

In [42]:

```
import pandas as pd
```

In [96]:

```
df=pd.read_excel(r"C:\Users\asish\Downloads\Data analytis  
project\Customer Call List.xlsx")
```

In [98]:

```
df
```

Out[98]:

	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	Y	True
4	1005	Jon	Snow	876 678 3469	123 Dragons Road	Y	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	Gandalf	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	Y	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

	CustomerID	First_Name	Last_Name	Phone_Number	Address	Paying Customer	Do_Not_Contact	Not_Useful_Column
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	Y	NaN	True
18	1019	Creed	Braton	N/a	N/a	N/a	Yes	True
19	1020	Anakin	Skywalker	876 678 3469	910 Tatooine Road, Tatooine	Yes	N	True
20	1020	Anakin	Skywalker	876 678 3469	910 Tatooine Road, Tatooine	Yes	N	True

In [99]:

```
df=df.drop_duplicates()
```

In [100]:

```
df=df.drop("Not_Useful_Column", axis = 1)df
```

Out[100]:

	CustomerID	First_Name	Last_Name	Phone_Number	Address	Paying Customer	Do_Not_Contact
0	1001	Frodo	Baggins	123-545-5421	123 Shire Lane, Shire	Yes	No
1	1002	Abed	Nadir	123/643/9775	93 West Main Street	No	Yes
2	1003	Walter	/White	7066950392	298 Drugs Driveway	N	NaN
3	1004	Dwight	Schrute	123-543-2345	980 Paper Avenue, Pennsylvania, 18503	Yes	Y
4	1005	Jon	Snow	876 678 3469	123 Dragons Road	Y	No
5	1006	Ron	Swanson	304-762-2467	768 City Parkway	Yes	Yes

	CustomerID	First_Name	Last_Name	Phone_Number	Address	Paying Customer	Do_Not_Contact
6	1007	Jeff	Winger	NaN	1209 South Street	No	No
7	1008	Sherlock	Holmes	876 678 3469	98 Clue Drive	N	No
8	1009	Gandalf	NaN	N/a	123 Middle Earth	Yes	NaN
9	1010	Peter	Parker	123-545-5421	25th Main Street, New York	Yes	No
10	1011	Samwise	Gamgee	NaN	612 Shire Lane, Shire	Yes	No
11	1012	Harry	...Potter	7066950392	2394 Hogwarts Avenue	Y	NaN
12	1013	Don	Draper	123-543-2345	2039 Main Street	Yes	N
13	1014	Leslie	Knope	876 678 3469	343 City Parkway	Yes	No
14	1015	Toby	Flenderson_	304-762-2467	214 HR Avenue	N	No
15	1016	Ron	Weasley	123-545-5421	2395 Hogwarts Avenue	No	N
16	1017	Michael	Scott	123/643/9775	121 Paper Avenue, Pennsylvania	Yes	No
17	1018	Clark	Kent	7066950392	3498 Super Lane	Y	NaN
18	1019	Creed	Braton	N/a	N/a	N/a	Yes
19	1020	Anakin	Skywalker	876 678 3469	910 Tatooine Road, Tatooine	Yes	N

In []:

In [101]:

```
df["Last_Name"]=df["Last_Name"].str.strip("..._/")df
```

Out[101]:

	CustomerID	First_Name	Last_Name	Phone_Number	Address	Paying Customer	Do_Not_Contact
0	1001	Frodo	Baggins	123-545-5421	123 Shire Lane, Shire	Yes	No
1	1002	Abed	Nadir	123/643/9775	93 West Main	No	Yes

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

	CustomerID	First_Name	Last_Name	Phone_Number	Address	Paying Customer	Do_Not_Contact
					Road, Tatooine		

In [48]:

Out[48]:

	CustomerID	First_Name	Last_Name	Phone_Number	Address	Paying Customer	Do_Not_Contact
0	1001	Frodo	Baggins	123-545-5421	123 Shire Lane, Shire	Yes	No
1	1002	Abed	Nadir	123/643/9775	93 West Main Street	No	Yes
2	1003	Walter	White	7066950392	298 Drugs Driveway	N	NaN
3	1004	Dwight	Schrute	123-543-2345	980 Paper Avenue, Pennsylvania, 18503	Yes	Y
4	1005	Jon	Snow	876 678 3469	123 Dragons Road	Y	No
5	1006	Ron	Swanson	304-762-2467	768 City Parkway	Yes	Yes
6	1007	Jeff	Winger	NaN	1209 South Street	No	No
7	1008	Sherlock	Holmes	876 678 3469	98 Clue Drive	N	No
8	1009	Gandalf	NaN	N/a	123 Middle Earth	Yes	NaN
9	1010	Peter	Parker	123-545-5421	25th Main Street, New York	Yes	No
10	1011	Samwise	Gamgee	NaN	612 Shire Lane, Shire	Yes	No
11	1012	Harry	Potter	7066950392	2394 Hogwarts Avenue	Y	NaN
12	1013	Don	Draper	123-543-2345	2039 Main Street	Yes	N
13	1014	Leslie	Knope	876 678 3469	343 City Parkway	Yes	No
14	1015	Toby	Flenderson	304-762-2467	214 HR Avenue	N	No
15	1016	Ron	Weasley	123-545-	2395	No	N

	CustomerID	First_Name	Last_Name	Phone_Number	Address	Paying Customer	Do_Not_Contact
				5421	Hogwarts Avenue		
16	1017	Michael	Scott	123/643/9775	121 Paper Avenue, Pennsylvania	Yes	No
17	1018	Clark	Kent	7066950392	3498 Super Lane	Y	NaN
18	1019	Creed	Braton	N/a	N/a	N/a	Yes
19	1020	Anakin	Skywalker	876 678 3469	910 Tatooine Road, Tatooine	Yes	N
20	1020	Anakin	Skywalker	876 678 3469	910 Tatooine Road, Tatooine	Yes	N

In [102]:

```
df["Phone_Number"]=df["Phone_Number"].str.replace("[^a-zA-Z0-9]", "")df
```

Out[102]:

	CustomerID	First_Name	Last_Name	Phone_Number	Address	Paying Customer	Do_Not_Contact
0	1001	Frodo	Baggins	1235455421	123 Shire Lane, Shire	Yes	No
1	1002	Abed	Nadir	1236439775	93 West Main Street	No	Yes
2	1003	Walter	White	NaN	298 Drugs Driveway	N	NaN
3	1004	Dwight	Schrute	1235432345	980 Paper Avenue, Pennsylvania, 18503	Yes	Y
4	1005	Jon	Snow	8766783469	123 Dragons Road	Y	No
5	1006	Ron	Swanson	3047622467	768 City Parkway	Yes	Yes
6	1007	Jeff	Winger	NaN	1209 South Street	No	No
7	1008	Sherlock	Holmes	8766783469	98 Clue Drive	N	No
8	1009	Gandalf	NaN	Na	123 Middle Earth	Yes	NaN
9	1010	Peter	Parker	1235455421	25th Main Street, New York	Yes	No

	CustomerID	First_Name	Last_Name	Phone_Number	Address	Paying Customer	Do_Not_Contact
10	1011	Samwise	Gamgee	NaN	612 Shire Lane, Shire	Yes	No
11	1012	Harry	Potter	NaN	2394 Hogwarts Avenue	Y	NaN
12	1013	Don	Draper	1235432345	2039 Main Street	Yes	N
13	1014	Leslie	Knope	8766783469	343 City Parkway	Yes	No
14	1015	Toby	Flenderson	3047622467	214 HR Avenue	N	No
15	1016	Ron	Weasley	1235455421	2395 Hogwarts Avenue	No	N
16	1017	Michael	Scott	1236439775	121 Paper Avenue, Pennsylvania	Yes	No
17	1018	Clark	Kent	NaN	3498 Super Lane	Y	NaN
18	1019	Creed	Braton	Na	N/a	N/a	Yes
19	1020	Anakin	Skywalker	8766783469	910 Tatooine Road, Tatooine	Yes	N

In [103]:

```
df["Phone_Number"] = df["Phone_Number"].apply(lambda x: str(x))
```

In [104]:

```
df["Phone_Number"] = df["Phone_Number"].apply(lambda x: x[0:3]+'-' + x[3:6]+'-' + x[6:10])
```

In [58]:

df

Out[58]:

	CustomerID	First_Name	Last_Name	Phone_Number	Address	Paying Customer	Do_Not_Contact
0	1001	Frodo	Baggins	123-545-5421	123 Shire Lane, Shire	Yes	No
1	1002	Abed	Nadir	123-643-9775	93 West Main Street	No	Yes
2	1003	Walter	White	nan--	298 Drugs Driveway	N	NaN
3	1004	Dwight	Schrute	123-543-2345	980 Paper Avenue, Pennsylvania, 18503	Yes	Y

	CustomerID	First_Name	Last_Name	Phone_Number	Address	Paying Customer	Do_Not_Contact
4	1005	Jon	Snow	876-678-3469	123 Dragons Road	Y	No
5	1006	Ron	Swanson	304-762-2467	768 City Parkway	Yes	Yes
6	1007	Jeff	Winger	nan--	1209 South Street	No	No
7	1008	Sherlock	Holmes	876-678-3469	98 Clue Drive	N	No
8	1009	Gandalf	NaN	Na--	123 Middle Earth	Yes	NaN
9	1010	Peter	Parker	123-545-5421	25th Main Street, New York	Yes	No
10	1011	Samwise	Gamgee	nan--	612 Shire Lane, Shire	Yes	No
11	1012	Harry	Potter	nan--	2394 Hogwarts Avenue	Y	NaN
12	1013	Don	Draper	123-543-2345	2039 Main Street	Yes	N
13	1014	Leslie	Knope	876-678-3469	343 City Parkway	Yes	No
14	1015	Toby	Flenderson	304-762-2467	214 HR Avenue	N	No
15	1016	Ron	Weasley	123-545-5421	2395 Hogwarts Avenue	No	N
16	1017	Michael	Scott	123-643-9775	121 Paper Avenue, Pennsylvania	Yes	No
17	1018	Clark	Kent	nan--	3498 Super Lane	Y	NaN
18	1019	Creed	Braton	Na--	N/a	N/a	Yes
19	1020	Anakin	Skywalker	876-678-3469	910 Tatooine Road, Tatooine	Yes	N
20	1020	Anakin	Skywalker	876-678-3469	910 Tatooine Road, Tatooine	Yes	N

```
In [105]:
df["Phone_Number"]=df["Phone_Number"].replace(' nan--
', '')
df["Phone_Number"]=df["Phone_Number"].replace(' Na--', '')
```

```
In [106]:
df
```


Out[106]:

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

	CustomerID	First_Name	Last_Name	Phone_Number	Address	Paying Customer	Do_Not_Contact
18	1019	Creed	Braton		N/a	N/a	Yes
19	1020	Anakin	Skywalker	876-678-3469	910 Tatooine Road, Tatooine	Yes	N

In [107]:

```
df[["Sreet", "State", "Zipcode"]]=df["Address"].str.split(' ', 2, expand=True)
```

In [67]:

df

Out[67]:

	CustomerID	First_Name	Last_Name	Phone_Number	Address	Paying Customer	Do_Not_Contact	Sreet	State	Zipcode
0	1001	Frodo	Baggins	123-545-5421	123 Shire Lane, Shire	Yes	No	123 Shire Lane	Shire	N
1	1002	Abed	Nadir	123-643-9775	93 West Main Street	No	Yes	93 West Main Street	None	N
2	1003	Walter	White		298 Drugs Driveway	N	NaN	298 Drugs Driveway	None	N
3	1004	Dwight	Schrute	123-543-2345	980 Paper Avenue, Pennsylvania, 18503	Yes	Y	980 Paper Avenue	Pennsylvania	1
4	1005	Jon	Snow	876-678-3469	123 Dragons Road	Y	No	123 Dragons Road	None	N
5	1006	Ron	Swanson	304-762-2467	768 City Parkway	Yes	Yes	768 City Parkway	None	N
6	1007	Jeff	Winger		1209 South Street	No	No	1209 South Street	None	N
7	1008	Sherlock	Holmes	876-678-3469	98 Clue Drive	N	No	98 Clue Drive	None	N
8	1009	Gandalf	NaN		123 Middle Earth	Yes	NaN	123 Middle Earth	None	N
9	1010	Peter	Parker	123-545-5421	25th Main Street, New York	Yes	No	25th Main Street	New York	N

	CustomerID	First_Name	Last_Name	Phone_Number	Address	Paying Customer	Do_Not_Contact	Sreet	State	Zipcode
10	1011	Samwise	Gamgee		612 Shire Lane, Shire	Yes	No	612 Shire Lane	Shire	None
11	1012	Harry	Potter		2394 Hogwarts Avenue	Y	NaN	2394 Hogwarts Avenue	None	None
12	1013	Don	Draper	123-543-2345	2039 Main Street	Yes	N	2039 Main Street	None	None
13	1014	Leslie	Knope	876-678-3469	343 City Parkway	Yes	No	343 City Parkway	None	None
14	1015	Toby	Flenderson	304-762-2467	214 HR Avenue	N	No	214 HR Avenue	None	None
15	1016	Ron	Weasley	123-545-5421	2395 Hogwarts Avenue	No	N	2395 Hogwarts Avenue	None	None
16	1017	Michael	Scott	123-643-9775	121 Paper Avenue, Pennsylvania	Yes	No	121 Paper Avenue	Pennsylvania	None
17	1018	Clark	Kent		3498 Super Lane	Y	NaN	3498 Super Lane	None	None
18	1019	Creed	Braton		N/a	N/a	Yes	N/a	None	None
19	1020	Anakin	Skywalker	876-678-3469	910 Tatooine Road, Tatooine	Yes	N	910 Tatooine Road	Tatooine	None
20	1020	Anakin	Skywalker	876-678-3469	910 Tatooine Road, Tatooine	Yes	N	910 Tatooine Road	Tatooine	None

In [108]:

```
df.drop('Address',axis=1)
```

Out[108]:

	CustomerID	First_Name	Last_Name	Phone_Number	Paying Customer	Do_Not_Contact	Sreet	State	Zipcode
0	1001	Frodo	Baggins	123-545-5421	Yes	No	123 Shire Lane	Shire	None
1	1002	Abed	Nadir	123-643-9775	No	Yes	93 West Main	None	None

	CustomerID	First_Name	Last_Name	Phone_Number	Paying Customer	Do_Not_Contact	Sreet	State	Zipcode
							Street		
2	1003	Walter	White		N	NaN	298 Drugs Driveway	None	None
3	1004	Dwight	Schrute	123-543- 2345	Yes	Y	980 Paper Avenue	Pennsylvania	18503
4	1005	Jon	Snow	876-678- 3469	Y	No	123 Dragons Road	None	None
5	1006	Ron	Swanson	304-762- 2467	Yes	Yes	768 City Parkway	None	None
6	1007	Jeff	Winger		No	No	1209 South Street	None	None
7	1008	Sherlock	Holmes	876-678- 3469	N	No	98 Clue Drive	None	None
8	1009	Gandalf	NaN		Yes	NaN	123 Middle Earth	None	None
9	1010	Peter	Parker	123-545- 5421	Yes	No	25th Main Street	New York	None
10	1011	Samwise	Gamgee		Yes	No	612 Shire Lane	Shire	None
11	1012	Harry	Potter		Y	NaN	2394 Hogwarts Avenue	None	None
12	1013	Don	Draper	123-543- 2345	Yes	N	2039 Main Street	None	None
13	1014	Leslie	Knope	876-678- 3469	Yes	No	343 City Parkway	None	None
14	1015	Toby	Flenderson	304-762- 2467	N	No	214 HR Avenue	None	None
15	1016	Ron	Weasley	123-545- 5421	No	N	2395 Hogwarts Avenue	None	None
16	1017	Michael	Scott	123-643- 9775	Yes	No	121 Paper	Pennsylvania	None

	CustomerID	First_Name	Last_Name	Phone_Number	Paying Customer	Do_Not_Contact	Sreet	State	Zipcode
							Avenue		
17	1018	Clark	Kent		Y	NaN	3498 Super Lane	None	None
18	1019	Creed	Braton		N/a	Yes	N/a	None	None
19	1020	Anakin	Skywalker	876-678-3469	Yes	N	910 Tatooine Road	Tatooine	None

In [109]:

```
df['Do_Not_Contact']=df['Do_Not_Contact'].str.replace('Yes','Y')df['Do_Not_Contact']=df['Do_Not_Contact'].str.replace('No','N')df
```

Out[109]:

	CustomerID	First_Name	Last_Name	Phone_Number	Address	Paying Customer	Do_Not_Contact	Sreet	State	Zipcode
0	1001	Frodo	Baggins	123-545-5421	123 Shire Lane, Shire	Yes	N	123 Shire Lane	Shire	None
1	1002	Abed	Nadir	123-643-9775	93 West Main Street	No	Y	93 West Main Street	None	None
2	1003	Walter	White		298 Drugs Driveway	N	NaN	298 Drugs Driveway	None	None
3	1004	Dwight	Schrute	123-543-2345	980 Paper Avenue, Pennsylvania, 18503	Yes	Y	980 Paper Avenue	Pennsylvania	18503
4	1005	Jon	Snow	876-678-3469	123 Dragons Road	Y	N	123 Dragons Road	None	None
5	1006	Ron	Swanson	304-762-2467	768 City Parkway	Yes	Y	768 City Parkway	None	None
6	1007	Jeff	Winger		1209 South Street	No	N	1209 South Street	None	None
7	1008	Sherlock	Holmes	876-678-3469	98 Clue Drive	N	N	98 Clue Drive	None	None
8	1009	Gandalf	NaN		123 Middle Earth	Yes	NaN	123 Middle Earth	None	None
9	1010	Peter	Parker	123-545-	25th Main	Yes	N	25th	New York	None

	CustomerID	First_Name	Last_Name	Phone_Number	Address	Paying Customer	Do_Not_Contact	Sreet	State	Z
				5421	Street, New York			Main Street		
10	1011	Samwise	Gamgee		612 Shire Lane, Shire	Yes	N	612 Shire Lane	Shire	N
11	1012	Harry	Potter		2394 Hogwarts Avenue	Y	NaN	2394 Hogwarts Avenue	None	N
12	1013	Don	Draper	123-543-2345	2039 Main Street	Yes	N	2039 Main Street	None	N
13	1014	Leslie	Knope	876-678-3469	343 City Parkway	Yes	N	343 City Parkway	None	N
14	1015	Toby	Flenderson	304-762-2467	214 HR Avenue	N	N	214 HR Avenue	None	N
15	1016	Ron	Weasley	123-545-5421	2395 Hogwarts Avenue	No	N	2395 Hogwarts Avenue	None	N
16	1017	Michael	Scott	123-643-9775	121 Paper Avenue, Pennsylvania	Yes	N	121 Paper Avenue	Pennsylvania	N
17	1018	Clark	Kent		3498 Super Lane	Y	NaN	3498 Super Lane	None	N
18	1019	Creed	Braton		N/a	N/a	Y	N/a	None	N
19	1020	Anakin	Skywalker	876-678-3469	910 Tatooine Road, Tatooine	Yes	N	910 Tatooine Road	Tatooine	N

In [110]:

```
# df.replace('na', '')# df.replace('NaN', '')
```

```
df=df.fillna('')df
```

Out[110]:

	CustomerID	First_Name	Last_Name	Phone_Number	Address	Paying Customer	Do_Not_Contact	Sreet	State	Z
0	1001	Frodo	Baggins	123-545-5421	123 Shire Lane, Shire	Yes	N	123 Shire Lane	Shire	
1	1002	Abed	Nadir	123-643-9775	93 West Main Street	No	Y	93 West Main Street		

	CustomerID	First_Name	Last_Name	Phone_Number	Address	Paying Customer	Do_Not_Contact	Sreet	State	Z
2	1003	Walter	White		298 Drugs Driveway	N		298 Drugs Driveway		
3	1004	Dwight	Schrute	123-543-2345	980 Paper Avenue, Pennsylvania, 18503	Yes	Y	980 Paper Avenue	Pennsylvania	1
4	1005	Jon	Snow	876-678-3469	123 Dragons Road	Y	N	123 Dragons Road		
5	1006	Ron	Swanson	304-762-2467	768 City Parkway	Yes	Y	768 City Parkway		
6	1007	Jeff	Winger		1209 South Street	No	N	1209 South Street		
7	1008	Sherlock	Holmes	876-678-3469	98 Clue Drive	N	N	98 Clue Drive		
8	1009	Gandalf			123 Middle Earth	Yes		123 Middle Earth		
9	1010	Peter	Parker	123-545-5421	25th Main Street, New York	Yes	N	25th Main Street	New York	
10	1011	Samwise	Gamgee		612 Shire Lane, Shire	Yes	N	612 Shire Lane	Shire	
11	1012	Harry	Potter		2394 Hogwarts Avenue	Y		2394 Hogwarts Avenue		
12	1013	Don	Draper	123-543-2345	2039 Main Street	Yes	N	2039 Main Street		
13	1014	Leslie	Knope	876-678-3469	343 City Parkway	Yes	N	343 City Parkway		
14	1015	Toby	Flenderson	304-762-2467	214 HR Avenue	N	N	214 HR Avenue		
15	1016	Ron	Weasley	123-545-5421	2395 Hogwarts Avenue	No	N	2395 Hogwarts Avenue		
16	1017	Michael	Scott	123-643-9775	121 Paper Avenue, Pennsylvania	Yes	N	121 Paper Avenue	Pennsylvania	

	CustomerID	First_Name	Last_Name	Phone_Number	Address	Paying Customer	Do_Not_Contact	Sreet	State	Z
17	1018	Clark	Kent		3498 Super Lane	Y		3498 Super Lane		
18	1019	Creed	Braton		N/a	N/a	Y	N/a		
19	1020	Anakin	Skywalker	876-678-3469	910 Tatooine Road, Tatooine	Yes	N	910 Tatooine Road	Tatooine	

```
In [111]:
for x in df.index:
    if df.loc[x, "Do_Not_Contact"] == 'Y':
        df.drop(x, inplace=True)
```

In [112]:

df

Out[112]:

	CustomerID	First_Name	Last_Name	Phone_Number	Address	Paying Customer	Do_Not_Contact	Sreet	State	Z
0	1001	Frodo	Baggins	123-545-5421	123 Shire Lane, Shire	Yes	N	123 Shire Lane	Shire	
2	1003	Walter	White		298 Drugs Driveway	N		298 Drugs Driveway		
4	1005	Jon	Snow	876-678-3469	123 Dragons Road	Y	N	123 Dragons Road		
6	1007	Jeff	Winger		1209 South Street	No	N	1209 South Street		
7	1008	Sherlock	Holmes	876-678-3469	98 Clue Drive	N	N	98 Clue Drive		
8	1009	Gandalf			123 Middle Earth	Yes		123 Middle Earth		
9	1010	Peter	Parker	123-545-5421	25th Main Street, New York	Yes	N	25th Main Street	New York	
10	1011	Samwise	Gamgee		612 Shire Lane, Shire	Yes	N	612 Shire Lane	Shire	

	CustomerID	First_Name	Last_Name	Phone_Number	Address	Paying Customer	Do_Not_Contact	Sreet	State	Z
11	1012	Harry	Potter		2394 Hogwarts Avenue	Y		2394 Hogwarts Avenue		
12	1013	Don	Draper	123-543- 2345	2039 Main Street	Yes	N	2039 Main Street		
13	1014	Leslie	Knope	876-678- 3469	343 City Parkway	Yes	N	343 City Parkway		
14	1015	Toby	Flenderson	304-762- 2467	214 HR Avenue	N	N	214 HR Avenue		
15	1016	Ron	Weasley	123-545- 5421	2395 Hogwarts Avenue	No	N	2395 Hogwarts Avenue		
16	1017	Michael	Scott	123-643- 9775	121 Paper Avenue, Pennsylvania	Yes	N	121 Paper Avenue	Pennsylvania	
17	1018	Clark	Kent		3498 Super Lane	Y		3498 Super Lane		
19	1020	Anakin	Skywalker	876-678- 3469	910 Tatooine Road, Tatooine	Yes	N	910 Tatooine Road	Tatooine	

```
In [113]:
for x in df.index:
    if df.loc[x, "Phone_Number"] == '':
        df.drop(x, inplace=True)
```

```
In [114]:
df
```

```
Out[114]:
```

	CustomerID	First_Name	Last_Name	Phone_Number	Address	Paying Customer	Do_Not_Contact	Sreet	State	Z
0	1001	Frodo	Baggins	123-545- 5421	123 Shire Lane, Shire	Yes	N	123 Shire Lane	Shire	
4	1005	Jon	Snow	876-678- 3469	123 Dragons Road	Y	N	123 Dragons Road		
7	1008	Sherlock	Holmes	876-678- 3469	98 Clue Drive	N	N	98 Clue Drive		

	CustomerID	First_Name	Last_Name	Phone_Number	Address	Paying Customer	Do_Not_Contact	Sreet	State	Zip
9	1010	Peter	Parker	123-545-5421	25th Main Street, New York	Yes	N	25th Main Street	New York	
12	1013	Don	Draper	123-543-2345	2039 Main Street	Yes	N	2039 Main Street		
13	1014	Leslie	Knope	876-678-3469	343 City Parkway	Yes	N	343 City Parkway		
14	1015	Toby	Flenderson	304-762-2467	214 HR Avenue	N	N	214 HR Avenue		
15	1016	Ron	Weasley	123-545-5421	2395 Hogwarts Avenue	No	N	2395 Hogwarts Avenue		
16	1017	Michael	Scott	123-643-9775	121 Paper Avenue, Pennsylvania	Yes	N	121 Paper Avenue	Pennsylvania	
19	1020	Anakin	Skywalker	876-678-3469	910 Tatooine Road, Tatooine	Yes	N	910 Tatooine Road	Tatooine	

In [115]:

```
df = df.reset_index(drop=True)df
```

Out[115]:

	CustomerID	First_Name	Last_Name	Phone_Number	Address	Paying Customer	Do_Not_Contact	Sreet	State	Zip
0	1001	Frodo	Baggins	123-545-5421	123 Shire Lane, Shire	Yes	N	123 Shire Lane	Shire	
1	1005	Jon	Snow	876-678-3469	123 Dragons Road	Y	N	123 Dragons Road		
2	1008	Sherlock	Holmes	876-678-3469	98 Clue Drive	N	N	98 Clue Drive		
3	1010	Peter	Parker	123-545-5421	25th Main Street, New York	Yes	N	25th Main Street	New York	
4	1013	Don	Draper	123-543-2345	2039 Main Street	Yes	N	2039 Main Street		
5	1014	Leslie	Knope	876-678-3469	343 City Parkway	Yes	N	343 City Parkway		

	CustomerID	First_Name	Last_Name	Phone_Number	Address	Paying Customer	Do_Not_Contact	Sreet	State	Zip
6	1015	Toby	Flenderson	304-762-2467	214 HR Avenue	N	N	214 HR Avenue		
7	1016	Ron	Weasley	123-545-5421	2395 Hogwarts Avenue	No	N	2395 Hogwarts Avenue		
8	1017	Michael	Scott	123-643-9775	121 Paper Avenue, Pennsylvania	Yes	N	121 Paper Avenue	Pennsylvania	
9	1020	Anakin	Skywalker	876-678-3469	910 Tatooine Road, Tatooine	Yes	N	910 Tatooine Road	Tatooine	

In []: