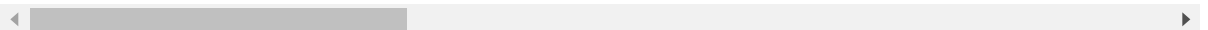


```
In [27]: import pandas
data = pandas.read_csv("thanksgiving.csv", encoding="Latin-1")
data.head(5)
```

Out[27]:

	RespondentID	Do you celebrate Thanksgiving?	What is typically the main dish at your Thanksgiving dinner?	What is typically the main dish at your Thanksgiving dinner? - Other (please specify)	How is the main dish typically cooked?	How is the main dish typically cooked? - Other (please specify)	What do you have for Thanksgiving?
0	4337954960	Yes	Turkey	NaN	Baked	NaN	Bread
1	4337951949	Yes	Turkey	NaN	Baked	NaN	Bread
2	4337935621	Yes	Turkey	NaN	Roasted	NaN	Rice
3	4337933040	Yes	Turkey	NaN	Baked	NaN	Bread
4	4337931983	Yes	Tofurkey	NaN	Baked	NaN	Bread

5 rows × 65 columns



```
In [16]: column_names = data.columns  
column_names
```

```

Out[16]: Index(['RespondentID', 'Do you celebrate Thanksgiving?',
               'What is typically the main dish at your Thanksgiving dinner?',
               'What is typically the main dish at your Thanksgiving dinner? - Other (please specify)',
               'How is the main dish typically cooked?',
               'How is the main dish typically cooked? - Other (please specify)',
               'What kind of stuffing/dressing do you typically have?',
               'What kind of stuffing/dressing do you typically have? - Other (please specify)',
               'What type of cranberry sauce do you typically have?',
               'What type of cranberry sauce do you typically have? - Other (please specify)',
               'Do you typically have gravy?',
               'Which of these side dishes are typically served at your Thanksgiving dinner? Please select all that apply. - Brussel sprouts',
               'Which of these side dishes are typically served at your Thanksgiving dinner? Please select all that apply. - Carrots',
               'Which of these side dishes are typically served at your Thanksgiving dinner? Please select all that apply. - Cauliflower',
               'Which of these side dishes are typically served at your Thanksgiving dinner? Please select all that apply. - Corn',
               'Which of these side dishes are typically served at your Thanksgiving dinner? Please select all that apply. - Cornbread',
               'Which of these side dishes are typically served at your Thanksgiving dinner? Please select all that apply. - Fruit salad',
               'Which of these side dishes are typically served at your Thanksgiving dinner? Please select all that apply. - Green beans/green bean casserole',
               'Which of these side dishes are typically served at your Thanksgiving dinner? Please select all that apply. - Macaroni and cheese',
               'Which of these side dishes are typically served at your Thanksgiving dinner? Please select all that apply. - Mashed potatoes',
               'Which of these side dishes are typically served at your Thanksgiving dinner? Please select all that apply. - Rolls/biscuits',
               'Which of these side dishes are typically served at your Thanksgiving dinner? Please select all that apply. - Squash',
               'Which of these side dishes are typically served at your Thanksgiving dinner? Please select all that apply. - Vegetable salad',
               'Which of these side dishes are typically served at your Thanksgiving dinner? Please select all that apply. - Yams/sweet potato casserole',
               'Which of these side dishes are typically served at your Thanksgiving dinner? Please select all that apply. - Other (please specify)',
               'Which of these side dishes are typically served at your Thanksgiving dinner? Please select all that apply. - Other (please specify).1',
               'Which type of pie is typically served at your Thanksgiving dinner? Please select all that apply. - Apple',
               'Which type of pie is typically served at your Thanksgiving dinner? Please select all that apply. - Buttermilk',
               'Which type of pie is typically served at your Thanksgiving dinner? Please select all that apply. - Cherry',
               'Which type of pie is typically served at your Thanksgiving dinner? Please select all that apply. - Chocolate',

```

```

'Which type of pie is typically served at your Thanksgiving di
nner? Please select all that apply. - Coconut cream',
'Which type of pie is typically served at your Thanksgiving di
nner? Please select all that apply. - Key lime',
'Which type of pie is typically served at your Thanksgiving di
nner? Please select all that apply. - Peach',
'Which type of pie is typically served at your Thanksgiving di
nner? Please select all that apply. - Pecan',
'Which type of pie is typically served at your Thanksgiving di
nner? Please select all that apply. - Pumpkin',
'Which type of pie is typically served at your Thanksgiving di
nner? Please select all that apply. - Sweet Potato',
'Which type of pie is typically served at your Thanksgiving di
nner? Please select all that apply. - None',
'Which type of pie is typically served at your Thanksgiving di
nner? Please select all that apply. - Other (please specify)',
'Which type of pie is typically served at your Thanksgiving di
nner? Please select all that apply. - Other (please specify).1',
'Which of these desserts do you typically have at Thanksgiving
dinner? Please select all that apply. - Apple cobbler',
'Which of these desserts do you typically have at Thanksgiving
dinner? Please select all that apply. - Blondies',
'Which of these desserts do you typically have at Thanksgiving
dinner? Please select all that apply. - Brownies',
'Which of these desserts do you typically have at Thanksgiving
dinner? Please select all that apply. - Carrot cake',
'Which of these desserts do you typically have at Thanksgiving
dinner? Please select all that apply. - Cheesecake',
'Which of these desserts do you typically have at Thanksgiving
dinner? Please select all that apply. - Cookies',
'Which of these desserts do you typically have at Thanksgiving
dinner? Please select all that apply. - Fudge',
'Which of these desserts do you typically have at Thanksgiving
dinner? Please select all that apply. - Ice cream',
'Which of these desserts do you typically have at Thanksgiving
dinner? Please select all that apply. - Peach cobbler',
'Which of these desserts do you typically have at Thanksgiving
dinner? Please select all that apply. - None',
'Which of these desserts do you typically have at Thanksgiving
dinner? Please select all that apply. - Other (please specify)',
'Which of these desserts do you typically have at Thanksgiving
dinner? Please select all that apply. - Other (please specify).1',
'Do you typically pray before or after the Thanksgiving mea
l?',
'How far will you travel for Thanksgiving?',
'Will you watch any of the following programs on Thanksgiving?
Please select all that apply. - Macy's Parade',
'What's the age cutoff at your "kids' table" at Thanksgivin
g?',
'Have you ever tried to meet up with hometown friends on Thank
sgiving night?',
'Have you ever attended a "Friendsgiving?"',
'Will you shop any Black Friday sales on Thanksgiving Day?',
'Do you work in retail?',
'Will your employer make you work on Black Friday?',
'How would you describe where you live?', 'Age', 'What is your
gender?',

```

```
        'How much total combined money did all members of your HOUSEHOLD  
LD earn last year?',  
        'US Region'],  
        dtype='object')
```

```
In [17]: celebrating_thanksgiving_cat = data["Do you celebrate Thanksgiving?"]  
        .value_counts()  
        celebrating_thanksgiving_cat
```

```
Out[17]: Yes      980  
        No       78  
        Name: Do you celebrate Thanksgiving?, dtype: int64
```

```
In [18]: do_celebrate_thanksgiving = data[data["Do you celebrate Thanksgivin  
g?"] == "Yes"]  
do_celebrate_thanksgiving
```

Out[18]:

	RespondentID	Do you celebrate Thanksgiving?	What is typically the main dish at your Thanksgiving dinner?	What is typically the main dish at your Thanksgiving dinner? - Other (please specify)	How is the main dish typically cooked?	How is the main dish typically cooked? - Other (please specify)
0	4337954960	Yes	Turkey	NaN	Baked	NaN
1	4337951949	Yes	Turkey	NaN	Baked	NaN
2	4337935621	Yes	Turkey	NaN	Roasted	NaN
3	4337933040	Yes	Turkey	NaN	Baked	NaN
4	4337931983	Yes	Tofurkey	NaN	Baked	NaN
5	4337929779	Yes	Turkey	NaN	Roasted	NaN
6	4337924420	Yes	Turkey	NaN	Baked	NaN
7	4337916002	Yes	Turkey	NaN	Baked	NaN
8	4337914977	Yes	Turkey	NaN	Roasted	NaN
9	4337899817	Yes	Other (please specify)	Turkey and Ham	Baked	NaN
11	4337893416	Yes	Turkey	NaN	Baked	NaN
12	4337888291	Yes	Ham/Pork	NaN	Roasted	NaN
13	4337878450	Yes	Turkey	NaN	Baked	NaN

	<b>RespondentID</b>	<b>Do you celebrate Thanksgiving?</b>	<b>What is typically the main dish at your Thanksgiving dinner?</b>	<b>What is typically the main dish at your Thanksgiving dinner? - Other (please specify)</b>	<b>How is the main dish typically cooked?</b>	<b>How is the main dish typically cooked? - Other (please specify)</b>
<b>14</b>	4337878351	Yes	Turkey	NaN	Roasted	NaN
<b>15</b>	4337857295	Yes	Turkey	NaN	Roasted	NaN
<b>16</b>	4337856362	Yes	Turducken	NaN	Roasted	NaN
<b>17</b>	4337854106	Yes	Turkey	NaN	Baked	NaN
<b>18</b>	4337844879	Yes	Turkey	NaN	Baked	NaN
<b>19</b>	4337823612	Yes	Turkey	NaN	Roasted	NaN
<b>20</b>	4337820281	Yes	Turkey	NaN	Baked	NaN
<b>21</b>	4337813502	Yes	Turkey	NaN	Fried	NaN
<b>23</b>	4337793158	Yes	Turkey	NaN	Baked	NaN
<b>24</b>	4337792130	Yes	Turkey	NaN	Baked	NaN
<b>25</b>	4337790002	Yes	Turkey	NaN	Roasted	NaN
<b>26</b>	4337783794	Yes	Turkey	NaN	Roasted	NaN
<b>27</b>	4337779071	Yes	Turkey	NaN	Roasted	NaN

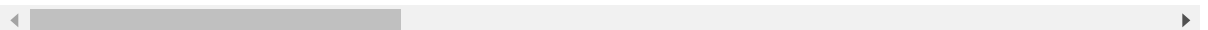


	RespondentID	Do you celebrate Thanksgiving?	What is typically the main dish at your Thanksgiving dinner?	What is typically the main dish at your Thanksgiving dinner? - Other (please specify)	How is the main dish typically cooked?	How is the main dish typically cooked? - Other (please specify)
28	4337778119	Yes	Other (please specify)	Varies	Baked	NaN
29	4337774090	Yes	Turkey	NaN	Baked	NaN
30	4337772882	Yes	Other (please specify)	some kind of lentil or vegetable stew	Other (please specify)	stovetop
32	4337772193	Yes	Turkey	NaN	Baked	NaN
...	...	...	...	...	...	...
1024	4335957365	Yes	Turkey	NaN	Baked	NaN
1025	4335957179	Yes	Turkey	NaN	Roasted	NaN
1026	4335957096	Yes	Turkey	NaN	Roasted	NaN
1027	4335957072	Yes	Turkey	NaN	Roasted	NaN
1029	4335955478	Yes	Turkey	NaN	Roasted	NaN
1030	4335955206	Yes	Turkey	NaN	Roasted	NaN
1031	4335955152	Yes	Ham/Pork	NaN	Baked	NaN
1033	4335954681	Yes	Turkey	NaN	Baked	NaN

	RespondentID	Do you celebrate Thanksgiving?	What is typically the main dish at your Thanksgiving dinner?	What is typically the main dish at your Thanksgiving dinner? - Other (please specify)	How is the main dish typically cooked?	How is the main dish typically cooked? - Other (please specify)
<b>1034</b>	4335954394	Yes	Turkey	NaN	Other (please specify)	Rotisserie
<b>1035</b>	4335954376	Yes	Turkey	NaN	Baked	NaN
<b>1037</b>	4335954207	Yes	Other (please specify)	salmon	Baked	NaN
<b>1038</b>	4335954131	Yes	Turkey	NaN	Baked	NaN
<b>1039</b>	4335953888	Yes	Turkey	NaN	Baked	NaN
<b>1040</b>	4335952833	Yes	Turkey	NaN	Baked	NaN
<b>1041</b>	4335951505	Yes	Turkey	NaN	Roasted	NaN
<b>1042</b>	4335951437	Yes	Turkey	NaN	Baked	NaN
<b>1043</b>	4335951082	Yes	Turkey	NaN	Roasted	NaN
<b>1044</b>	4335950917	Yes	Turkey	NaN	Roasted	NaN
<b>1045</b>	4335950654	Yes	Turkey	NaN	I don't know	NaN
<b>1046</b>	4335949486	Yes	Turkey	NaN	Baked	NaN
<b>1047</b>	4335949169	Yes	Turkey	NaN	Roasted	NaN

	RespondentID	Do you celebrate Thanksgiving?	What is typically the main dish at your Thanksgiving dinner?	What is typically the main dish at your Thanksgiving dinner? - Other (please specify)	How is the main dish typically cooked?	How is the main dish typically cooked? - Other (please specify)
1048	4335949112	Yes	Turkey	NaN	Baked	NaN
1049	4335947496	Yes	Turkey	NaN	Roasted	NaN
1050	4335945415	Yes	Turkey	NaN	Roasted	NaN
1051	4335944854	Yes	Turkey	NaN	Roasted	NaN
1053	4335944082	Yes	Turkey	NaN	Roasted	NaN
1054	4335943173	Yes	Turkey	NaN	Baked	NaN
1055	4335943060	Yes	Other (please specify)	Duck	Baked	NaN
1056	4335934708	Yes	Turkey	NaN	Baked	NaN
1057	4335894916	Yes	Turkey	NaN	Baked	NaN

980 rows × 65 columns



```
In [19]: data["What is typically the main dish at your Thanksgiving dinner?"].value_counts()
```

```
Out[19]: Turkey      859
Other (please specify)  35
Ham/Pork             29
Tofurkey             20
Chicken              12
Roast beef           11
I don't know          5
Turducken             3
Name: What is typically the main dish at your Thanksgiving dinner?, dtype: int64
```

```
In [20]: data[data["What is typically the main dish at your Thanksgiving dinner?"] == "Tofurkey"]["Do you typically have gravy?"]
```

```
Out[20]: 4      Yes
          33     Yes
          69     No
          72     No
          77     Yes
          145    Yes
          175    Yes
          218    No
          243    Yes
          275    No
          393    Yes
          399    Yes
          571    Yes
          594    Yes
          628    No
          774    No
          820    No
          837    Yes
          860    No
          953    Yes
          Name: Do you typically have gravy?, dtype: object
```

```
In [21]: apple_isnull = pandas.isnull(data["Which type of pie is typically served at your Thanksgiving dinner? Please select all that apply. - Apple"])
          pumpkin_isnull = pandas.isnull(data["Which type of pie is typically served at your Thanksgiving dinner? Please select all that apply. - Pumpkin"])
          pecan_isnull = pandas.isnull(data["Which type of pie is typically served at your Thanksgiving dinner? Please select all that apply. - Pecan"])

          ate_pies = apple_isnull & pumpkin_isnull & pecan_isnull
          ate_pies.value_counts()
```

```
Out[21]: False      876
          True       182
          dtype: int64
```

```
In [29]: def convert_age(age_range):
        if pandas.isnull(age_range):
            return None
        else:
            age_range = age_range.split(" ")[0]
            age_range = age_range.replace("+", "")
            age_range = int(age_range)

        return age_range

data["int_age"] = data["Age"].apply(convert_age)
data["int_age"].describe()
```

```
Out[29]: count    1025.000000
        mean      39.383415
        std       15.398493
        min       18.000000
        25%       30.000000
        50%       45.000000
        75%       60.000000
        max       60.000000
        Name: int_age, dtype: float64
```

```
In [ ]: # Based on the findings, we can see that the data skews downward beca
        use we took the very first value in each string
```

```
In [31]: def convert_income(income_range):
        if pandas.isnull(income_range):
            return None
        else:
            income_range = income_range.split(" ")[0]
            if income_range == "Prefer":
                return None
            income_range = income_range.replace("$", "")
            income_range = income_range.replace(",", "")
            income_range = int(income_range)
            return income_range

data["int_income"] = data["How much total combined money did all memb
ers of your HOUSEHOLD earn last year?"].apply(convert_income)
data["int_income"].describe()
```

```
Out[31]: count    889.000000
        mean     74077.615298
        std     59360.742902
        min       0.000000
        25%     25000.000000
        50%     50000.000000
        75%    100000.000000
        max    200000.000000
        Name: int_income, dtype: float64
```

```
In [32]: data[data["int_income"] < 150000]["How far will you travel for Thanks
giving?"].value_counts()
```

```
Out[32]: Thanksgiving is happening at my home--I won't travel at all
          281
Thanksgiving is local--it will take place in the town I live in
          203
Thanksgiving is out of town but not too far--it's a drive of a few ho
urs or less    150
Thanksgiving is out of town and far away--I have to drive several hou
rs or fly      55
Name: How far will you travel for Thanksgiving?, dtype: int64
```

```
In [33]: data[data["int_income"] > 150000]["How far will you travel for Thanks
giving?"].value_counts()
```

```
Out[33]: Thanksgiving is happening at my home--I won't travel at all
          49
Thanksgiving is local--it will take place in the town I live in
          25
Thanksgiving is out of town but not too far--it's a drive of a few ho
urs or less    16
Thanksgiving is out of town and far away--I have to drive several hou
rs or fly      12
Name: How far will you travel for Thanksgiving?, dtype: int64
```

```
In [34]: import numpy as np
data.pivot_table(index="Have you ever tried to meet up with hometown
friends on Thanksgiving night?", columns='Have you ever attended a
"Friendsgiving?"', values = "int_age", aggfunc = np.mean)
```

```
Out[34]:
```

Have you ever attended a "Friendsgiving?"	No	Yes
Have you ever tried to meet up with hometown friends on Thanksgiving night?		
No	42.283702	37.010526
Yes	41.475410	33.976744

```
In [35]: data.pivot_table(index="Have you ever tried to meet up with hometown
friends on Thanksgiving night?", columns='Have you ever attended a
"Friendsgiving?"', values = "int_income", aggfunc = np.mean)
```

```
Out[35]:
```

Have you ever attended a "Friendsgiving?"	No	Yes
Have you ever tried to meet up with hometown friends on Thanksgiving night?		
No	78914.549654	72894.736842
Yes	78750.000000	66019.736842