True False NaN	oleen_pal	True True False False	False True True False	False False True False	False False False False		0.7 2.3 1.0 0.9
transposed_df = df.T	110 37 121 148 20	256 150 160 89 48	.0 25.0 .0 68.0 .0 118.0 .0 152.0		4.2 3.9 2.9 4.0	NaN NaN 23.0 NaN	True False True True	live live live live	

transposed_o	df.head	()					
	0	1	2	3	4	5	6
7 \							
age	30	50	78	31	34	34	51
23	_						
sex	male	female	female	female	female	female	female
female			_		_	_	
steroid	False	False	True	NaN	True	True	False
True				_			
antivirals	False	False	False	True	False	False	False
False		_	_				_
fatigue	False	True	True	False	False	False	True
False							
	•	•		1 45	7.40		1.40
1.40	8	9		145	146	147	148
149 \		5.0		0.7	4.5	7.0	2.2
age	39	30		31	41	70	20
36	C				f 1	C	C 3
sex	female	female	f	emale 1	female	female	female
female	-	-		E - 1	_	F - 3	F - 1
steroid	True	True		False	True	False	False
True							
antivirals	False	False		False	False	False	False
False	_			_	_	_	
fatigue	True	False		True	True	True	False
False							
	150	151	152	150	154		
200	46	44	61		43		
age	female	female	female		female		
sex steroid	True	True	False		True		
antivirals	False	False	False		False		
	True	True	True		True		
fatigue	True	rrue	True	rrue	rrue		
[5 rows x 1!	55 colur	nns l					
LO TOWS X I.	JJ COCUI	13]					
<pre>melted_df =</pre>	pd.mel	t(df, id	_vars=['	age', 's	sex'], v	ar_name=	'Attribute'
value_name=				_		_	
_							
melted_df.he	ead()						
200	sex Attı	cibuto N	/alue				
		teroid I					
		teroid					
			True				
			NaN				
4 34 fema	ale si	reiota	True				
# Pivoting back to wide format based on Attribute							
wide df = me							
= · · · · · · · · · · · · · · · · · · ·					, , ,	. ,	

				,	columns='Attribute', values='Value', aggfunc='first').reset_index()			
wide_df.hea	ad()							
Attribute ascites \	age	S	sex alb	oumin all	k_phosphate	anorexia	antivirals	
0 False	7	fema	ale	4.2	256.0	False	False	
1 True	20	fema	ale	2.9	160.0	True	False	
2 False	20	ma	ale	3.9	150.0	True	False	
3 False	22	fema	ale	NaN	NaN	False	False	
4 False	22	ma	ale	4.2	48.0	False	True	
Attribute k	oiliru	bin	class	fatigue	histology l	iver_big	liver_firm	
0 False		0.7	live	False	True	True	True	
1 True		1.0	live	True	True	True	False	
2 True		2.3	live	True	False	False	True	
3 False		0.7	live	False	True	True	False	
4 False		0.9	live	True	False	True	False	
Attribute p 0 1 2 3	orotim Na 23. Na Na 64.	N 0 1 N N	sgot s 25.0 118.0 68.0 24.0 20.0	False True True False False	Fa T Fa	True Tr alse Fal True Fal alse Tr	rue False se False	