## Concepts of Data Cleaning on Dataset Named "Customer Call List"

In [ ]: # import the pandas library import pandas as pd In [175]: # call/ import the data table data = pd.read\_excel('Customer Call List.xlsx') In [176]: data 0 1001 123-545-5421 123 Shire Lane, Shire No Frodo Baggins Yes True 1 1002 Nadir 123/643/9775 93 West Main Street No Yes False Abed 2 1003 Walter /White 7066950392 298 Drugs Driveway Ν NaN True 3 1004 Dwight Schrute 123-543-2345 980 Paper Avenue, Pennsylvania, 18503 Yes Υ True 1005 Snow 876|678|3469 123 Dragons Road No True Jon 1006 304-762-2467 768 City Parkway Ron Swanson Yes Yes True 1007 6 Jeff Winger NaN 1209 South Street No No False 1008 876|678|3469 98 Clue Drive Ν False 7 Sherlock Holmes No 1009 123 Middle Earth 8 Gandalf NaN N/a Yes NaN False 9 1010 Peter Parker 123-545-5421 25th Main Street, New York No Yes True 612 Shire Lane, Shire 10 1011 Samwise Gamgee NaN Yes No True 11 1012 Harry ...Potter 7066950392 2394 Hogwarts Avenue Υ NaN True 12 1013 Draper 123-543-2345 2039 Main Street Yes False

In [177]: # Drop the duplicates
data.drop\_duplicates()

Out[177]:

	CustomerID	First_Name	Last_Name	Phone_Number	Address	Paying Customer	Do_Not_Contact	Not_Useful_Column
0	1001	Frodo	Baggins	123-545-5421	123 Shire Lane, Shire	Yes	No	True
1	1002	Abed	Nadir	123/643/9775	93 West Main Street	No	Yes	False
2	1003	Walter	/White	7066950392	298 Drugs Driveway	N	NaN	True
3	1004	Dwight	Schrute	123-543-2345	980 Paper Avenue, Pennsylvania, 18503	Yes	Υ	True
4	1005	Jon	Snow	876 678 3469	123 Dragons Road	Υ	No	True
5	1006	Ron	Swanson	304-762-2467	768 City Parkway	Yes	Yes	True
6	1007	Jeff	Winger	NaN	1209 South Street	No	No	False
7	1008	Sherlock	Holmes	876 678 3469	98 Clue Drive	N	No	False
8	1009	Ganda <b>l</b> f	NaN	N/a	123 Middle Earth	Yes	NaN	False
9	1010	Peter	Parker	123-545-5421	25th Main Street, New York	Yes	No	True
10	1011	Samwise	Gamgee	NaN	612 Shire Lane, Shire	Yes	No	True
11	1012	Harry	Potter	7066950392	2394 Hogwarts Avenue	Υ	NaN	True
12	1013	Don	Draper	123-543-2345	2039 Main Street	Yes	N	False
13	1014	Leslie	Knope	876 678 3469	343 City Parkway	Yes	No	False
14	1015	Toby	Flenderson_	304-762-2467	214 HR Avenue	N	No	False
15	1016	Ron	Weasley	123-545-5421	2395 Hogwarts Avenue	No	N	False
16	1017	Michael	Scott	123/643/9775	121 Paper Avenue, Pennsylvania	Yes	No	False
17	1018	Clark	Kent	7066950392	3498 Super Lane	Υ	NaN	True
18	1019	Creed	Braton	N/a	N/a	N/a	Yes	True
19	1020	Anakin	Skywa <b>l</b> ker	876 678 3469	910 Tatooine Road, Tatooine	Yes	N	True

In [178]: # Remove the unnecessary special character from Last name
data['Last\_Name']=data['Last\_Name'].str.strip('123/...\_')

```
In [179]: # change the datatype of column to string
           data['Phone_Number'] = data['Phone_Number'].astype(str)
           # clear the format of phone no. but it has not worked
           data['Phone_Number'] = data['Phone_Number'].replace('1','')
           # or data['Phone_Number'] = data['Phone_Number'].astype(str).str.replace('[a-zA-Z0-9]','')
           data['Phone_Number']
Out[179]: 0
                  123-545-5421
                  123/643/9775
                    7066950392
                  123-543-2345
           3
           4
                  876 678 3469
           5
                  304-762-2467
           6
           7
                  876 678 3469
           8
                           N/a
           9
                  123-545-5421
           10
           11
                    7066950392
           12
                  123-543-2345
                  876 678 3469
           13
                  304-762-2467
           14
                  123-545-5421
           15
                  123/643/9775
           16
           17
                    7066950392
           18
                           N/a
           19
                  876 678 3469
                  876 678 3469
           20
           Name: Phone_Number, dtype: object
In [180]: data['Phone_Number'].astype(str)
           # Now I have changed the method of doing it, like i utilized multiple replace with str and it worked.
           data['Phone_Number'] =data['Phone_Number'].str.replace('-','').str.replace('/','').str.replace('|','')
In [181]: data
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                                                                               93 VVESt IVIAIII Street
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                                Apeu
                                                                               298 Drugs Driveway
             2
                      1003
                                           White
                                                    7066950392
                                                                                                             Ν
                                                                                                                          NaN
                                Walter
                                                                                                                                            True
                                                    1235432345 980 Paper Avenue, Pennsylvania, 18503
                                                                                                                            Υ
                      1004
                               Dwight
                                         Schrute
                                                                                                            Yes
                                                                                                                                            True
                      1005
                                           Snow
                                                    8766783469
                                                                                123 Dragons Road
                                                                                                                           No
                                                                                                                                            True
                                  Jon
                      1006
                                        Swanson
                                                    3047622467
                                                                                 768 City Parkway
                                 Ron
                                                                                                            Yes
                                                                                                                           Yes
                                                                                                                                            True
                      1007
                                  Jeff
                                          Winger
                                                                                 1209 South Street
                                                                                                            Νo
                                                                                                                           No
                                                                                                                                           False
                                                           nan
             7
                      1008
                              Sherlock
                                                    8766783469
                                                                                    98 Clue Drive
                                                                                                             Ν
                                                                                                                                           False
                                         Holmes
                                                                                                                           No
                                                                                 123 Middle Earth
             8
                      1009
                              Gandalf
                                            NaN
                                                           Na
                                                                                                            Yes
                                                                                                                          NaN
                                                                                                                                            False
                                                                          25th Main Street, New York
             9
                      1010
                                Peter
                                          Parker
                                                    1235455421
                                                                                                            Yes
                                                                                                                           Νo
                                                                                                                                            True
            10
                      1011
                                                                              612 Shire Lane, Shire
                                                                                                            Yes
                                                                                                                           No
                                                                                                                                            True
                              Samwise
                                         Gamgee
            11
                      1012
                                                    7066950392
                                Harry
                                           Potter
                                                                             2394 Hogwarts Avenue
                                                                                                                          NaN
                                                                                                                                            True
            12
                      1013
                                                    1235432345
                                 Don
                                                                                 2039 Main Street
                                                                                                            Yes
                                                                                                                            Ν
                                                                                                                                            False
                                          Draper
            13
                      1014
                                Leslie
                                                    8766783469
                                                                                 343 City Parkway
                                                                                                                           No
                                                                                                                                           False
                                          Knope
                                                                                                            Yes
                                                    2047020407
                                                                                   044 110 4......
In [182]: # Change the values through replace function
           data[data['Paying Customer']=='Y']=data[data['Paying Customer']=='Y'].replace('Y','Yes')
           data[data['Paying Customer']=='N']=data[data['Paying Customer']=='N'].replace('N','No')
In [183]: | # Change the values through replace function
           data[data['Do_Not_Contact']=='Y']=data[data['Do_Not_Contact']=='Y'].replace('Y','Yes')
           data[data['Do_Not_Contact']=='N']=data[data['Do_Not_Contact']=='N'].replace('N','No')
```

In [184]: data

Out[184]:

	CustomerID	First_Name	Last_Name	Phone_Number	Address	Paying Customer	Do_Not_Contact	Not_Useful_Column
0	1001	Frodo	Baggins	1235455421	123 Shire Lane, Shire	Yes	No	True
1	1002	Abed	Nadir	1236439775	93 West Main Street	No	Yes	False
2	1003	Walter	White	7066950392	298 Drugs Driveway	No	NaN	True
3	1004	Dwight	Schrute	1235432345	980 Paper Avenue, Pennsylvania, 18503	Yes	Yes	True
4	1005	Jon	Snow	8766783469	123 Dragons Road	Yes	No	True
5	1006	Ron	Swanson	3047622467	768 City Parkway	Yes	Yes	True
6	1007	Jeff	Winger	nan	1209 South Street	No	No	False
7	1008	Sherlock	Holmes	8766783469	98 Clue Drive	No	No	False
8	1009	Ganda <b>l</b> f	NaN	Na	123 Middle Earth	Yes	NaN	False
9	1010	Peter	Parker	1235455421	25th Main Street, New York	Yes	No	True
10	1011	Samwise	Gamgee	nan	612 Shire Lane, Shire	Yes	No	True
11	1012	Harry	Potter	7066950392	2394 Hogwarts Avenue	Yes	NaN	True
12	1013	Don	Draper	1235432345	2039 Main Street	Yes	No	False
13	1014	Leslie	Knope	8766783469	343 City Parkway	Yes	No	False
14	1015	Toby	Flenderson	3047622467	214 HR Avenue	No	No	False
15	1016	Ron	Weasley	1235455421	2395 Hogwarts Avenue	No	No	False
16	1017	Michael	Scott	1236439775	121 Paper Avenue, Pennsylvania	Yes	No	False
17	1018	Clark	Kent	7066950392	3498 Super Lane	Yes	NaN	True
18	1019	Creed	Braton	Na	N/a	N/a	Yes	True
19	1020	Anakin	Skywa <b>l</b> ker	8766783469	910 Tatooine Road, Tatooine	Yes	No	True
20	1020	Anakin	Skywa <b>l</b> ker	8766783469	910 Tatooine Road, Tatooine	Yes	No	True

In [185]: # Rename the column, we can do with more than one at the same time by adding inside the curly brackets
data=data.rename(columns={'Paying Customer':'Paying\_Customer'})

In [186]: data

Out[186]:

	CustomerID	First_Name	Last_Name	Phone_Number	Address	Paying_Customer	Do_Not_Contact	Not_Useful_Column
0	1001	Frodo	Baggins	1235455421	123 Shire Lane, Shire	Yes	No	True
1	1002	Abed	Nadir	1236439775	93 West Main Street	No	Yes	False
2	1003	Walter	White	7066950392	298 Drugs Driveway	No	NaN	True
3	1004	Dwight	Schrute	1235432345	980 Paper Avenue, Pennsylvania, 18503	Yes	Yes	True
4	1005	Jon	Snow	8766783469	123 Dragons Road	Yes	No	True
5	1006	Ron	Swanson	3047622467	768 City Parkway	Yes	Yes	True
6	1007	Jeff	Winger	nan	1209 South Street	No	No	False
7	1008	Sherlock	Ho <b>l</b> mes	8766783469	98 Clue Drive	No	No	False
8	1009	Ganda <b>l</b> f	NaN	Na	123 Middle Earth	Yes	NaN	Fa <b>l</b> se
9	1010	Peter	Parker	1235455421	25th Main Street, New York	Yes	No	True
10	1011	Samwise	Gamgee	nan	612 Shire Lane, Shire	Yes	No	True
11	1012	Harry	Potter	7066950392	2394 Hogwarts Avenue	Yes	NaN	True
12	1013	Don	Draper	1235432345	2039 Main Street	Yes	No	Fa <b>l</b> se
13	1014	Leslie	Knope	8766783469	343 City Parkway	Yes	No	Fa <b>l</b> se
14	1015	Toby	Flenderson	3047622467	214 HR Avenue	No	No	Fa <b>l</b> se
15	1016	Ron	Weasley	1235455421	2395 Hogwarts Avenue	No	No	Fa <b>l</b> se
16	1017	Michael	Scott	1236439775	121 Paper Avenue, Pennsylvania	Yes	No	False
17	1018	Clark	Kent	7066950392	3498 Super Lane	Yes	NaN	True
18	1019	Creed	Braton	Na	N/a	N/a	Yes	True
19	1020	Anakin	Skywa <b>l</b> ker	8766783469	910 Tatooine Road, Tatooine	Yes	No	True
20	1020	Anakin	Skywalker	8766783469	910 Tatooine Road, Tatooine	Yes	No	True

```
In [187]: # Change the data type of of phone no. through Lambda function
data['Phone_Number']=data['Phone_Number'].apply(lambda x:str(x))
```

```
In [188]: # Change the format of phone no. through lambda function with apply function
data['Phone_Number']=data['Phone_Number'].apply(lambda x:x[0:3] + '-'+ x[3:6]+'-'+x[6:10])
```

```
In [189]: data
```

Out[189]:

	CustomerID	First_Name	Last_Name	Phone_Number	Address	Paying_Customer	Do_Not_Contact	Not_Useful_Column
0	1001	Frodo	Baggins	123-545-5421	123 Shire Lane, Shire	Yes	No	True
1	1002	Abed	Nadir	123-643-9775	93 West Main Street	No	Yes	False
2	1003	Walter	White	706-695-0392	298 Drugs Driveway	No	NaN	True
3	1004	Dwight	Schrute	123-543-2345	980 Paper Avenue, Pennsylvania, 18503	Yes	Yes	True
4	1005	Jon	Snow	876-678-3469	123 Dragons Road	Yes	No	True
5	1006	Ron	Swanson	304-762-2467	768 City Parkway	Yes	Yes	True
6	1007	Jeff	Winger	nan	1209 South Street	No	No	False
7	1008	Sherlock	Holmes	876-678-3469	98 Clue Drive	No	No	False
8	1009	Ganda <b>l</b> f	NaN	Na	123 Middle Earth	Yes	NaN	False
9	1010	Peter	Parker	123-545-5421	25th Main Street, New York	Yes	No	True
10	1011	Samwise	Gamgee	nan	612 Shire Lane, Shire	Yes	No	True
11	1012	Harry	Potter	706-695-0392	2394 Hogwarts Avenue	Yes	NaN	True
12	1013	Don	Draper	123-543-2345	2039 Main Street	Yes	No	False
13	1014	Leslie	Knope	876-678-3469	343 City Parkway	Yes	No	False
14	1015	Toby	Flenderson	304-762-2467	214 HR Avenue	No	No	False
15	1016	Ron	Weasley	123-545-5421	2395 Hogwarts Avenue	No	No	False
16	1017	Michael	Scott	123-643-9775	121 Paper Avenue, Pennsylvania	Yes	No	False
17	1018	Clark	Kent	706-695-0392	3498 Super Lane	Yes	NaN	True
18	1019	Creed	Braton	Na	N/a	N/a	Yes	True
19	1020	Anakin	Skywa <b>l</b> ker	876-678-3469	910 Tatooine Road, Tatooine	Yes	No	True
20	1020	Anakin	Skywa <b>l</b> ker	876-678-3469	910 Tatooine Road, Tatooine	Yes	No	True

```
In [190]: # Change the string value into blank.
data['Phone_Number'] = data['Phone_Number'].str.replace('nan--','')
data['Phone_Number'] = data['Phone_Number'].str.replace('Na--','')
```

In [191]: data

Out[191]:

	CustomerID	First_Name	Last_Name	Phone_Number	Address	Paying_Customer	Do_Not_Contact	Not_Useful_Column
0	1001	Frodo	Baggins	123-545-5421	123 Shire Lane, Shire	Yes	No	True
1	1002	Abed	Nadir	123-643-9775	93 West Main Street	No	Yes	False
2	1003	Walter	White	706-695-0392	298 Drugs Driveway	No	NaN	True
3	1004	Dwight	Schrute	123-543-2345	980 Paper Avenue, Pennsylvania, 18503	Yes	Yes	True
4	1005	Jon	Snow	876-678-3469	123 Dragons Road	Yes	No	True
5	1006	Ron	Swanson	304-762-2467	768 City Parkway	Yes	Yes	True
6	1007	Jeff	Winger		1209 South Street	No	No	False
7	1008	Sherlock	Holmes	876-678-3469	98 Clue Drive	No	No	Fa <b>l</b> se
8	1009	Ganda <b>l</b> f	NaN		123 Middle Earth	Yes	NaN	Fa <b>l</b> se
9	1010	Peter	Parker	123-545-5421	25th Main Street, New York	Yes	No	True
10	1011	Samwise	Gamgee		612 Shire Lane, Shire	Yes	No	True
11	1012	Harry	Potter	706-695-0392	2394 Hogwarts Avenue	Yes	NaN	True
12	1013	Don	Draper	123-543-2345	2039 Main Street	Yes	No	Fa <b>l</b> se
13	1014	Leslie	Knope	876-678-3469	343 City Parkway	Yes	No	Fa <b>l</b> se
14	1015	Toby	Flenderson	304-762-2467	214 HR Avenue	No	No	Fa <b>l</b> se
15	1016	Ron	Weasley	123-545-5421	2395 Hogwarts Avenue	No	No	Fa <b>l</b> se
16	1017	Michael	Scott	123-643-9775	121 Paper Avenue, Pennsylvania	Yes	No	False
17	1018	Clark	Kent	706-695-0392	3498 Super Lane	Yes	NaN	True
18	1019	Creed	Braton		N/a	N/a	Yes	True
19	1020	Anakin	Skywa <b>l</b> ker	876-678-3469	910 Tatooine Road, Tatooine	Yes	No	True
20	1020	Anakin	Skywalker	876-678-3469	910 Tatooine Road, Tatooine	Yes	No	True

```
In [192]: # Split the column into 3 other columns
data[['Street_Address','State','Postal_Code']]=data['Address'].str.split(',',expand=True)
```

In [193]: data

Out[193]:

e Shire	123 Shire Lane	True	No	Yes	123 Shire Lane, Shire	123-545-5421	Baggins	Frodo	1001	0
	93 West Main Street	False	Yes	No	93 West Main Street	123-643-9775	Nadir	Abed	1002	1
	298 Drugs Driveway	True	NaN	No	298 Drugs Driveway	706-695-0392	White	Walter	1003	2
	980 Paper Avenue	True	Yes	Yes	980 Paper Avenue, Pennsylvania, 18503	123-543-2345	Schrute	Dwight	1004	3
s d None	123 Dragons Road	True	No	Yes	123 Dragons Road	876-678-3469	Snow	Jon	1005	4
	768 City Parkway	True	Yes	Yes	768 City Parkway	304-762-2467	Swanson	Ron	1006	5
	1209 South Street	False	No	No	1209 South Street		Winger	Jeff	1007	6
e None	98 Clue Drive	False	No	No	98 Clue Drive	876-678-3469	Holmes	Sherlock	1008	7
	123 Midd <b>l</b> e Earth	False	NaN	Yes	123 Midd <b>l</b> e Earth		NaN	Gandalf	1009	8
et New York	25th Main Street	True	No	Yes	25th Main Street, New York	123-545-5421	Parker	Peter	1010	9
e Shire	612 Shire Lane	True	No	Yes	612 Shire Lane, Shire		Gamgee	Samwise	1011	10
	2394 Hogwarts Avenue	True	NaN	Yes	2394 Hogwarts Avenue	706-695-0392	Potter	Harry	1012	11
	2039 Main Street	False	No	Yes	2039 Main Street	123-543-2345	Draper	Don	1013	12
	343 City Parkway	False	No	Yes	343 City Parkway	876-678-3469	Knope	Leslie	1014	13
e None	214 HR Avenue	False	No	No	214 HR Avenue	304-762-2467	Flenderson	Toby	1015	14
	2395 Hogwarts Avenue	False	No	No	2395 Hogwarts Avenue	123-545-5421	Weasley	Ron	1016	15
	121 Paper Avenue	False	No	Yes	121 Paper Avenue, Pennsylvania	123-643-9775	Scott	Michael	1017	16
None	3498 Super Lane	True	NaN	Yes	3498 Super Lane	706-695-0392	Kent	Clark	1018	17
a None	N/a	True	Yes	N/a	N/a		Braton	Creed	1019	18
	910 Tatooine Road	True	No	Yes	910 Tatooine Road, Tatooine	876-678-3469	Skywa <b>l</b> ker	Anakin	1020	19
	910 Tatooine Road	True	No	Yes	910 Tatooine Road, Tatooine	876-678-3469	Skywa <b>l</b> ker	Anakin	1020	20

In [194]: data = data.replace('N/a','') # It is working because Na means Not Available, that means it is a string which can be replace wi data.replace('NaN','') # It is not working because NaN means there has a emply place or ( Not a Number), so obviously it will n

									, , , , , , , , , , , , , , , , , , ,
1015	Toby	Flenderson	304-762-2467	214 HR Avenue	No	No	False	214 HR Avenue	Noi ^
1016	Ron	Weasley	123-545-5421	2395 Hogwarts Avenue	No	No	False	2395 Hogwarts Avenue	Noi
1017	Michael	Scott	123-643-9775	121 Paper Avenue, Pennsylvania	Yes	No	False	121 Paper Avenue	Pennsylvar
1018	Clark	Kent	706-695-0392	3498 Super Lane	Yes	NaN	True	3498 Super Lane	Noi
1019	Creed	Braton				Yes	True		Noı
1020	Anakin	Skywa <b>l</b> ker	876-678-3469	910 Tatooine Road, Tatooine	Yes	No	True	910 Tatooine Road	Tatooiı
1020	Anakin	Skywa <b>l</b> ker	876-678-3469	910 Tatooine Road, Tatooine	Yes	No	True	910 Tatooine Road	Tatooii
	1016 1017 1018 1019 1020	1016 Ron  1017 Michael  1018 Clark  1019 Creed  1020 Anakin	1016 Ron Weasley  1017 Michael Scott  1018 Clark Kent  1019 Creed Braton  1020 Anakin Skywalker	1016       Ron       Weasley       123-545-5421         1017       Michael       Scott       123-643-9775         1018       Clark       Kent       706-695-0392         1019       Creed       Braton         1020       Anakin       Skywalker       876-678-3469	1015         Ioby         Flenderson         304-762-2467         Avenue           1016         Ron         Weasley         123-545-5421         Hogwarts Avenue           1017         Michael         Scott         123-643-9775         Avenue, Pennsylvania           1018         Clark         Kent         706-695-0392         3498 Super Lane           1019         Creed         Braton           1020         Anakin         Skywalker         876-678-3469         910 Tatooine Road, Tatooine           1020         Anakin         Skywalker         876-678-3469         Road, Ro	1015	1015         Ioby         Flenderson         304-762-2467         Avenue         No         No           1016         Ron         Weasley         123-545-5421         Hogwarts Avenue         No         No           1017         Michael         Scott         123-643-9775         Avenue, Avenue, Pennsylvania         Yes         No           1018         Clark         Kent         706-695-0392         3498 Super Lane         Yes         NaN           1019         Creed         Braton         Yes         No           1020         Anakin         Skywalker         876-678-3469         Pload, Tatooine Road, Tatooine Road, Tatooine Road, Tatooine         Yes         No           1020         Anakin         Skywalker         876-678-3469         Road, Road	1015	1015         10by Flenderson         304-762-2467         Avenue         No         No         No         False         214 HR Avenue           1016         Ron         Weasley         123-545-5421         Hogwarts Avenue         No         No         No         False         2395 Hogwarts Avenue           1017         Michael         Scott         123-643-9775         Hogwarts Avenue, Pennsylvania         Yes         No         False         121 Paper Avenue           1018         Clark         Kent         706-695-0392         3498 Super Lane         Yes         NaN         True         3498 Super Lane           1019         Creed         Braton         Yes         No         True         910 Tatooine Road, Tatooine         Yes         No         True         910 Tatooine Road           1020         Anakin         Skywalker         876-678-3469         910 Tatooine Road, Poad, Road, Poad         Yes         No         True         910 Tatooine Road

```
In [195]: # Now the fillna come to rescue by creating a blank in all those place where NaN placed.
            data = data.fillna('')
            data
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                                        ıvauıı
                                                 123-043-3113
                                                                                                                            гаізе
                                                                     Street
                                                                                                                                           Street
                                                                 298 Drugs
                                                                                                                                       298 Drugs
        2
                 1003
                           Walter
                                        White
                                                 706-695-0392
                                                                                         No
                                                                                                                            True
                                                                                                                                        Driveway
                                                                  Driveway
                                                                  980 Paper
                                                                                                                                       980 Paper
                                                                   Avenue,
        3
                 1004
                           Dwight
                                      Schrute
                                                 123-543-2345
                                                                                         Yes
                                                                                                         Yes
                                                                                                                            True
                                                                                                                                                 Pennsylvania
                                                              Pennsylvania,
                                                                                                                                         Avenue
                                                                     18503
                                                               123 Dragons
                                                                                                                                     123 Dragons
                 1005
                                                 876-678-3469
                                                                                                                            True
                              Jon
                                        Snow
                                                                                         Yes
                                                                                                          No
                                                                     Road
                                                                                                                                           Road
                                                                   768 City
                                                                                                                                         768 City
                 1006
                              Ron
                                     Swanson
                                                 304-762-2467
                                                                                         Yes
                                                                                                         Yes
                                                                                                                            True
                                                                   Parkway
                                                                                                                                        Parkway
                                                                 1209 South
                                                                                                                                      1209 South
                                       Winger
                                                                                                          No
                 1007
                              Jeff
                                                                                         No
                                                                                                                           False
                                                                     Street
                                                                                                                                           Street
                 1008
                          Sherlock
                                      Holmes
                                                 876-678-3469 98 Clue Drive
                                                                                         No
                                                                                                          No
                                                                                                                           False
                                                                                                                                    98 Clue Drive
                                                                 123 Middle
                                                                                                                                      123 Middle
        8
                 1009
                           Gandalf
                                                                                         Yes
                                                                                                                           False
                                                                     Earth
                                                                                                                                           Earth
```

```
In [196]: #Now we want to place Yes Where we have blanks in Do_Not_Contact, because we assume that those who did not mention will pick th
for x in data.index:
   if data.loc[x, 'Do_Not_Contact'] == '':
        data.at[x, 'Do_Not_Contact'] = 'No Feedback'
```

In [197]: # Drop a column that has no feasibility
data= data.drop('Not\_Useful\_Column',axis=1)

In [198]: data

Out[198]:

:	CustomerID	First_Name	Last_Name	Phone_Number	Address	Paying_Customer	Do_Not_Contact	Street_Address	State	Postal_Code
0	1001	Frodo	Baggins	123-545-5421	123 Shire Lane, Shire	Yes	No	123 Shire Lane	Shire	
1	1002	Abed	Nadir	123-643-9775	93 West Main Street	No	Yes	93 West Main Street		
2	1003	Walter	White	706-695-0392	298 Drugs Driveway	No	No Feedback	298 Drugs Driveway		
3	1004	Dwight	Schrute	123-543-2345	980 Paper Avenue, Pennsylvania, 18503	Yes	Yes	980 Paper Avenue	Pennsylvania	18503
4	1005	Jon	Snow	876-678-3469	123 Dragons Road	Yes	No	123 Dragons Road		
5	1006	Ron	Swanson	304-762-2467	768 City Parkway	Yes	Yes	768 City Parkway		
6	1007	Jeff	Winger		1209 South Street	No	No	1209 South Street		
7	1008	Sherlock	Ho <b>l</b> mes	876-678-3469	98 Clue Drive	No	No	98 Clue Drive		
8	1009	Ganda <b>l</b> f			123 Middle Earth	Yes	No Feedback	123 Middle Earth		
9	1010	Peter	Parker	123-545-5421	25th Main Street, New York	Yes	No	25th Main Street	New York	
10	1011	Samwise	Gamgee		612 Shire Lane, Shire	Yes	No	612 Shire Lane	Shire	
11	1012	Harry	Potter	706-695-0392	2394 Hogwarts Avenue	Yes	No Feedback	2394 Hogwarts Avenue		
12	1013	Don	Draper	123-543-2345	2039 Main Street	Yes	No	2039 Main Street		
13	1014	Leslie	Knope	876-678-3469	343 City Parkway	Yes	No	343 City Parkway		
14	1015	Toby	Flenderson	304-762-2467	214 HR Avenue	No	No	214 HR Avenue		
15	1016	Ron	Weasley	123-545-5421	2395 Hogwarts Avenue	No	No	2395 Hogwarts Avenue		
16	1017	Michael	Scott	123-643-9775	121 Paper Avenue, Pennsylvania	Yes	No	121 Paper Avenue	Pennsylvania	
17	1018	Clark	Kent	706-695-0392	3498 Super Lane	Yes	No Feedback	3498 Super Lane		
18	1019	Creed	Braton				Yes			
19	1020	Anakin	Skywalker	876-678-3469	910 Tatooine Road, Tatooine	Yes	No	910 Tatooine Road	Tatooine	
20	1020	Anakin	Skywa <b>l</b> ker	876-678-3469	910 Tatooine Road, Tatooine	Yes	No	910 Tatooine Road	Tatooine	