For this assignment you need to complete 8 of the following exercises against this data. Note: You must select at least two methods from each chapter to perform on one of the datasets. You are welcome to do more methods and you do not have to use the same dataset for all 8 methods. You can submit a Jupyter Notebook or a PDF of your code. If you submit a .py file you need to also include a PDF or attachment of your results.

Chapter 7

o Filter out missing data
o Fill in missing data
o Remove duplicates
o Transform data using either mapping or a function
o Replace values
o Discretization and Binning
o Manipulate Strings

Chapter 8

o Create hierarchical index
o Combine and Merge Datasets (you will have to either create a new dataset from your existing data or create a relationship between the data I have provided)
o Reshape
o Pivot the data

Chapter 10

o Grouping with Dicts/Series
o Grouping with Functions
o Grouping with Index Levels
o Split/Apply/Combine
o Cross Tabs

Chapter 11

o Convert between string and date time
o Generate date range
o Frequencies and date offsets
o Convert timestamps to periods and back
o Period Frequency conversions

```
In [163]:  # Load Libraries
           import pandas as pd
           import xlrd
           import numpy as np
           from tabula import read_pdf
```

```
In [164]:  candy_response_2015_file = "data/CANDY-HIERARCHY-2015-SURVEY-Responses.xl
           sx"
           candy_response_2016_file = "data/BOING-BOING-CANDY-HIERARCHY-2016-SURVEY-
           Responses.xlsx"
           candyhierarchy2017_file = "data/candyhierarchy2017.xlsx"
           candyhierarchysurvey2017_pdf_file = "data/candyhierarchysurvey2017.pdf"
           candy_data_file = "data/CANDYDATA.xlsx"

           MetObjects_file = "data/MetObjects.xlsx"
```

Chapter 7

```
In [165]:  candy_response_2015 = pd.read_excel(candy_response_2015_file)
           candy_response_2015.head()
```

Out[165]:

	Timestamp	How old are you?	Are you going actually going trick or treating yourself?	[Butterfinger]	[100 Grand Bar]	[Anonymous brown globs that come in black and orange wrappers]	[Any full-sized candy bar]	[Bla Jack
0	2015-10-23 08:46:20.451	35	No	JOY	NaN	DESPAIR	JOY	Na
1	2015-10-23 08:46:51.583	41	No	JOY	JOY	DESPAIR	JOY	DESPA
2	2015-10-23 08:47:34.285	33	No	DESPAIR	DESPAIR	DESPAIR	JOY	DESPA
3	2015-10-23 08:47:58.964	31	No	JOY	JOY	DESPAIR	JOY	DESPA
4	2015-10-23 08:48:11.719	30	No	NaN	JOY	DESPAIR	JOY	Na

5 rows × 124 columns

```
candy_response_2016 = pd.read_excel(candy_response_2016_file)
candy_response_2016.head()
```

	Timestamp	Are you going actually going trick or treating yourself?	Your gender:	How old are you?	Which country do you live in?	Which state, province, county do you live in?	[100 Grand Bar]	[Anonymous brown globs that come in black and orange wrappers]
0	2016-10-24 05:09:23.033	No	Male	22	Canada	Ontario	JOY	DESPAIR
1	2016-10-24 05:09:54.798	No	Male	45	usa	il	MEH	MEH
2	2016-10-24 05:13:06.734	No	Female	48	US	Colorado	JOY	DESPAIR
3	2016-10-24 05:14:17.192	No	Male	57	usa	il	JOY	MEH
4	2016-10-24 05:14:24.625	Yes	Male	42	USA	South Dakota	MEH	DESPAIR

5 rows × 123 columns

```
In [167]: candyhierarchy2017 = pd.read_excel(candyhierarchy2017_file)
          candyhierarchy2017.head()
```

Out[167]:

	Internal ID	Q1: GOING OUT?	Q2: GENDER	Q3: AGE	Q4: COUNTRY	Q5: STATE, PROVINCE, COUNTY, ETC	Q6 | 100 Grand Bar	Q6 | Anonymous brown globs that come in black and orange wrappers\t(a.k.a. Mary Janes)
0	90258773	NaN	NaN	NaN	NaN	NaN	NaN	NaN
1	90272821	No	Male	44	USA	NM	MEH	DESPAIR
2	90272829	NaN	Male	49	USA	Virginia	NaN	NaN
3	90272840	No	Male	40	us	or	MEH	DESPAIR
4	90272841	No	Male	23	usa	exton pa	JOY	DESPAIR

5 rows × 120 columns

```
In [168]: candyhierarchysurvey2017_pdf = read_pdf(candyhierarchysurvey2017_pdf_file
          )
          candyhierarchysurvey2017_pdf
```

'pages' argument isn't specified.Will extract only from page 1 by default.

Out[168]: []

```
In [169]: candy_data =pd.read_excel(candy_data_file)
          candy_data.head()
```

Out[169]:

	ITEM	JOY	DESPAIR	NET FEELIES	NET CLOUT	DESPAIR (NEG)
0	York Peppermint Patties	634	78	556.0	1.639118	-78.0
1	Whole Wheat anything	21	419	-398.0	1.012938	-419.0
2	White Bread	15	473	-458.0	1.123440	-473.0
3	Vicodin	323	210	113.0	1.227036	-210.0
4	Twix	770	26	744.0	1.832497	-26.0

MetObjects.csv file could not be loaded with read_csv. The file had to be edited and quotation marks removed and then converted to xlsx file which is loaded below.

```
In [170]: MetObjects = pd.read_excel(MetObjects_file)
          MetObjects
```

Out[170]:

	Object Number	Is Highlight	Is Public Domain	Object ID	Department	Object Name	Title	C
0	1979.486.1	False	False	1	The American Wing	Coin	One-dollar Liberty Head Coin	
1	1980.264.5	False	False	2	The American Wing	Coin	Ten-dollar Liberty Head Coin	
2	67.265.9	False	False	3	The American Wing	Coin	Two-and-a-Half Dollar Coin	
3	67.265.10	False	False	4	The American Wing	Coin	Two-and-a-Half Dollar Coin	
4	67.265.11	False	False	5	The American Wing	Coin	Two-and-a-Half Dollar Coin	
...	...	...	...	...	...	...	...	
12103	1974.356.1 recto	False	False	11814	The American Wing	Watercolor	Rialto Bridge (Covered Bridge	\
12104	54.143.8	False	False	11815	The American Wing	Watercolor	The Rider	Am
12105	1976.201.4	False	False	11816	The American Wing	Watercolor	Umbrellas in the Rain	
12106	64.118	False	False	11817	The American Wing	Watercolor	Worship of Moloch (The Golden Idol)	Am
12107	4	NaN	NaN	NaN	NaN	NaN	NaN	

12108 rows × 64 columns

```
In [171]:  # The unnamed columns are a result of the editing of the files. The Tag c
           olumn got divided to many columns with no header.
           # let's remove them
           MetObjects = MetObjects.loc[:, ~MetObjects.columns.str.contains('^Unname
           d')]
           MetObjects.columns
```

```
Out[171]:  Index(['Object Number', 'Is Highlight', 'Is Public Domain', 'Object ID',
                  'Department', 'Object Name', 'Title', 'Culture', 'Period', 'Dynast
           y',
                  'Reign', 'Portfolio', 'Artist Role', 'Artist Prefix',
                  'Artist Display Name', 'Artist Display Bio', 'Artist Suffix',
                  'Artist Alpha Sort', 'Artist Nationality', 'Artist Begin Date',
                  'Artist End Date', 'Object Date', 'Object Begin Date',
                  'Object End Date', 'Medium', 'Dimensions', 'Credit Line',
                  'Geography Type', 'City', 'State', 'County', 'Country', 'Region',
                  'Subregion', 'Locale', 'Locus', 'Excavation', 'River', 'Classifica
           tion',
                  'Rights and Reproduction', 'Link Resource', 'Metadata Date',
                  'Repository', 'Tags'],
                 dtype='object')
```

```
In [172]:  # remove 'Tags' too
           MetObjects = MetObjects.drop(columns = ['Tags'])
           MetObjects.columns
```

```
Out[172]:  Index(['Object Number', 'Is Highlight', 'Is Public Domain', 'Object ID',
                  'Department', 'Object Name', 'Title', 'Culture', 'Period', 'Dynast
           y',
                  'Reign', 'Portfolio', 'Artist Role', 'Artist Prefix',
                  'Artist Display Name', 'Artist Display Bio', 'Artist Suffix',
                  'Artist Alpha Sort', 'Artist Nationality', 'Artist Begin Date',
                  'Artist End Date', 'Object Date', 'Object Begin Date',
                  'Object End Date', 'Medium', 'Dimensions', 'Credit Line',
                  'Geography Type', 'City', 'State', 'County', 'Country', 'Region',
                  'Subregion', 'Locale', 'Locus', 'Excavation', 'River', 'Classifica
           tion',
                  'Rights and Reproduction', 'Link Resource', 'Metadata Date',
                  'Repository'],
                 dtype='object')
```

```
In [173]:  column_names = MetObjects.columns
           print('sum\n', MetObjects.isnull()[column_names].sum())

           sum
            Object Number                70
           Is Highlight                 513
           Is Public Domain             517
           Object ID                    577
           Department                   665
           Object Name                 1145
           Title                       1221
           Culture                     2319
           Period                     10190
           Dynasty                    11797
           Reign                      12054
           Portfolio                  12089
           Artist Role                 7438
           Artist Prefix              10235
           Artist Display Name         6630
           Artist Display Bio          6883
           Artist Suffix               8463
           Artist Alpha Sort           7087
           Artist Nationality          7309
           Artist Begin Date           8505
           Artist End Date             6861
           Object Date                 2530
           Object Begin Date           1493
           Object End Date             1294
           Medium                      1390
           Dimensions                  1299
           Credit Line                 1344
           Geography Type              1704
           City                        2749
           State                       4757
           County                      7133
           Country                     8454
           Region                      7490
           Subregion                   8903
           Locale                     10235
           Locus                      10936
           Excavation                 11519
           River                      11816
           Classification             11958
           Rights and Reproduction     8613
           Link Resource               9633
           Metadata Date               7212
           Repository                  5705
           dtype: int64


In [174]:  remove_columns = MetObjects.columns[MetObjects.isnull().mean() > .8]
           print(remove_columns)

           Index(['Period', 'Dynasty', 'Reign', 'Portfolio', 'Artist Prefix', 'Local
           e',
                  'Locus', 'Excavation', 'River', 'Classification'],
                 dtype='object')
```

```
In [175]:   MetObjects = MetObjects.drop(columns = remove_columns)
            MetObjects.columns
```

```
Out[175]:   Index(['Object Number', 'Is Highlight', 'Is Public Domain', 'Object ID',
                   'Department', 'Object Name', 'Title', 'Culture', 'Artist Role',
                   'Artist Display Name', 'Artist Display Bio', 'Artist Suffix',
                   'Artist Alpha Sort', 'Artist Nationality', 'Artist Begin Date',
                   'Artist End Date', 'Object Date', 'Object Begin Date',
                   'Object End Date', 'Medium', 'Dimensions', 'Credit Line',
                   'Geography Type', 'City', 'State', 'County', 'Country', 'Region',
                   'Subregion', 'Rights and Reproduction', 'Link Resource',
                   'Metadata Date', 'Repository'],
                  dtype='object')
```

```
In [176]:   MetObjects.head()
```

Out[176]:

	Object Number	Is Highlight	Is Public Domain	Object ID	Department	Object Name	Title	Culture	Arti Ro
0	1979.486.1	False	False	1	The American Wing	Coin	One-dollar Liberty Head Coin	NaN	Mal
1	1980.264.5	False	False	2	The American Wing	Coin	Ten-dollar Liberty Head Coin	NaN	Mal
2	67.265.9	False	False	3	The American Wing	Coin	Two-and-a-Half Dollar Coin	NaN	N
3	67.265.10	False	False	4	The American Wing	Coin	Two-and-a-Half Dollar Coin	NaN	N
4	67.265.11	False	False	5	The American Wing	Coin	Two-and-a-Half Dollar Coin	NaN	N

5 rows × 33 columns

Chapter 8

```
In [177]:   candy_response_2016 = pd.read_excel(candy_response_2016_file)
```

```
In [178]:  # These are some arbitrary columns! Some wrangling on the column names wi
           ll be needed
           candy_response_2016.columns
```

Out[178]: Index(['Timestamp', 'Are you going actually going trick or treating yours
           elf?',
                  'Your gender:', 'How old are you?', 'Which country do you live i
           n?',
                  'Which state, province, county do you live in?', ' [100 Grand Ba
           r]',
                  ' [Anonymous brown globs that come in black and orange wrappers]',
                  ' [Any full-sized candy bar]', ' [Black Jacks]',
                  ...
                  'Please estimate the degree(s) of separation you have from the fol
           lowing celebrities [JK Rowling]',
                  'Please estimate the degree(s) of separation you have from the fol
           lowing celebrities [JJ Abrams]',
                  'Please estimate the degree(s) of separation you have from the fol
           lowing celebrities [Beyoncé]',
                  'Please estimate the degree(s) of separation you have from the fol
           lowing celebrities [Bieber]',
                  'Please estimate the degree(s) of separation you have from the fol
           lowing celebrities [Kevin Bacon]',
                  'Please estimate the degree(s) of separation you have from the fol
           lowing celebrities [Francis Bacon (1561 - 1626)]',
                  'Which day do you prefer, Friday or Sunday?',
                  'Do you eat apples the correct way, East to West (side to side) or
           do you eat them like a freak of nature, South to North (bottom to top)?',
                  'When you see the above image of the 4 different websites, which o
           ne would you most likely check out (please be honest).',
                  ' [York Peppermint Patties] Ignore'],
                 dtype='object', length=123)
```

```
In [179]:  # Rename some categorical variables
           candy_response_2016 = candy_response_2016.rename(columns={'Your gender:':
           'Gender','How old are you?':'Age','Are you going actually going trick or
            treating yourself?':'TrickAndTreating','Which country do you live in?':
           'Country'})
           candy_response_2016.head()
```

Out[179]:

	Timestamp	TrickAndTreating	Gender	Age	Country	Which state, province, county do you live in?	[100 Grand Bar]	[Anonymous brown that in black or wrap
0	2016-10-24 05:09:23.033	No	Male	22	Canada	Ontario	JOY	DE
1	2016-10-24 05:09:54.798	No	Male	45	usa	il	MEH	
2	2016-10-24 05:13:06.734	No	Female	48	US	Colorado	JOY	DE
3	2016-10-24 05:14:17.192	No	Male	57	usa	il	JOY	
4	2016-10-24 05:14:24.625	Yes	Male	42	USA	South Dakota	MEH	DE

5 rows × 123 columns

In [180]:
```python
# Take a slice of the dataset for evaluation
CandyResponse = pd.DataFrame()
candyResponse = candy_response_2016[['Gender','Age','Country','TrickAndTr
eating']].dropna()
candyResponse.head()
```

Out[180]:

	Gender	Age	Country	TrickAndTreating
0	Male	22	Canada	No
1	Male	45	usa	No
2	Female	48	US	No
3	Male	57	usa	No
4	Male	42	USA	Yes

In [181]:
```python
# Multiindex on  Gender and country
candyResponse = candyResponse.set_index(['Gender','Country'])
```

```
In [182]: candyResponse.sort_index(level=0).head(20)
```

Out[182]:

Gender	Country	Age	TrickAndTreating
Female	America	13	Yes
	America	47	No
	Australia	66	No
	Australia	45	Yes
	Canada	44	No
	Canada	37	No
	Canada	38	No
	Canada	37	No
	Canada	58	No
	Canada	64	No
	Canada	37	No
	Canada	33	No
	Canada	47	No
	Canada	32	No
	Canada	29	No
	Canada	38	No
	Canada	35	No
	Canada	34	No
	Canada	36	No
	Canada	33	No

```
In [183]: candyResponse.sort_index(level=1).head(20)
```
Out[183]:

Gender	Country	Age	TrickAndTreating
Male	United States	34	No
	A tropical island south of the equator	Old enough to know better	No
	America	48	No
	America	36	Yes
Female	America	13	Yes
	America	47	No
	Australia	66	No
	Australia	45	Yes
I'd rather not say	Australia	over 40	No
Other	Australia	42	No
Male	Austria	33	No
	Brasil	34	No
Female	Canada	44	No
	Canada	37	No
	Canada	38	No
	Canada	37	No
	Canada	58	No
	Canada	64	No
	Canada	37	No
	Canada	33	No

```
In [184]:  # Index heirarchy
           candyResponse.index
```

```
Out[184]:  MultiIndex([(  'Male',         'Canada'),
                       (  'Male',            'usa'),
                       ('Female',             'US'),
                       (  'Male',            'usa'),
                       (  'Male',            'USA'),
                       (  'Male',            'USA'),
                       (  'Male',            'usa'),
                       (  'Male',         'Canada'),
                       (  'Male',            'USA'),
                       ('Female',             'UK'),
                       ...
                       (  'Male', 'United States'),
                       ('Female',             'US'),
                       (  'Male',            'USA'),
                       ('Female',  'United State'),
                       ('Female',            'USA'),
                       (  'Male',            'USA'),
                       ('Female',            'USA'),
                       (  'Male', 'united states'),
                       (  'Male',         'canada'),
                       ('Female',             'Us')],
                      names=['Gender', 'Country'], length=1218)
```

Chapter 10

```
In [185]:  candyResponse = candyResponse.reset_index()
           candyResponse.head()
```

Out[185]:

	Gender	Country	Age	TrickAndTreating
0	Male	Canada	22	No
1	Male	usa	45	No
2	Female	US	48	No
3	Male	usa	57	No
4	Male	USA	42	Yes

```
In [186]:  Gendergroup = candyResponse.groupby(candyResponse['Gender'])
           Gendergroup
```

Out[186]: <pandas.core.groupby.generic.DataFrameGroupBy object at 0x0FE66BF0>

```
In [187]:  for name, group in Gendergroup:
               print(name)
               print(group)
```

Female

	Gender	Country	Age	TrickAndTreating
2	Female	US	48	No
9	Female	UK	41	No
11	Female	USA	46	No
15	Female	USA	31	No
16	Female	USA	33	No
...	...	...	..	...
1209	Female	US	47	Yes
1211	Female	United State	34	No
1212	Female	USA	56	Yes
1214	Female	USA	52	No
1217	Female	Us	44	Yes

[400 rows x 4 columns]
I'd rather not say

	Gender	Country	Age \
27	I'd rather not say	United States	31
29	I'd rather not say	USA	33
60	I'd rather not say	UK	35
89	I'd rather not say	Neverland	78
99	I'd rather not say	this one	old enough
102	I'd rather not say	usa	50s
392	I'd rather not say	us	29
468	I'd rather not say	USA	Old enough
495	I'd rather not say	usa	35
506	I'd rather not say	Australia	over 40
513	I'd rather not say	USA	Hahahahahaha
583	I'd rather not say	us	39
683	I'd rather not say	us	blah
768	I'd rather not say	New Zealand	34
775	I'd rather not say	Canada	older than I want to be
827	I'd rather not say	Canada	47
833	I'd rather not say	Canada	35
995	I'd rather not say	us	31
1058	I'd rather not say	USA	26
1091	I'd rather not say	USA	1

```
5
1106  I'd rather not say               Usa                               4
4
1139  I'd rather not say  United States                                  5
0
1159  I'd rather not say  United States  Old enough to not Trick or Trea
t.
1166  I'd rather not say               USA                               3
2

      TrickAndTreating
27                   No
29                   No
60                   No
89                  Yes
99                  Yes
102                  No
392                  No
468                  No
495                  No
506                  No
513                  No
583                  No
683                  No
768                  No
775                  No
827                  No
833                  No
995                  No
1058                 No
1091                Yes
1106                 No
1139                 No
1159                 No
1166                 No
Male
     Gender          Country Age TrickAndTreating
0      Male          Canada  22               No
1      Male             usa  45               No
3      Male             usa  57               No
4      Male             USA  42              Yes
5      Male             USA  41               No
...     ...             ...  ..              ...
1208   Male  United States   27               No
1210   Male             USA  35               No
1213   Male             USA  54               No
1215   Male  united states  33               No
1216   Male          canada  48               No

[777 rows x 4 columns]
Other
     Gender                   Country Age TrickAndTreating
10    Other  United States of America  34               No
136   Other                      USA  23               No
172   Other                      USA  17               No
284   Other                    Japan  54               No
383   Other            United States  28               No
```

```
411    Other                       USA   19              No
424    Other                       Usa   32              No
601    Other             United States   22              No
690    Other             United States   26              No
865    Other             United States   29              No
920    Other                       USA   26              No
936    Other                 Australia   42              No
940    Other                       USA   44              No
962    Other             United States   42              No
980    Other                       usa   26              No
1026   Other                     China   67             Yes
1191   Other  United States of America   33              No
```

In [188]: `AgeGroup = candyResponse.groupby(['Gender', 'Country'])[['Age']]`

```
In [189]:  for name, group in AgeGroup:
               print(group)
               print('\n')
```

	Gender	Country	Age	TrickAndTreating
178	Female	America	13	Yes
546	Female	America	47	No

	Gender	Country	Age	TrickAndTreating
631	Female	Australia	66	No
632	Female	Australia	45	Yes

	Gender	Country	Age	TrickAndTreating
200	Female	Canada	44	No
219	Female	Canada	37	No
222	Female	Canada	38	No
256	Female	Canada	37	No
261	Female	Canada	58	No
298	Female	Canada	64	No
319	Female	Canada	37	No
324	Female	Canada	33	No
367	Female	Canada	47	No
430	Female	Canada	32	No
482	Female	Canada	29	No
504	Female	Canada	38	No
520	Female	Canada	35	No
532	Female	Canada	34	No
547	Female	Canada	36	No
616	Female	Canada	33	No
627	Female	Canada	44	No
655	Female	Canada	12	No
752	Female	Canada	42	No
755	Female	Canada	39	No
778	Female	Canada	28	No
781	Female	Canada	42	No
782	Female	Canada	29	No
788	Female	Canada	32	No
796	Female	Canada	28	No
807	Female	Canada	24	No
810	Female	Canada	30	No
823	Female	Canada	40	No
829	Female	Canada	42	Yes
830	Female	Canada	24	No
831	Female	Canada	30	No
854	Female	Canada	50	No
872	Female	Canada	24	No
875	Female	Canada	25	No
878	Female	Canada	25	No
884	Female	Canada	37	No
1138	Female	Canada	32	No
1188	Female	Canada	38	No
1195	Female	Canada	44	No
1201	Female	Canada	26	No

	Gender	Country	Age	TrickAndTreating
836	Female	Canada	31	No

```
     Gender  Country Age TrickAndTreating
229  Female  England  35               No
832  Female  England  34               No


     Gender Country Age TrickAndTreating
480  Female  France  18               No


     Gender  Country Age TrickAndTreating
606  Female  Germany  43              Yes
765  Female  Germany  38               No


     Gender Country Age TrickAndTreating
107  Female   Korea  44               No


    Gender Country Age TrickAndTreating
83  Female  Murica  55               No


     Gender       Country Age TrickAndTreating
701  Female   South Korea  25               No


    Gender       Country Age TrickAndTreating
78  Female   Switzerland  35               No


      Gender Country       Age TrickAndTreating
1205  Female    U.S.  49 11/12ths             No


      Gender Country Age TrickAndTreating
1172  Female  U.S.A.  27               No


      Gender Country Age TrickAndTreating
1006  Female    U.s.  50               No


     Gender Country Age TrickAndTreating
9    Female      UK  41               No
167  Female      UK  40               No
448  Female      UK  35               No
801  Female      UK  26               No


     Gender Country Age TrickAndTreating
2    Female      US  48               No
46   Female      US  35               No
110  Female      US  47               No
174  Female      US  43               No
221  Female      US  47               No
295  Female      US  53               No
333  Female      US  37               No
```

```
375    Female      US  38                No
459    Female      US  25                No
508    Female      US  48                No
510    Female      US  35                No
527    Female      US  44                Yes
542    Female      US  28                No
559    Female      US  46                No
579    Female      US  27                No
591    Female      US  37                No
604    Female      US  42                No
771    Female      US  62                No
802    Female      US  35                No
821    Female      US  33                No
840    Female      US  39                No
867    Female      US  37                No
888    Female      US  43                No
892    Female      US  56                No
897    Female      US  50                No
911    Female      US  38                No
921    Female      US  35                No
924    Female      US  47                No
1122   Female      US  37                No
1128   Female      US  51                No
1144   Female      US  41                No
1194   Female      US  26                No
1209   Female      US  47                Yes


       Gender Country Age TrickAndTreating
11     Female     USA  46                No
16     Female     USA  33                No
26     Female     USA  51                No
81     Female     USA  26                No
82     Female     USA  46                No
...       ...     ...  ..               ...
1197   Female     USA  31                No
1198   Female     USA  71                No
1199   Female     USA  32                No
1212   Female     USA  56               Yes
1214   Female     USA  52                No

[147 rows x 4 columns]


       Gender Country Age TrickAndTreating
15     Female     USA  31                No
62     Female     USA  41               Yes
160    Female     USA  46                No
599    Female     USA  46                No
641    Female     USA  10                No
650    Female     USA  38                No
651    Female     USA  17               Yes
718    Female     USA  38                No
870    Female     USA  29                No
919    Female     USA  34                No
1182   Female     USA  38                No
```

	Gender	Country	Age	TrickAndTreating
1149	Female	United States of America	32	No

	Gender	Country	Age	TrickAndTreating
413	Female	United Kingdom	31	Yes
1161	Female	United Kingdom	38	No

	Gender	Country	Age	TrickAndTreating
846	Female	United Sates	45	No

	Gender	Country	Age	TrickAndTreating
1211	Female	United State	34	No

	Gender	Country	Age	TrickAndTreating
23	Female	United States	16	No
35	Female	United States	33	No
42	Female	United States	37	No
53	Female	United States	32	No
129	Female	United States	30	No
148	Female	United States	55	No
149	Female	United States	32	No
154	Female	United States	44	No
173	Female	United States	53	No
238	Female	United States	29	Yes
266	Female	United States	41	No
311	Female	United States	37	No
320	Female	United States	40	No
372	Female	United States	36	No
399	Female	United States	33	No
496	Female	United States	46	No
533	Female	United States	36	No
580	Female	United States	48	No
628	Female	United States	36	No
664	Female	United States	39	No
675	Female	United States	55	No
682	Female	United States	24	Yes
754	Female	United States	24	No
759	Female	United States	23	No
800	Female	United States	42	No
804	Female	United States	30	No
811	Female	United States	35	Yes
818	Female	United States	26	No
819	Female	United States	29	No
834	Female	United States	71	No
843	Female	United States	59	No
855	Female	United States	30	No
856	Female	United States	30	No
857	Female	United States	30	No
858	Female	United States	30	No
859	Female	United States	30	No
860	Female	United States	30	No
861	Female	United States	30	No

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862   Female  United States  30              No
863   Female  United States  30              No
889   Female  United States  40              No
890   Female  United States  42              No
926   Female  United States  44              No
934   Female  United States  33              No
1056  Female  United States  37              No
1059  Female  United States  29              No
1060  Female  United States  29              No
1080  Female  United States  27              No
1131  Female  United States  27              No
1167  Female  United States  48              No
1193  Female  United States  29              No
1204  Female  United States  45              No


      Gender         Country Age TrickAndTreating
612   Female  United States   23              No
729   Female  United States   28              No
784   Female  United States   29              No
1107  Female  United States   40              No


      Gender                     Country Age TrickAndTreating
293   Female  United States of America  19              No
331   Female  United States of America  18              No
341   Female  United States of America  13             Yes
420   Female  United States of America  28              No
458   Female  United States of America  32              No
585   Female  United States of America  35             Yes
814   Female  United States of America  47              No
1207  Female  United States of America  31              No


      Gender                     Country Age TrickAndTreating
1076  Female  United States of America   28              No


      Gender        Country Age TrickAndTreating
608   Female  United states  34              No
693   Female  United states  34              No


      Gender Country Age TrickAndTreating
170   Female      Us  43              No
876   Female      Us  39             Yes
1217  Female      Us  44             Yes


      Gender Country              Age TrickAndTreating
132   Female     Usa               30              No
144   Female     Usa               49              No
497   Female     Usa               26              No
563   Female     Usa               50              No
592   Female     Usa               32              No
621   Female     Usa               32              No
622   Female     Usa  Older than i act              No
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642   Female    Usa                 16              No
677   Female    Usa                 30              No
694   Female    Usa                 36              No
720   Female    Usa                 36              No
745   Female    Usa                 35              No
760   Female    Usa                 48              No
774   Female    Usa                 36              Yes
793   Female    Usa                 46              No
873   Female    Usa                 58              No
1010  Female    Usa                 33              No
1156  Female    Usa                 7               Yes


      Gender Country Age TrickAndTreating
470   Female  canada  40                No
522   Female  canada  40                No
528   Female  canada  28                No
548   Female  canada  45                No
700   Female  canada  28                No
791   Female  canada  45                No
853   Female  canada  23                No
927   Female  canada  82                No


      Gender  Country Age TrickAndTreating
539   Female  hungary  35               No


      Gender Country Age TrickAndTreating
1049  Female   kenya  33                No


      Gender Country Age TrickAndTreating
806   Female  sweden  42               No


      Gender          Country Age TrickAndTreating
517   Female  united states  58               No
845   Female  united states  58               No
851   Female  united states  42               No


      Gender          Country Age TrickAndTreating
304   Female  united states   37               No


      Gender Country Age TrickAndTreating
211   Female     us  26                No
255   Female     us  46                No
344   Female     us  43                Yes
566   Female     us  50                No
659   Female     us  55                No
874   Female     us  42                No
950   Female     us  36                No
953   Female     us  55                No
1124  Female     us  45                No
```

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      Gender Country       Age TrickAndTreating
104   Female    usa        old              No
175   Female    usa         30              No
210   Female    usa         56              No
212   Female    usa         56              No
277   Female    usa         39              No
290   Female    usa         46              No
299   Female    usa         58              No
323   Female    usa         38              No
340   Female    usa         53              No
371   Female    usa         39              No
440   Female    usa         50             Yes
530   Female    usa         50              No
535   Female    usa         47              No
541   Female    usa         32              No
565   Female    usa         40             Yes
624   Female    usa         53              No
625   Female    usa         52              No
665   Female    usa         54              No
689   Female    usa         53              No
786   Female    usa         43             Yes
794   Female    usa         55              No
825   Female    usa         29              No
847   Female    usa         30              No
849   Female    usa         46              No
922   Female    usa         67              No
1001  Female    usa  old enough             No
1012  Female    usa         40             Yes
1015  Female    usa         32              No
1038  Female    usa         63              No
1055  Female    usa         30              No
1154  Female    usa     ancient             No


                Gender    Country      Age TrickAndTreating
506  I'd rather not say  Australia  over 40               No


                Gender Country                       Age TrickAndTreating
775  I'd rather not say  Canada  older than I want to be               No
827  I'd rather not say  Canada                       47               No
833  I'd rather not say  Canada                       35               No


              Gender     Country Age TrickAndTreating
89  I'd rather not say  Neverland  78             Yes


              Gender      Country Age TrickAndTreating
768  I'd rather not say  New Zealand  34             No


            Gender Country Age TrickAndTreating
60  I'd rather not say     UK  35              No
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            Gender Country          Age TrickAndTreating
29    I'd rather not say    USA           33               No
468   I'd rather not say    USA  Old enough               No
513   I'd rather not say    USA  Hahahahahaha              No
1058  I'd rather not say    USA           26               No
1091  I'd rather not say    USA           15              Yes
1166  I'd rather not say    USA           32               No


              Gender         Country                              Ag
e  \
27    I'd rather not say  United States                            3
1
1139  I'd rather not say  United States                            5
0
1159  I'd rather not say  United States  Old enough to not Trick or Trea
t.

     TrickAndTreating
27                 No
1139               No
1159               No


            Gender Country Age TrickAndTreating
1106  I'd rather not say    Usa  44               No


              Gender   Country        Age TrickAndTreating
99  I'd rather not say  this one  old enough              Yes


            Gender Country   Age TrickAndTreating
392   I'd rather not say    us   29               No
583   I'd rather not say    us   39               No
683   I'd rather not say    us  blah               No
995   I'd rather not say    us   31               No


            Gender Country  Age TrickAndTreating
102   I'd rather not say    usa  50s               No
495   I'd rather not say    usa  35               No


   Gender          Country Age TrickAndTreating
764    Male    United States  34               No


   Gender                             Country
Age  \
57    Male  A tropical island south of the equator  Old enough to know bet
ter

     TrickAndTreating
57                 No
```

	Gender	Country	Age	TrickAndTreating
487	Male	America	48	No
967	Male	America	36	Yes

	Gender	Country	Age	TrickAndTreating
573	Male	Austria	33	No

	Gender	Country	Age	TrickAndTreating
678	Male	Brasil	34	No

	Gender	Country	Age	TrickAndTreating
0	Male	Canada	22	No
7	Male	Canada	28	No
40	Male	Canada	34	Yes
51	Male	Canada	58	No
66	Male	Canada	38	No
72	Male	Canada	48	No
152	Male	Canada	31	No
216	Male	Canada	42	No
226	Male	Canada	53	No
250	Male	Canada	17	No
269	Male	Canada	35	No
286	Male	Canada	39	No
337	Male	Canada	51	No
356	Male	Canada	31	No
364	Male	Canada	58	No
390	Male	Canada	30	No
407	Male	Canada	25	No
409	Male	Canada	42	Yes
425	Male	Canada	40	No
452	Male	Canada	40	No
518	Male	Canada	40	No
525	Male	Canada	47	No
537	Male	Canada	56	No
538	Male	Canada	25	No
571	Male	Canada	46	No
575	Male	Canada	33	No
603	Male	Canada	39	No
617	Male	Canada	Old	No
722	Male	Canada	40	No
724	Male	Canada	42	No
748	Male	Canada	42	No
761	Male	Canada	46	No
762	Male	Canada	64	No
779	Male	Canada	31	No
783	Male	Canada	24	No
799	Male	Canada	40	No
805	Male	Canada	52	No
817	Male	Canada	39	No
824	Male	Canada	21	No
826	Male	Canada	40	No
828	Male	Canada	30	No
882	Male	Canada	41	No
895	Male	Canada	38	No

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899    Male  Canada  46           No
900    Male  Canada  47           No
907    Male  Canada  32           No
955    Male  Canada  35           No
971    Male  Canada  34           No
977    Male  Canada  43           No
1009   Male  Canada  29           No
1020   Male  Canada  45           No
1087   Male  Canada  67           No
1098   Male  Canada  42           No
1133   Male  Canada  46           No
1206   Male  Canada  31           No
```

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     Gender    Country     Age TrickAndTreating
306    Male  Cascadia  Ancient              No
```

```
     Gender Country  Age TrickAndTreating
1155   Male  Denial  142              No
```

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     Gender Country Age TrickAndTreating
777    Male     EUA  38              No
```

```
     Gender  Country Age TrickAndTreating
766    Male  England  36              No
```

```
     Gender  Country Age TrickAndTreating
951    Male  Finland  34              No
```

```
     Gender  Country Age TrickAndTreating
785    Male  Germany  47              No
941    Male  Germany  43             Yes
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```
     Gender Country Age TrickAndTreating
13     Male   Japan  45             Yes
844    Male   Japan  47              No
1185   Male   Japan  34              No
```

```
     Gender Country Age TrickAndTreating
1021   Male  Merica  33              No
1075   Male  Merica  30              No
```

```
     Gender Country Age TrickAndTreating
629    Male  Mexico  54              No
674    Male  Mexico  37             Yes
1173   Male  Mexico  38              No
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     Gender Country Age TrickAndTreating
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      278   Male  Murica  44             No
      1101  Male  Murica  35             No


          Gender      Country  Age TrickAndTreating
      1078  Male  Netherlands  50+             No


          Gender       Country Age TrickAndTreating
      598   Male  New Zealand  64             No
      714   Male  New Zealand  49             No


          Gender        Country Age TrickAndTreating
      1123  Male  New Zealand   33             No


          Gender                 Country  \
      1120   Male  Not the USA or Canada

                                                       Age TrickAndTreating
      1120  Too old to trick or treat without it being creepy          No


          Gender Country Age TrickAndTreating
      433   Male  Panama  47             No


          Gender       Country Age TrickAndTreating
      727   Male  Philippines  44             No


          Gender  Country Age TrickAndTreating
      218   Male  Portugal  58             No


          Gender   Country          Age TrickAndTreating
      1040   Male  See above  Same as yo mama          No


          Gender   Country               Age TrickAndTreating
      596   Male  Somewhere  1000000000000000000          Yes


          Gender                          Country                Age
      \
      905   Male  Sub-Canadian North America... 'Merica  Not as old as you...
      933   Male  Sub-Canadian North America... 'Merica  Not as old as you...

          TrickAndTreating
      905           Yes
      933           Yes


          Gender       Country Age TrickAndTreating
      943   Male  The Netherlands  25             No
```

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      Gender                      Country Age TrickAndTreating
460   Male  The Yoo Ess of Aaayyyyyy  46             Yes


      Gender                      Country Age TrickAndTreating
1090  Male  The republic of Cascadia   45             Yes


      Gender      Country  Age TrickAndTreating
958   Male  Trumpistan  old                  No


      Gender Country Age TrickAndTreating
153   Male    U.S.  32               No
475   Male    U.S.  58               No
512   Male    U.S.  39               No
769   Male    U.S.  38              Yes
944   Male    U.S.  58               No


      Gender Country Age TrickAndTreating
56    Male  U.S.A.  42               No
98    Male  U.S.A.  43               No
134   Male  U.S.A.  45               No
445   Male  U.S.A.  61               No


      Gender Country Age TrickAndTreating
313   Male      UK  59               No
412   Male      UK  38               No
808   Male      UK  36               No


      Gender Country Age TrickAndTreating
554   Male      UK  42              Yes


      Gender           Country Age TrickAndTreating
1046  Male  UNited States  55               No


      Gender Country Age TrickAndTreating
24    Male      US  60               No
33    Male      US  54               No
88    Male      US  54               No
92    Male      US  52               No
95    Male      US  63               No
101   Male      US  58               No
122   Male      US  51               No
159   Male      US  30               No
177   Male      US  18              Yes
194   Male      US  35               No
203   Male      US  52              Yes
206   Male      US  42               No
231   Male      US  39              Yes
240   Male      US  26               No
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244   Male     US  35          No
254   Male     US  33          No
259   Male     US  35          No
260   Male     US  47          No
289   Male     US  59          No
360   Male     US  41          No
379   Male     US  45          No
382   Male     US  55          No
393   Male     US  33          No
428   Male     US  37          No
465   Male     US  53          No
483   Male     US  54          No
493   Male     US  70          No
514   Male     US  45          No
519   Male     US  48          No
521   Male     US  36          No
560   Male     US  48          No
570   Male     US  61          No
593   Male     US  60          No
636   Male     US  52          No
704   Male     US  44          Yes
719   Male     US  42          No
728   Male     US  47          No
730   Male     US  50          No
743   Male     US  32          No
763   Male     US  57          No
838   Male     US  49          No
848   Male     US  53          No
894   Male     US  38          No
898   Male     US  51          No
904   Male     US  41          No
945   Male     US  41          No
1007  Male     US  43          No
1071  Male     US  42          No
1073  Male     US  63          No
1126  Male     US  23          No
1141  Male     US  68          No
1189  Male     US  31          No


      Gender Country Age TrickAndTreating
4       Male     USA  42               Yes
5       Male     USA  41                No
8       Male     USA  44               Yes
18      Male     USA  49               Yes
28      Male     USA  51                No
...      ...     ...  ..               ...
1190    Male     USA  51                No
1200    Male     USA  27                No
1202    Male     USA  46                No
1210    Male     USA  35                No
1213    Male     USA  54                No

[273 rows x 4 columns]


      Gender Country Age TrickAndTreating
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168    Male    USA    33              No
342    Male    USA    41              Yes
545    Male    USA    38              No
880    Male    USA    47              Yes
901    Male    USA    45              No
1170   Male    USA    63              Yes


      Gender                                              Country  \
100    Male  USA (I think but it's an election year so who ...

                                               Age TrickAndTreating
100  As old as my tongue a few years older than my ...            No


     Gender       Country Age TrickAndTreating
272   Male  USA USA USA  31              No


      Gender              Country Age TrickAndTreating
1121   Male  USA USA USA USA  43              No


   Gender Country Age TrickAndTreating
93  Male     USA!  41              Yes


     Gender    Country Age TrickAndTreating
792   Male  USA! USA!  35              No


     Gender         Country Age TrickAndTreating
296   Male  USA! USA! USA!  45              No
968   Male  USA! USA! USA!  50              No


     Gender    Country Age TrickAndTreating
703   Male  USA!!!!!!  16              Yes


   Gender Country Age TrickAndTreating
45  Male     USSA  48              No


     Gender         Country Age TrickAndTreating
473   Male  United Kindom  51              No


    Gender          Country Age TrickAndTreating
87    Male  United Kingdom  41              Yes
795   Male  United Kingdom  27              No


    Gender          Country Age TrickAndTreating
20    Male  United States  45              No
22    Male  United States  48              No
32    Male  United States  35              No
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48      Male  United States  40                No
55      Male  United States  47                Yes
...     ...              ...  ..                ...
1158    Male  United States  36                No
1164    Male  United States  42                No
1183    Male  United States  46                No
1196    Male  United States  24                No
1208    Male  United States  27                No

[122 rows x 4 columns]


      Gender         Country Age TrickAndTreating
431     Male  United States   48              Yes
576     Male  United States   57               No
613     Male  United States   41               No
653     Male  United States   38               No
1165    Male  United States   46               No


      Gender                   Country Age TrickAndTreating
38      Male  United States of America   48               No
150     Male  United States of America   24               No
165     Male  United States of America   52               No
166     Male  United States of America   37               No
193     Male  United States of America   17              Yes
234     Male  United States of America   16              Yes
442     Male  United States of America   33               No
456     Male  United States of America   43               No
469     Male  United States of America   37              Yes
481     Male  United States of America   39               No
594     Male  United States of America   39               No
654     Male  United States of America   26               No
668     Male  United States of America   46               No
726     Male  United States of America   45               No
746     Male  United States of America   26               No
902     Male  United States of America   28               No
910     Male  United States of America   20              Yes
925     Male  United States of America   43               No
935     Male  United States of America   38               No
984     Male  United States of America   36               No
1016    Male  United States of America   34               No
1070    Male  United States of America   51               No


     Gender                   Country Age TrickAndTreating
49     Male  United States of America   55               No
790    Male  United States of America   25               No


      Gender         Country Age TrickAndTreating
1105    Male  United Stetes   53               No


      Gender         Country Age TrickAndTreating
217     Male  United states   47               No
896     Male  United states   36              Yes
```

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1116   Male   United states   39                    No


      Gender          Country Age TrickAndTreating
186   Male   Units States   43                    Yes


      Gender Country Age TrickAndTreating
209   Male      Us   20              Yes
699   Male      Us   37               No


      Gender Country  Age TrickAndTreating
117    Male     Usa   58               No
204    Male     Usa   43              Yes
241    Male     Usa   42               No
332    Male     Usa   40               No
501    Male     Usa   42              Yes
588    Male     Usa   38               No
864    Male     Usa   41               No
916    Male     Usa   Old              No
1023   Male     Usa   45              Yes
1118   Male     Usa   55               No
1132   Male     Usa   59              Yes
1178   Male     Usa   33               No


       Gender  Country Age TrickAndTreating
1108   Male    america  52              No


      Gender  Country Age TrickAndTreating
198    Male   belgium  42               No


      Gender Country Age TrickAndTreating
17     Male   canada  35               No
21     Male   canada  34               No
41     Male   canada  33               No
183    Male   canada  32               No
597    Male   canada  33               No
676    Male   canada  67               No
852    Male   canada  47               No
961    Male   canada  59               No
964    Male   canada  50               No
1216   Male   canada  48               No


      Gender  Country Age TrickAndTreating
213    Male   croatia  16               No


     Gender  Country Age TrickAndTreating
61    Male   england  37               No


      Gender Country Age TrickAndTreating
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359   Male   españa  60                    No


     Gender Country Age TrickAndTreating
43    Male   france  35                    No
386   Male   france  54                    No


     Gender  Country Age TrickAndTreating
1035  Male   germany  43                    No


     Gender         Country  Age TrickAndTreating
691   Male   god's country  23.2               No


     Gender        Country Age TrickAndTreating
1153  Male   netherlands  26                   No


     Gender                  Country  Age TrickAndTreating
435   Male   one of the best ones  old              Yes


     Gender                Country Age TrickAndTreating
281   Male   the best one - usa  36              Yes


     Gender                           Country Age TrickAndTreating
402   Male   there isn't one for old men  57                    No


     Gender Country Age TrickAndTreating
395   Male    u.s.  51                    No
991   Male    u.s.  42                    No


     Gender Country Age TrickAndTreating
12    Male    uSA  41                    No


     Gender Country Age TrickAndTreating
68    Male     uk  61                    No
113   Male     uk  41                    No
140   Male     uk  47                    No


     Gender         Country Age TrickAndTreating
14     Male   united states  40                    No
19     Male   united states  44                    No
404    Male   united states  49                    No
472    Male   united states  42                    No
567    Male   united states  46                    No
584    Male   united states  42                    No
756    Male   united states  32                    No
908    Male   united states  41                    No
915    Male   united states  37                    No
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959   Male   united states  40               No
1025  Male   united states  35               Yes
1215  Male   united states  33               No


      Gender                      Country Age TrickAndTreating
553   Male   united states of america  33               No
1203  Male   united states of america  45               Yes


      Gender Country Age TrickAndTreating
25    Male       us  30               No
275   Male       us  50               No
348   Male       us  56               No
387   Male       us  34               No
429   Male       us  33               No
457   Male       us  26               No
462   Male       us  55               No
549   Male       us  45               No
587   Male       us  48               No
634   Male       us  34               No
711   Male       us  70               No
758   Male       us  46               No
917   Male       us  58               No
939   Male       us  44               No
972   Male       us  34               No
979   Male       us  33               No
1047  Male       us  45               No
1053  Male       us  57               No
1057  Male       us  51               No
1130  Male       us  53               No


      Gender Country Age TrickAndTreating
1     Male      usa  45               No
3     Male      usa  57               No
6     Male      usa  47               Yes
37    Male      usa  50               No
47    Male      usa  34               No
...    ...      ...  ..              ...
1143  Male      usa  59               No
1151  Male      usa  45               No
1160  Male      usa  41               No
1163  Male      usa  43               No
1175  Male      usa  30               No

[93 rows x 4 columns]


     Gender    Country Age TrickAndTreating
936  Other  Australia  42               No


      Gender Country Age TrickAndTreating
1026  Other   China  67               Yes
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      Gender Country Age TrickAndTreating
284   Other   Japan  54               No


      Gender Country Age TrickAndTreating
136   Other    USA   23               No
172   Other    USA   17               No
411   Other    USA   19               No
920   Other    USA   26               No
940   Other    USA   44               No


      Gender          Country Age TrickAndTreating
383   Other   United States   28               No
601   Other   United States   22               No
690   Other   United States   26               No
962   Other   United States   42               No


      Gender          Country Age TrickAndTreating
865   Other   United States   29               No


       Gender                    Country Age TrickAndTreating
10     Other   United States of America   34               No
1191   Other   United States of America   33               No


      Gender Country Age TrickAndTreating
424   Other     Usa  32               No


      Gender Country Age TrickAndTreating
980   Other     usa  26               No
```

Chapter 11

In [190]:
```python
from datetime import datetime
now = datetime.now()
now
now.year, now.month, now.day
```

Out[190]: (2020, 5, 3)

In [191]:
```python
stamp = datetime(2011, 1, 3)
str(stamp)
stamp.strftime('%Y-%m-%d')
```

Out[191]: '2011-01-03'

```
In [192]: candy_response_2016.columns
```

Out[192]: Index(['Timestamp', 'TrickAndTreating', 'Gender', 'Age', 'Country',
           'Which state, province, county do you live in?', ' [100 Grand Ba
       r]',
           ' [Anonymous brown globs that come in black and orange wrappers]',
           ' [Any full-sized candy bar]', ' [Black Jacks]',
           ...
           'Please estimate the degree(s) of separation you have from the fol
       lowing celebrities [JK Rowling]',
           'Please estimate the degree(s) of separation you have from the fol
       lowing celebrities [JJ Abrams]',
           'Please estimate the degree(s) of separation you have from the fol
       lowing celebrities [Beyoncé]',
           'Please estimate the degree(s) of separation you have from the fol
       lowing celebrities [Bieber]',
           'Please estimate the degree(s) of separation you have from the fol
       lowing celebrities [Kevin Bacon]',
           'Please estimate the degree(s) of separation you have from the fol
       lowing celebrities [Francis Bacon (1561 - 1626)]',
           'Which day do you prefer, Friday or Sunday?',
           'Do you eat apples the correct way, East to West (side to side) or
       do you eat them like a freak of nature, South to North (bottom to top)?',
           'When you see the above image of the 4 different websites, which o
       ne would you most likely check out (please be honest).',
           ' [York Peppermint Patties] Ignore'],
          dtype='object', length=123)

```
In [193]: CandyResponseWithTimeStamp = pd.DataFrame()
          CandyResponseWithTimeStamp = candy_response_2016[['Timestamp','Gender','A
          ge','Country','TrickAndTreating']].dropna()
          CandyResponseWithTimeStamp.head()
```

Out[193]:

	Timestamp	Gender	Age	Country	TrickAndTreating
0	2016-10-24 05:09:23.033	Male	22	Canada	No
1	2016-10-24 05:09:54.798	Male	45	usa	No
2	2016-10-24 05:13:06.734	Female	48	US	No
3	2016-10-24 05:14:17.192	Male	57	usa	No
4	2016-10-24 05:14:24.625	Male	42	USA	Yes

```
In [194]: pd.to_datetime(CandyResponseWithTimeStamp.Timestamp)
          CandyResponseWithTimeStamp
```

Out[194]:

	Timestamp	Gender	Age	Country	TrickAndTreating
0	2016-10-24 05:09:23.033	Male	22	Canada	No
1	2016-10-24 05:09:54.798	Male	45	usa	No
2	2016-10-24 05:13:06.734	Female	48	US	No
3	2016-10-24 05:14:17.192	Male	57	usa	No
4	2016-10-24 05:14:24.625	Male	42	USA	Yes
...	...	...	...	...	...
1253	2016-10-29 14:47:43.907	Male	54	USA	No
1254	2016-10-29 16:53:52.516	Female	52	USA	No
1255	2016-10-30 06:53:54.735	Male	33	united states	No
1257	2016-10-30 16:07:26.539	Male	48	canada	No
1258	2016-10-30 17:06:45.660	Female	44	Us	Yes

1218 rows × 5 columns

```
In [195]: CandyResponseWithTimeStamp["TimeStamp_DMY"] = CandyResponseWithTimeStamp.
          Timestamp.map(lambda ts: ts.strftime("%d-%m-%Y"))
          CandyResponseWithTimeStamp.head()
```

Out[195]:

	Timestamp	Gender	Age	Country	TrickAndTreating	TimeStamp_DMY
0	2016-10-24 05:09:23.033	Male	22	Canada	No	24-10-2016
1	2016-10-24 05:09:54.798	Male	45	usa	No	24-10-2016
2	2016-10-24 05:13:06.734	Female	48	US	No	24-10-2016
3	2016-10-24 05:14:17.192	Male	57	usa	No	24-10-2016
4	2016-10-24 05:14:24.625	Male	42	USA	Yes	24-10-2016

```
In [196]: CandyResponseWithTimeStamp = CandyResponseWithTimeStamp.set_index('TimeSt
          amp_DMY')
          CandyResponseWithTimeStamp
```

Out[196]:

TimeStamp_DMY	Timestamp	Gender	Age	Country	TrickAndTreating
24-10-2016	2016-10-24 05:09:23.033	Male	22	Canada	No
24-10-2016	2016-10-24 05:09:54.798	Male	45	usa	No
24-10-2016	2016-10-24 05:13:06.734	Female	48	US	No
24-10-2016	2016-10-24 05:14:17.192	Male	57	usa	No
24-10-2016	2016-10-24 05:14:24.625	Male	42	USA	Yes
...	...	...	...	...	...
29-10-2016	2016-10-29 14:47:43.907	Male	54	USA	No
29-10-2016	2016-10-29 16:53:52.516	Female	52	USA	No
30-10-2016	2016-10-30 06:53:54.735	Male	33	united states	No
30-10-2016	2016-10-30 16:07:26.539	Male	48	canada	No
30-10-2016	2016-10-30 17:06:45.660	Female	44	Us	Yes

1218 rows × 5 columns

```
In [197]: CandyResponseWithTimeStamp.loc['24-10-2016':'25-10-2016:']
```
Out[197]:

TimeStamp_DMY	Timestamp	Gender	Age	Country	TrickAndTreating
24-10-2016	2016-10-24 05:09:23.033	Male	22	Canada	No
24-10-2016	2016-10-24 05:09:54.798	Male	45	usa	No
24-10-2016	2016-10-24 05:13:06.734	Female	48	US	No
24-10-2016	2016-10-24 05:14:17.192	Male	57	usa	No
24-10-2016	2016-10-24 05:14:24.625	Male	42	USA	Yes
...	...	...	...	...	...
25-10-2016	2016-10-25 21:12:30.200	Male	51	US	No
25-10-2016	2016-10-25 21:13:00.519	Male	46	Canada	No
25-10-2016	2016-10-25 21:31:47.121	Male	47	Canada	No
25-10-2016	2016-10-25 22:37:10.222	Male	45	USA	No
25-10-2016	2016-10-25 23:49:58.685	Male	28	United States of America	No

903 rows × 5 columns

```
In [198]: EarliestResponse = CandyResponseWithTimeStamp.Timestamp.min()
          LatestResponse = CandyResponseWithTimeStamp.Timestamp.max()
          print(EarliestResponse,LatestResponse)
```

2016-10-24 05:09:23.033000 2016-10-30 17:06:45.660000

```
In [ ]:
```