In [1]:

```python
import numpy as np
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
import warnings
warnings.filterwarnings('ignore')
```

In [2]:

```python
condom_data = pd.read_csv("nyc_condom_availablity.csv")
```
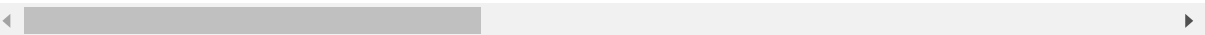
In [3]:

```python
condom_data.head()
```

Out[3]:

	Facility PK	FacilityName	Service Category	Service Type	BuildingNumber	PartnerType	PartnerTypeDetaile
0	53534559	Bushwick Communicare Center	Free Safer Sex Products	Condoms and Lubricant	NaN	Hospital	Clinical Facil
1	53534853	The Levee	Free Safer Sex Products	Condoms and Lubricant	NaN	Business	Bar/Loung
2	53534781	NYCAP - Condom Distribution Program	Free Safer Sex Products	Condoms and Lubricant	NaN	Government	Government Agen
3	53534794	Parallax Center, Inc.	Free Safer Sex Products	Condoms and Lubricant	NaN	Hospital	Oth
4	53534796	Parsons Medical Center	Free Safer Sex Products	Condoms and Lubricant	NaN	Community Health Center	Clinical Facil

5 rows × 35 columns

In [4]:

```
condom_data.tail()
```

Out[4]:

	Facility PK	FacilityName	Service Category	Service Type	BuildingNumber	PartnerType	PartnerType
398	53534672	Headquarters Barbershop (Formerly Beato Barber...	Free Safer Sex Products	Condoms and Lubricant	NaN	Business	Ba
399	53534648	Gynecology & Women's Health Services	Free Safer Sex Products	Condoms and Lubricant	NaN	Private Practice	OB
400	53534859	Therapy	Free Safer Sex Products	Condoms and Lubricant	NaN	Business	Ba
401	53534603	Davidson Community Center	Free Safer Sex Products	Condoms and Lubricant	NaN	Community-Based Organization/Non-Profit	Commun
402	53534512	Audubon Barber shop	Free Safer Sex Products	Condoms and Lubricant	NaN	Business	Ba

5 rows × 35 columns

In [5]:

```
condom_data.shape
```

Out[5]:

(403, 35)

In [6]:

```
condom_data.columns
```

Out[6]:

```
Index(['Facility PK', 'FacilityName', 'Service Category', 'Service Type',
       'BuildingNumber', 'PartnerType', 'PartnerTypeDetailed', 'Address',
       'Address 2', 'Borough', 'Zipcode', 'Latitude', 'Longitude', 'Phon
e',
       'AdditionalInfo', 'StartDate', 'EndDate', 'Monday', 'Tuesday',
       'Wednesday', 'Thursday', 'Friday', 'Saturday', 'Sunday',
       'Condoms (Male)', 'FC2 (Female/Insertive Condoms)', 'Lubricant',
       'Facility Type', 'Website', 'Community Board', 'Council District',
       'Census Tract', 'BIN', 'BBL', 'NTA'],
      dtype='object')
```

In [7]:

```python
condom_data.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 403 entries, 0 to 402
Data columns (total 35 columns):
 #   Column                        Non-Null Count  Dtype
---  ------                        --------------  -----
 0   Facility PK                   403 non-null    int64
 1   FacilityName                  403 non-null    object
 2   Service Category              403 non-null    object
 3   Service Type                  403 non-null    object
 4   BuildingNumber                0 non-null      float64
 5   PartnerType                   403 non-null    object
 6   PartnerTypeDetailed           403 non-null    object
 7   Address                       403 non-null    object
 8   Address 2                     0 non-null      float64
 9   Borough                       403 non-null    object
 10  Zipcode                       403 non-null    int64
 11  Latitude                      403 non-null    float64
 12  Longitude                     403 non-null    float64
 13  Phone                         250 non-null    object
 14  AdditionalInfo                403 non-null    object
 15  StartDate                     403 non-null    float64
 16  EndDate                       403 non-null    float64
 17  Monday                        260 non-null    object
 18  Tuesday                       269 non-null    object
 19  Wednesday                     269 non-null    object
 20  Thursday                      270 non-null    object
 21  Friday                        271 non-null    object
 22  Saturday                      185 non-null    object
 23  Sunday                        137 non-null    object
 24  Condoms (Male)                403 non-null    bool
 25  FC2 (Female/Insertive Condoms) 403 non-null   bool
 26  Lubricant                     403 non-null    bool
 27  Facility Type                 0 non-null      float64
 28  Website                       56 non-null     object
 29  Community Board               399 non-null    float64
 30  Council District              399 non-null    float64
 31  Census Tract                  399 non-null    float64
 32  BIN                           393 non-null    float64
 33  BBL                           403 non-null    int64
 34  NTA                           399 non-null    object
dtypes: bool(3), float64(11), int64(3), object(18)
memory usage: 102.1+ KB
```

In [8]:

```
condom_data.describe()
```

Out[8]:

	Facility PK	BuildingNumber	Address 2	Zipcode	Latitude	Longitude	Star
count	4.030000e+02	0.0	0.0	403.000000	403.000000	403.000000	4.030000
mean	5.353469e+07	NaN	NaN	10421.975186	40.343959	-73.215964	1.900010
std	1.164803e+02	NaN	NaN	1188.611161	4.044885	7.340059	0.000000
min	5.353449e+07	NaN	NaN	0.000000	0.000000	-74.134166	1.900010
25%	5.353459e+07	NaN	NaN	10014.000000	40.711374	-73.990481	1.900010
50%	5.353469e+07	NaN	NaN	10302.000000	40.742820	-73.956304	1.900010
75%	5.353479e+07	NaN	NaN	11212.000000	40.794668	-73.912943	1.900010
max	5.353489e+07	NaN	NaN	11435.000000	40.896565	0.000000	1.900010

In [10]:

```python
condom_data.isnull().sum()
```

Out[10]:

```
Facility PK                          0
FacilityName                         0
Service Category                     0
Service Type                         0
BuildingNumber                     403
PartnerType                          0
PartnerTypeDetailed                  0
Address                              0
Address 2                          403
Borough                              0
Zipcode                              0
Latitude                             0
Longitude                            0
Phone                              153
AdditionalInfo                       0
StartDate                            0
EndDate                              0
Monday                             143
Tuesday                            134
Wednesday                          134
Thursday                           133
Friday                             132
Saturday                           218
Sunday                             266
Condoms (Male)                       0
FC2 (Female/Insertive Condoms)       0
Lubricant                            0
Facility Type                      403
Website                            347
Community Board                      4
Council District                     4
Census Tract                         4
BIN                                 10
BBL                                  0
NTA                                  4
dtype: int64
```

In [12]:

```python
condom_data = condom_data.drop(['BuildingNumber', 'Address 2', 'Phone',
                                'Monday', 'Tuesday', 'Wednesday', 'Thursday',
                                'Friday', 'Saturday', 'Sunday', 'Facility Type',
                                'Website'], axis = 1)
```

In [13]:

```
condom_data.head()
```

Out[13]:

	Facility PK	FacilityName	Service Category	Service Type	PartnerType	PartnerTypeDetailed	Address
0	53534559	Bushwick Communicare Center	Free Safer Sex Products	Condoms and Lubricant	Hospital	Clinical Facility	335 Central Avenue
1	53534853	The Levee	Free Safer Sex Products	Condoms and Lubricant	Business	Bar/Lounge	212 Berry Street
2	53534781	NYCAP - Condom Distribution Program	Free Safer Sex Products	Condoms and Lubricant	Government	Government Agency	1932 Arthur Avenue,"2nd Floor, Room 203B"
3	53534794	Parallax Center, Inc.	Free Safer Sex Products	Condoms and Lubricant	Hospital	Other	145 East 32 Street,Floor 6
4	53534796	Parsons Medical Center	Free Safer Sex Products	Condoms and Lubricant	Community Health Center	Clinical Facility	88-01 Parsons Boulevard

5 rows × 23 columns
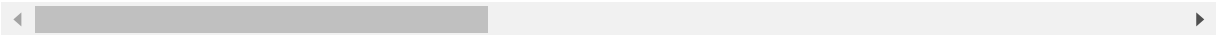
In [14]:

```python
condom_data.isnull().sum()
```

Out[14]:

```
Facility PK                       0
FacilityName                      0
Service Category                  0
Service Type                      0
PartnerType                       0
PartnerTypeDetailed               0
Address                           0
Borough                           0
Zipcode                           0
Latitude                          0
Longitude                         0
AdditionalInfo                    0
StartDate                         0
EndDate                           0
Condoms (Male)                    0
FC2 (Female/Insertive Condoms)    0
Lubricant                         0
Community Board                   4
Council District                  4
Census Tract                      4
BIN                              10
BBL                               0
NTA                               4
dtype: int64
```

In [15]:

```python
condom_data.dropna(inplace = True)
```

In [16]:

```python
condom_data.shape
```

Out[16]:

```
(393, 23)
```

In [17]:

```python
condom_data['PartnerType'].unique()
```

Out[17]:

```
array(['Hospital', 'Business', 'Government', 'Community Health Center',
       'Private Practice', 'Community-Based Organization/Non-Profit',
       'Sexual Health Clinics (NYC DOHMH)', 'Pharmacy', 'Education',
       'Faith-Based Organization'], dtype=object)
```

In [18]:

```python
condom_data['PartnerType'].value_counts()
```

Out[18]:

```
Business                                 229
Community-Based Organization/Non-Profit   47
Community Health Center                   32
Government                                23
Hospital                                  20
Private Practice                          14
Sexual Health Clinics (NYC DOHMH)          9
Education                                  9
Pharmacy                                   5
Faith-Based Organization                   5
Name: PartnerType, dtype: int64
```

In [19]:

```python
plt.figure(figsize=(15,6))
sns.countplot('PartnerType', data = condom_data, palette='hls')
plt.xticks(rotation = 90)
plt.show()
```
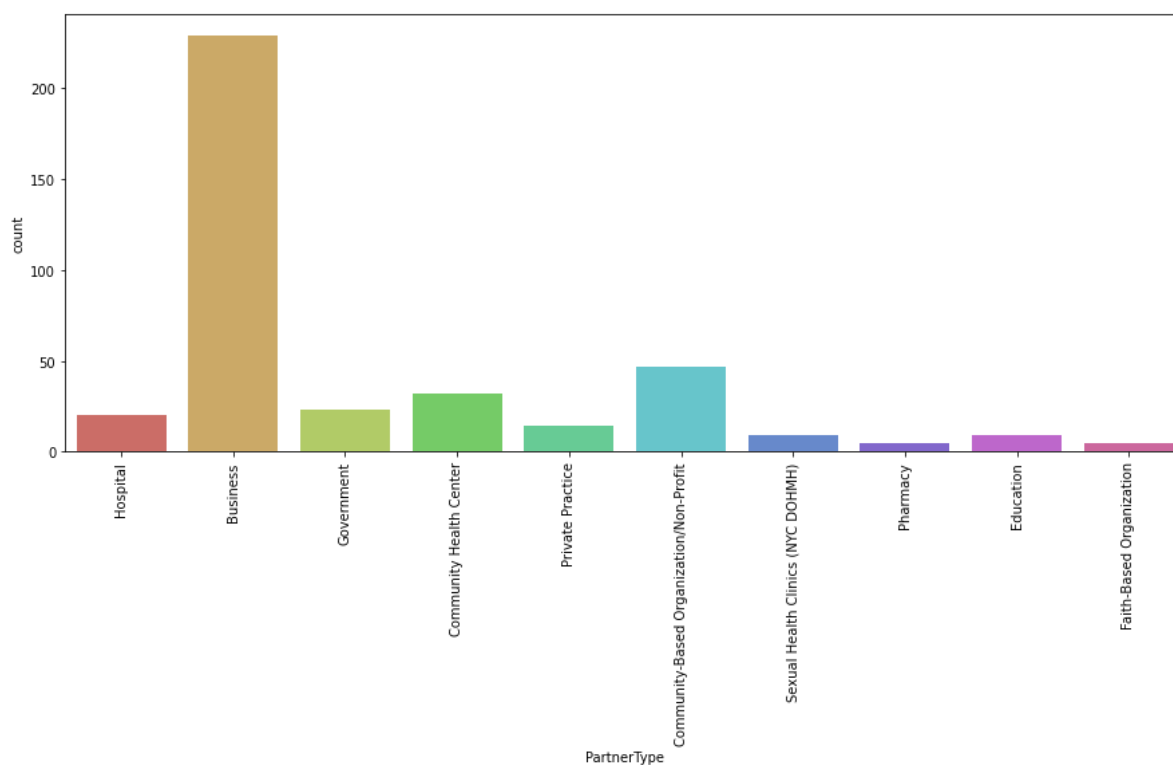
In [20]:

```python
condom_data['PartnerTypeDetailed'].unique()
```

Out[20]:

```
array(['Clinical Facility', 'Bar/Lounge', 'Government Agency', 'Other',
       'Physician', 'Community Center', 'Sauna/Spa', 'Social Service',
       'Youth Center', 'Barbershop', 'Night Club', 'Tattoo Parlor',
       'Beauty Salon', 'Theater', 'Office', 'Restaurant', 'Retail Store',
       'Café', 'Education', "Women's Center", 'Gay Bar', 'None',
       'Sex Store', 'Book Store', 'Gym/Health Club', 'Taxi/Car Service',
       'NYC Council Member Office', 'YMCA/JCC', 'Pharmacy',
       'Elected Official', 'Bodega/Deli/Mini Market',
       'College/University', 'Art Center', 'Liquor Store',
       'Legal Service', 'Housing', 'Student Housing', "Men's Spa",
       'Museum', 'Christian Organization', 'Laundromat',
       'Jewish Organization', 'OB / OB-GYN'], dtype=object)
```

In [21]:

```python
condom_data['PartnerTypeDetailed'].value_counts()
```

Out[21]:

```
Bar/Lounge                    118
Clinical Facility              38
Barbershop                     32
Community Center               31
Other                          28
Social Service                 18
Night Club                     13
Physician                      12
Beauty Salon                   11
Restaurant                      9
Tattoo Parlor                   8
College/University              7
Retail Store                    7
Government Agency               6
Women's Center                  4
Sex Store                       4
Christian Organization          3
Taxi/Car Service                3
None                            3
Youth Center                    3
Café                            3
Sauna/Spa                       3
Theater                         3
Legal Service                   2
Laundromat                      2
NYC Council Member Office       2
Pharmacy                        2
Elected Official                2
Student Housing                 2
Jewish Organization             1
Museum                          1
Men's Spa                       1
Housing                         1
Education                       1
Liquor Store                    1
Art Center                      1
Gay Bar                         1
Bodega/Deli/Mini Market         1
YMCA/JCC                        1
Gym/Health Club                 1
Book Store                      1
Office                          1
OB / OB-GYN                     1
Name: PartnerTypeDetailed, dtype: int64
```

In [23]:

```python
plt.figure(figsize=(15,6))
sns.countplot(condom_data['PartnerTypeDetailed'],
              data = condom_data, palette='hls')
plt.xticks(rotation = 90)
plt.show()
```
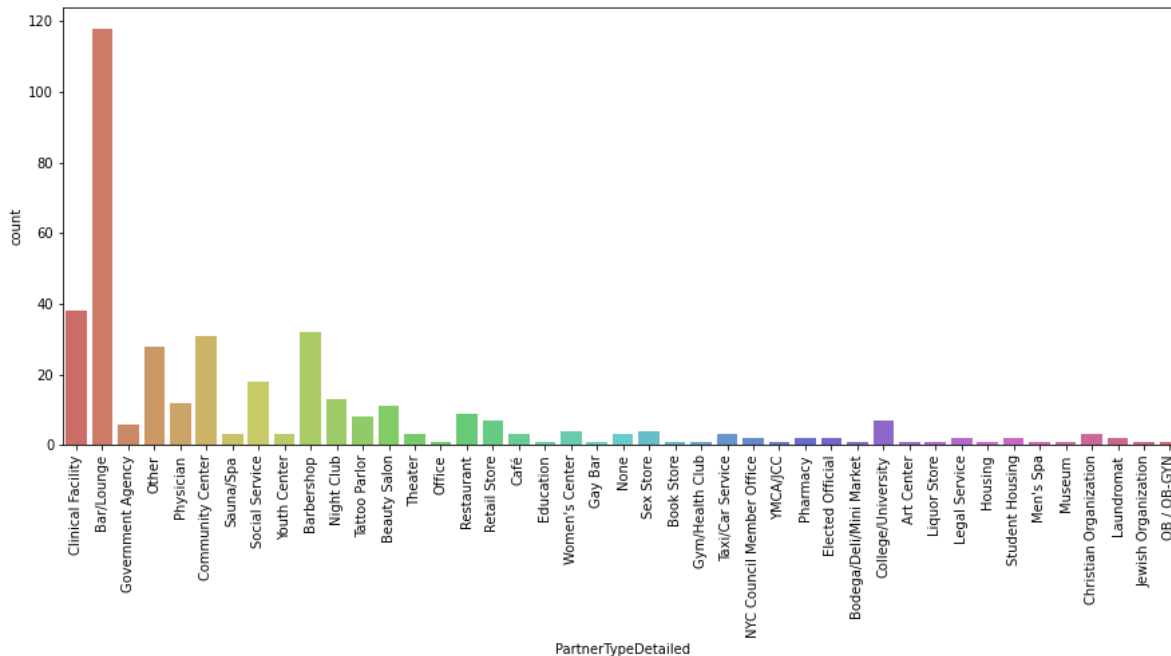

In [24]:

```python
condom_data['Condoms (Male)'].unique()
```

Out[24]:

```
array([ True, False])
```

In [25]:

```python
condom_data['Condoms (Male)'].value_counts()
```

Out[25]:

```
True     388
False      5
Name: Condoms (Male), dtype: int64
```

In [26]:

```python
plt.figure(figsize=(15,6))
sns.countplot('Condoms (Male)', data = condom_data, palette='hls')
plt.xticks(rotation = 90)
plt.show()
```
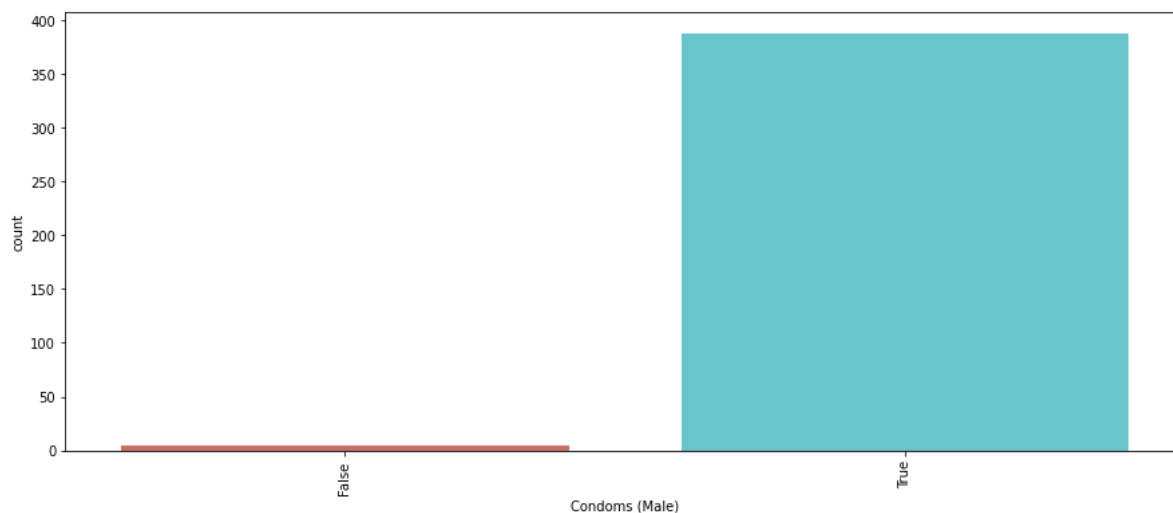

In [36]:

```python
colors = sns.color_palette('bright')
plt.pie(condom_data['Condoms (Male)'].value_counts(), colors = colors,
        autopct = '%0.0f%%', shadow = 'True', startangle = 90)
plt.show()
```
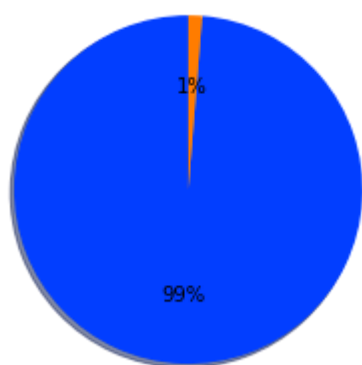

In [27]:

```python
condom_data['FC2 (Female/Insertive Condoms)'].unique()
```

Out[27]:

```
array([False,  True])
```

In [28]:

```python
condom_data['FC2 (Female/Insertive Condoms)'].value_counts()
```

Out[28]:

```
False    230
True     163
Name: FC2 (Female/Insertive Condoms), dtype: int64
```

In [29]:

```python
plt.figure(figsize=(15,6))
sns.countplot('FC2 (Female/Insertive Condoms)', data = condom_data, palette='hls')
plt.xticks(rotation = 90)
plt.show()
```
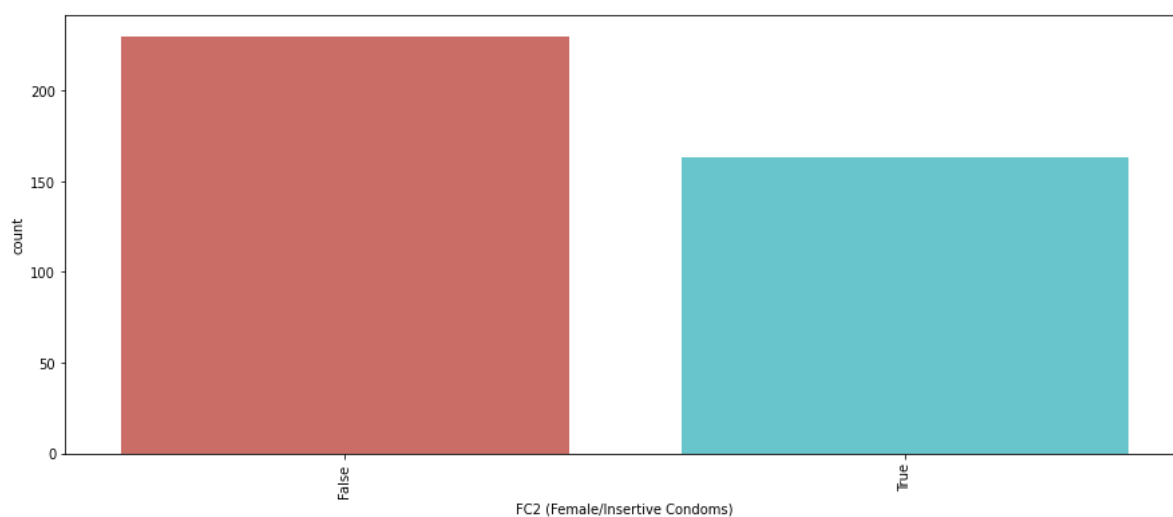

In [37]:

```python
colors = sns.color_palette('bright')
plt.pie(condom_data['FC2 (Female/Insertive Condoms)'].value_counts(), colors = colors,
        autopct = '%0.0f%%', shadow = 'True', startangle = 90)
plt.show()
```
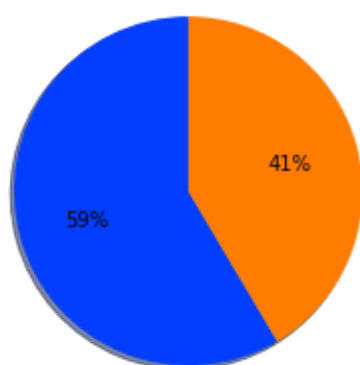
In [30]:

```python
condom_data['Community Board'].unique()
```

Out[30]:

```
array([304., 301., 206., 106., 412., 112., 401., 407., 307., 104., 302.,
       209., 404., 202., 204., 403., 103., 110., 102., 205., 109., 203.,
       105., 501., 201., 306., 107., 101., 207., 305., 313., 111., 303.,
       108., 308., 317., 406., 318., 309., 212., 208., 311., 402., 316.,
       314., 409.])
```

In [31]:

```python
condom_data['Community Board'].value_counts()
```

Out[31]:

```
104.0    46
102.0    38
103.0    36
403.0    23
204.0    16
302.0    15
112.0    13
304.0    12
109.0    11
301.0    11
105.0    11
205.0    10
201.0    10
111.0     9
306.0     8
110.0     8
106.0     8
305.0     7
202.0     7
303.0     7
412.0     7
101.0     7
308.0     6
501.0     6
404.0     6
307.0     5
401.0     5
203.0     4
207.0     4
407.0     4
206.0     3
316.0     3
402.0     3
317.0     3
108.0     3
107.0     3
313.0     2
406.0     2
212.0     2
209.0     2
314.0     2
318.0     1
309.0     1
208.0     1
311.0     1
409.0     1
Name: Community Board, dtype: int64
```

In [32]:

```python
plt.figure(figsize=(15,6))
sns.countplot('Community Board', data = condom_data, palette='hls')
plt.xticks(rotation = 90)
plt.show()
```
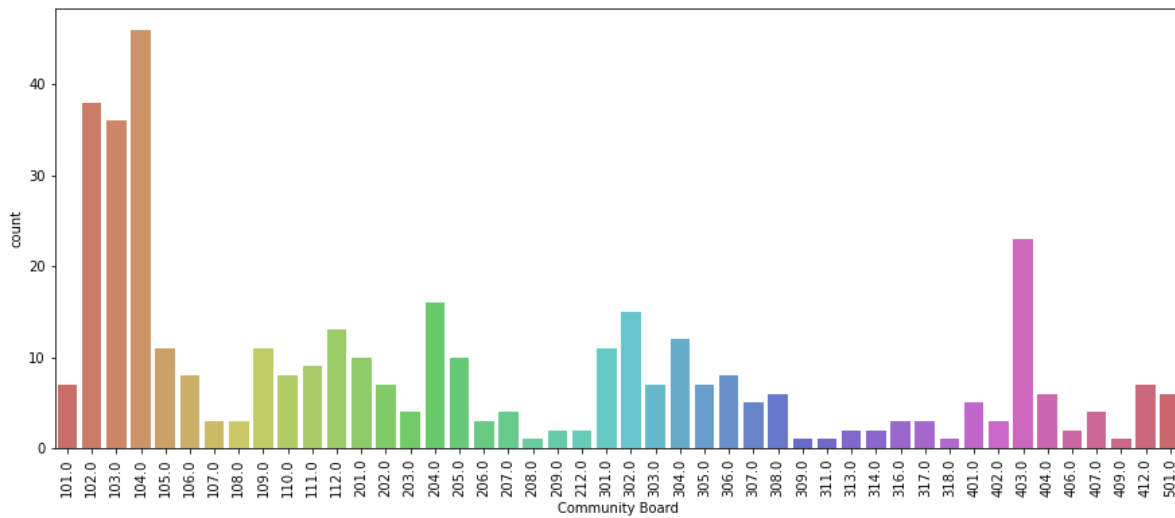

In [33]:

```python
condom_data['Council District'].unique()
```

Out[33]:

```
array([37., 34., 17.,  2., 24., 10., 26., 20.,  4., 38.,  3., 33., 18.,
       21., 35., 27., 16., 25., 22.,  9., 15.,  7., 49.,  8., 39.,  1.,
       11., 42., 47., 36.,  5., 41., 14., 28., 29., 46., 45., 12., 44.,
       23., 40., 32.])
```

In [34]:

```python
condom_data['Council District'].value_counts()
```

Out[34]:

```
3.0     85
2.0     35
1.0     19
16.0    18
7.0     15
8.0     15
34.0    15
21.0    15
17.0    13
25.0    13
10.0    12
33.0    11
9.0     11
41.0     9
35.0     9
14.0     8
37.0     8
4.0      7
39.0     7
36.0     6
49.0     6
42.0     6
26.0     6
15.0     5
38.0     5
20.0     4
11.0     3
22.0     3
5.0      3
24.0     3
29.0     2
40.0     2
45.0     2
27.0     2
47.0     2
18.0     2
28.0     1
46.0     1
12.0     1
44.0     1
23.0     1
32.0     1
Name: Council District, dtype: int64
```

In [35]:

```python
plt.figure(figsize=(15,6))
sns.countplot('Council District', data = condom_data, palette='hls')
plt.xticks(rotation = 90)
plt.show()
```
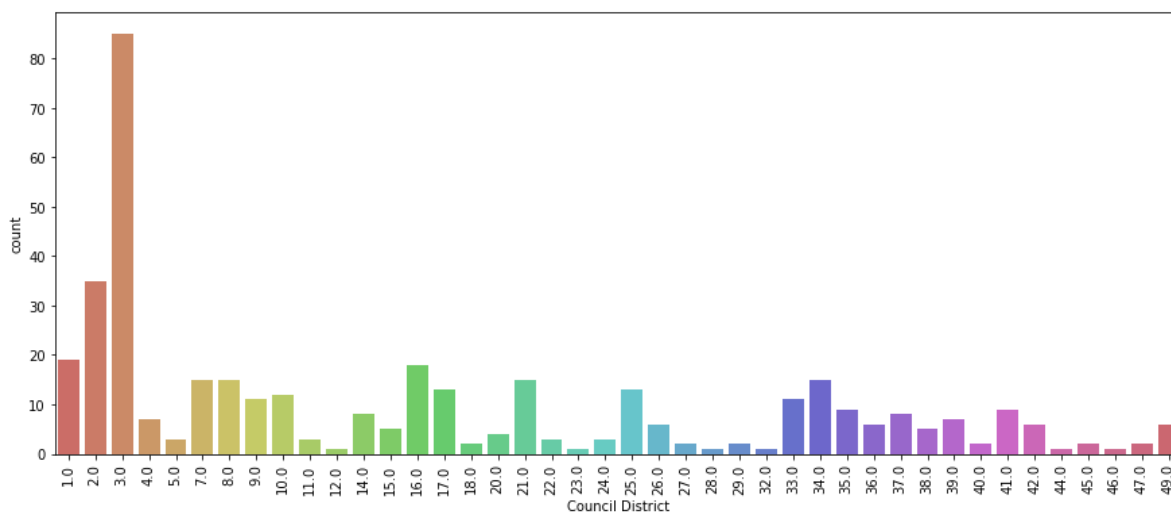

In [38]:

```python
from sklearn import preprocessing
label_encoder = preprocessing.LabelEncoder()
```

In [39]:

```python
condom_data['PartnerType']= label_encoder.fit_transform(condom_data['PartnerType'])
condom_data['PartnerTypeDetailed']= label_encoder.fit_transform(condom_data['PartnerType
condom_data['Condoms (Male)']= label_encoder.fit_transform(condom_data['Condoms (Male)']
condom_data['FC2 (Female/Insertive Condoms)']= label_encoder.fit_transform(condom_data[
```

In [40]:

```
condom_data.head()
```

Out[40]:

	Facility PK	FacilityName	Service Category	Service Type	PartnerType	PartnerTypeDetailed	Address
0	53534559	Bushwick Communicare Center	Free Safer Sex Products	Condoms and Lubricant	6	8	335 Central Avenue
1	53534853	The Levee	Free Safer Sex Products	Condoms and Lubricant	0	1	212 Berry Street
2	53534781	NYCAP - Condom Distribution Program	Free Safer Sex Products	Condoms and Lubricant	5	14	1932 Arthur Avenue,"2nd Floor, Room 203B"
3	53534794	Parallax Center, Inc.	Free Safer Sex Products	Condoms and Lubricant	6	28	145 East 32 Street,Floor 6
4	53534796	Parsons Medical Center	Free Safer Sex Products	Condoms and Lubricant	1	8	88-01 Parsons Boulevard

5 rows × 23 columns
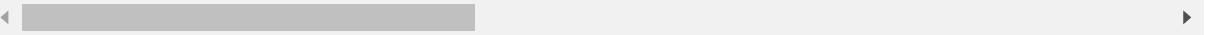
In [43]:

```python
plt.figure(figsize=(15,6))
sns.countplot(x = 'Condoms (Male)', hue = 'PartnerType', data = condom_data,
              palette='hls')
plt.xticks(rotation = 90)
plt.show()
```
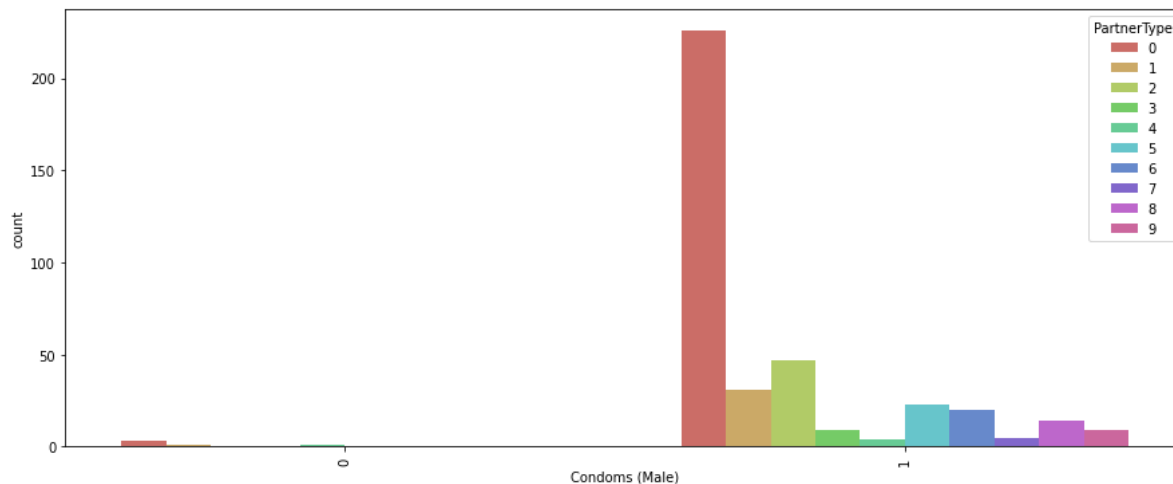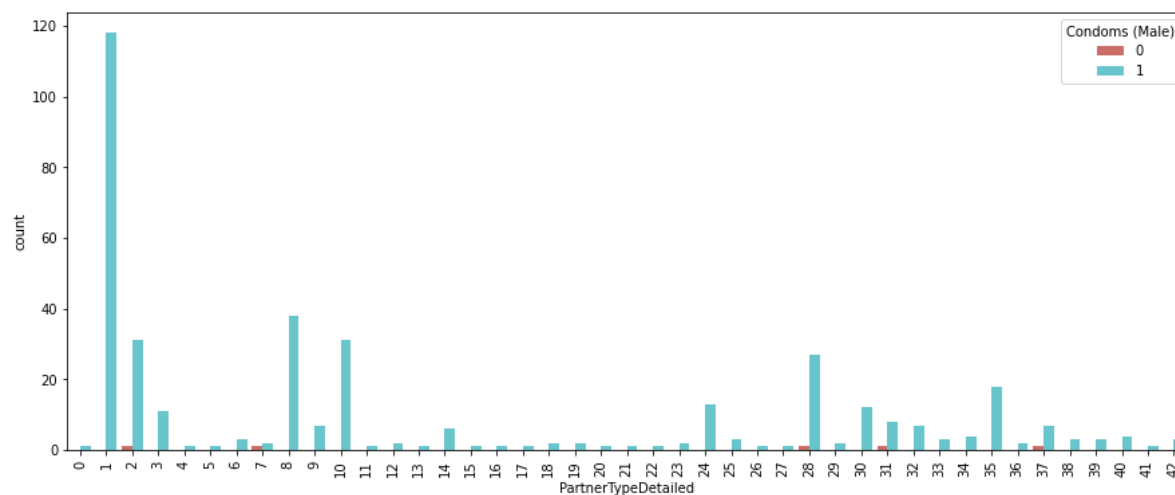

In [45]:

```python
plt.figure(figsize=(15,6))
sns.countplot(x = 'FC2 (Female/Insertive Condoms)', hue = 'PartnerType', data = condom_c
              palette='hls')
plt.xticks(rotation = 90)
plt.show()
```
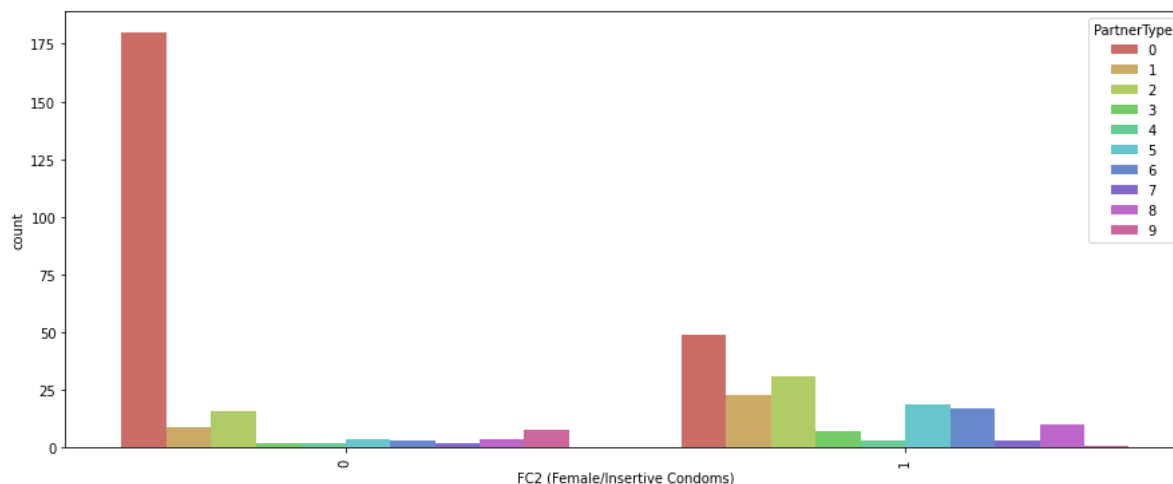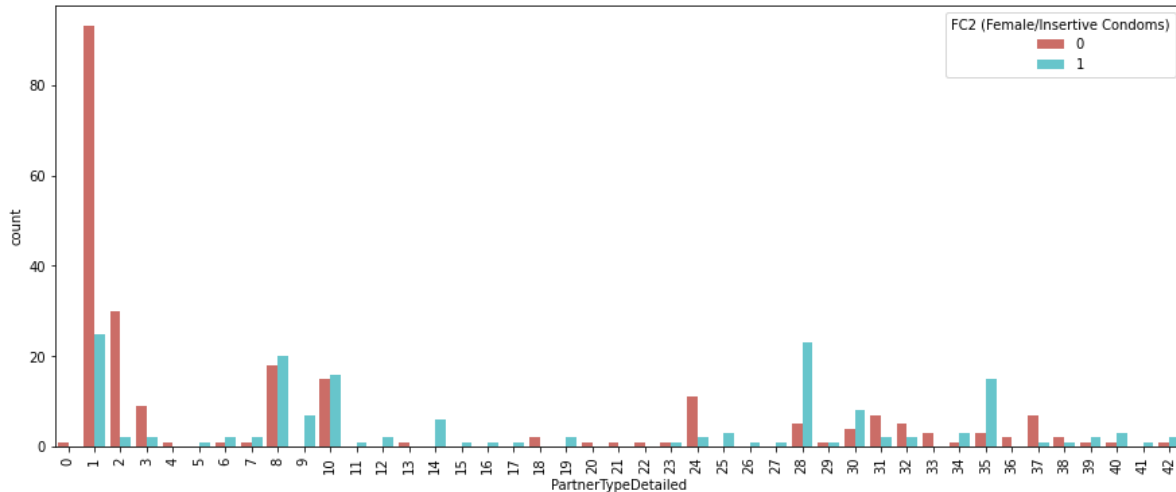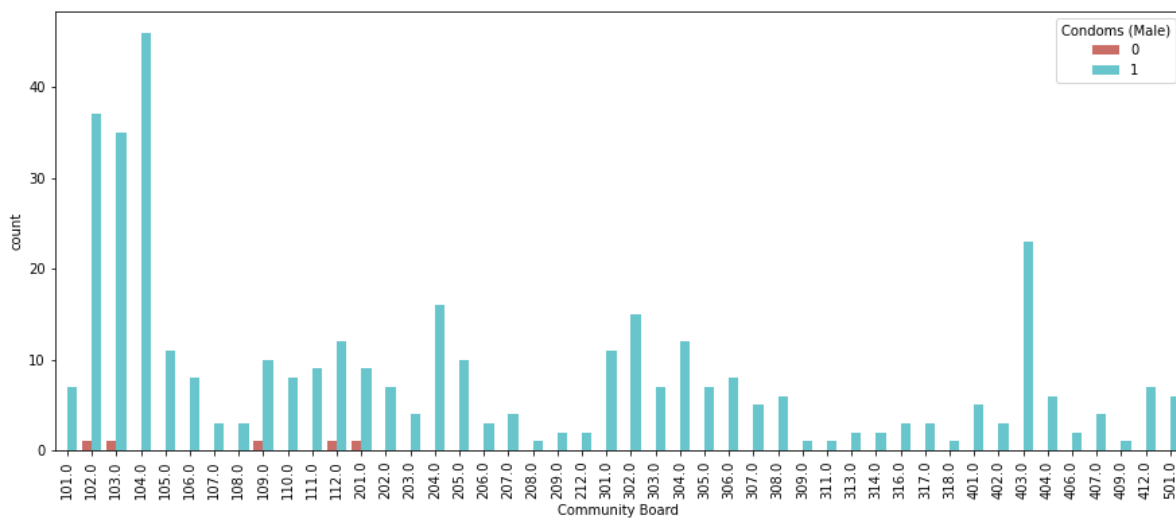
In [46]:

```python
plt.figure(figsize=(15,6))
sns.countplot(hue = 'Condoms (Male)', x = 'PartnerTypeDetailed', data = condom_data,
              palette='hls')
plt.xticks(rotation = 90)
plt.show()
```

In [47]:

```python
plt.figure(figsize=(15,6))
sns.countplot(hue = 'FC2 (Female/Insertive Condoms)', x = 'PartnerTypeDetailed', data =
          palette='hls')
plt.xticks(rotation = 90)
plt.show()
```
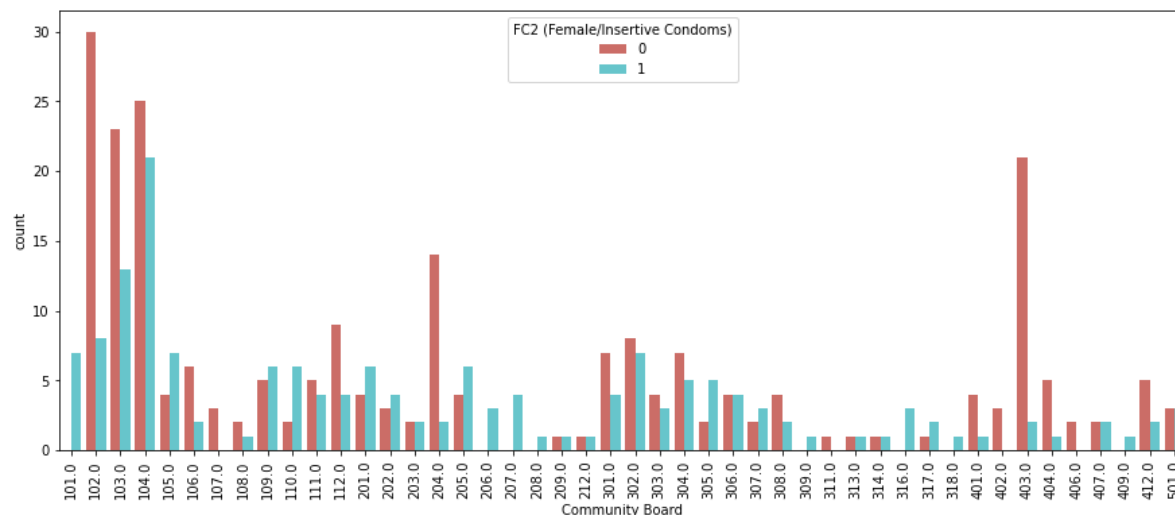

In [48]:

```python
plt.figure(figsize=(15,6))
sns.countplot(hue = 'Condoms (Male)', x = 'Community Board', data = condom_data,
          palette='hls')
plt.xticks(rotation = 90)
plt.show()
```
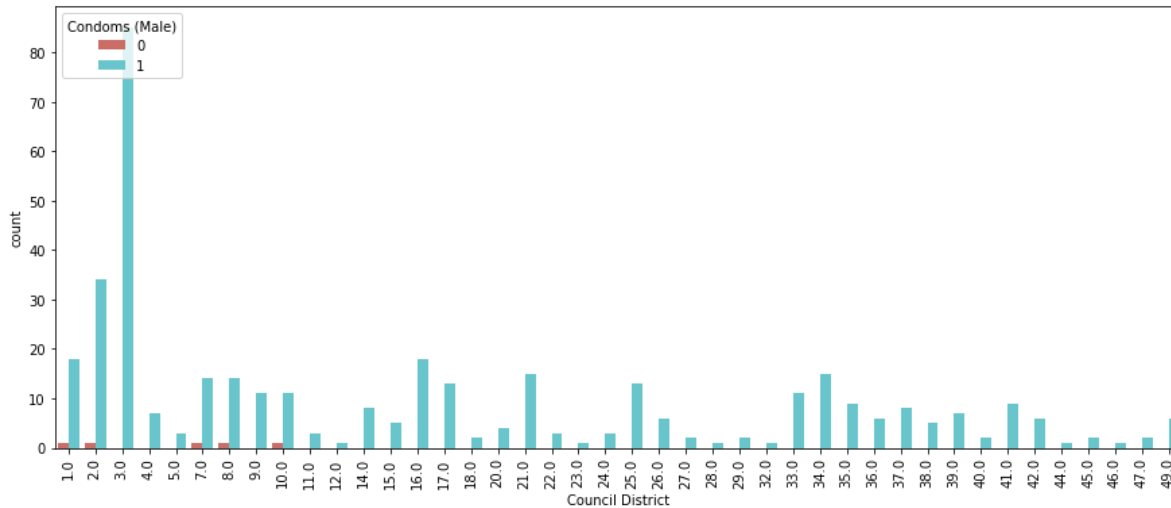
In [49]:

```python
plt.figure(figsize=(15,6))
sns.countplot(hue = 'FC2 (Female/Insertive Condoms)', x = 'Community Board', data = cond
              palette='hls')
plt.xticks(rotation = 90)
plt.show()
```

In [50]:

```python
plt.figure(figsize=(15,6))
sns.countplot(hue = 'Condoms (Male)', x = 'Council District', data = condom_data,
              palette='hls')
plt.xticks(rotation = 90)
plt.show()
```


In [51]:

```python
plt.figure(figsize=(15,6))
sns.countplot(hue = 'FC2 (Female/Insertive Condoms)', x = 'Council District', data = con
              palette='hls')
plt.xticks(rotation = 90)
plt.show()
```