"Analyzing Swiggy - Bangalore Outlet"

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INTRODUCTION AND PROBLEM STATEMENT

The online food ordering market includes foods prepared by restaurants, prepared by independent people, and groceries being ordered online and then picked up or delivered. The first online food ordering service, World Wide Waiter (now known as Waiter.com), was founded in 1995. Online food ordering is the process of ordering food from a website or other application. The product can be either ready-to-eat food or food that has not been specially prepared for direct consumption.

Do ETL: Extract-Transform-Load the dataset and find for me some information from this large data. This is a form of data mining. What all information can be achieved by mining this data,would be explained in a class by the trainer Find key metrics and factors and show the meaningful relationships between attributes. Do your own research and come up with your findings.

In [1]:
```
#importing necessary libraries

import matplotlib.pyplot as plt
import numpy as np
import sklearn as sklearn
import seaborn as sns
import pandas as pd
```

In [2]:
```
%matplotlib inline
```

In [3]:
```
# importing the dataset (Swiggy)
df=pd.read_csv('Swiggy data.csv')
```

In [4]:
```
size= df.shape
print('The Number of Rows: ',size[0], ' and Number of Columns: ',size[1])
```

```
The Number of Rows:  118  and Number of Columns:  5
```

In [5]:
```
df.head()
```

Out[5]:

	Shop_Name	Cuisine	Location	Rating	Cost_for_Two
0	Kanti Sweets	Sweets	Koramangala, Koramangala	4.3	₹ 150
1	Mumbai Tiffin	North Indian, Home Food, Thalis, Combo	Sector 5, HSR	4.4	₹ 400
2	Sri Krishna sagar	South Indian, North Indian, Fast Food, Beverag...	6th Block, Koramangala	4.1	₹ 126
3	Al Daaz	American, Arabian, Chinese, Desserts, Fast Foo...	HSR, HSR	4.4	₹ 400
4	Beijing Bites	Chinese, Thai	5th Block, Koramangala	4.1	₹ 450

PRE-PROCESSING DATASET FOR EXPLORATION

In [6]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 118 entries, 0 to 117
Data columns (total 5 columns):
 #   Column        Non-Null Count  Dtype 
---  ------        --------------  ----- 
 0   Shop_Name     118 non-null    object
 1   Cuisine       118 non-null    object
 2   Location      118 non-null    object
 3   Rating        118 non-null    object
 4   Cost_for_Two  118 non-null    object
dtypes: object(5)
memory usage: 4.7+ KB
```

`Rating` and `Cost_for_Two` should be Floating type

In [7]:
```
df['Rating'].unique()
```

Out[7]:
```
array(['4.3', '4.4', '4.1', '4.2', '3.9', '3.8', '4', '3.7', '3.6', '4.8',
       '4.5', '4.6', '--'], dtype=object)
```

In [8]:
```
# Data Points with rating as -- should be replaced with 0
df['Rating'].replace('--',0,inplace=True)
```

In [9]:
```
# now changing the Data Type of Rating Attribute from String to Float
df['Rating']=[float(i) for i in df['Rating']]
```

In [10]:
```
df['Cost_for_Two'].unique()
```

Out[10]:
```
array(['₹ 150', '₹ 400', '₹ 126', '₹ 450', '₹ 350', '₹ 200', '₹ 500',
       '₹ 247', '₹ 550', '₹ 300', '₹ 129', '₹ 250', '₹ 268', '₹ 600',
       '₹ 527', '₹ 130', '₹ 257', '₹ 280', '₹ 399', '₹ 220', '₹ 800',
       '₹ 100', '₹ 178', '₹ 120', '₹ 251', '₹ 650', '₹ 132', '₹ 153',
       '₹ 219', '₹ 193'], dtype=object)
```

In [11]:
```
# now changing the Data Type of Cost_for_Two Attribute from String to Float
list1=[]
list2=[]
for i in df['Cost_for_Two']:
    res=i.split()
    list1.append(res[0])
    list2.append(float(res[1]))
# list2
# list1
```

In [12]:
```
df['Cost for Two']=list2
df.drop(['Cost_for_Two'],axis=1,inplace=True)
```

In [13]:
```
df
```

Out[13]:

	Shop_Name	Cuisine	Location	Rating	Cost for Two
0	Kanti Sweets	Sweets	Koramangala, Koramangala	4.3	150.0
1	Mumbai Tiffin	North Indian, Home Food, Thalis, Combo	Sector 5, HSR	4.4	400.0
2	Sri Krishna sagar	South Indian, North Indian, Fast Food, Beverag...	6th Block, Koramangala	4.1	126.0
3	Al Daaz	American, Arabian, Chinese, Desserts, Fast Foo...	HSR, HSR	4.4	400.0
4	Beijing Bites	Chinese, Thai	5th Block, Koramangala	4.1	450.0
...	...	...	...	...	...
113	Wok Paper Scissors	Pan-Asian, Chinese, Asian	JNC Road, Koramangala	3.9	219.0
114	Savoury Restaurant	Arabian, Middle Eastern, North Indian, Grill, ...	Madiwala, BTM	4.1	600.0
115	Royal Treat	North Indian, Chinese, Seafood, Biryani	5th block Koramangala, Koramangala	4.2	193.0
116	Thali 99	North Indian	Koramangala, Koramangala	4.3	200.0
117	Mani's Dum Biryani	Andhra, Biryani	1st Block, Koramangala	4.2	400.0

118 rows × 5 columns

In [14]:
```
# rechecking dataset
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 118 entries, 0 to 117
Data columns (total 5 columns):
 #   Column        Non-Null Count  Dtype  
---  ------        --------------  -----  
 0   Shop_Name     118 non-null    object 
 1   Cuisine       118 non-null    object 
 2   Location      118 non-null    object 
 3   Rating        118 non-null    float64
 4   Cost for Two  118 non-null    float64
dtypes: float64(2), object(3)
memory usage: 4.7+ KB
```

we can observe that there is **NO Missing Values** in any attribute.

Now, Separating out the values in Cuisine Attribute into multiple attributes based on the Cusines

In [15]:
```
# Split cuisine column into multiple columns using one-hot encoding
cuisine_dummies = df['Cuisine'].str.get_dummies(',')

# Normalize column names by removing leading/trailing spaces
cuisine_dummies.columns = cuisine_dummies.columns.str.strip()

# Merge columns with the same names into a single column
cuisine_merged = cuisine_dummies.groupby(cuisine_dummies.columns, axis=1).sum()

# Concatenate the merged column with the original dataset
data = pd.concat([df,cuisine_merged], axis=1)

# Drop the original cuisine columns
data.drop('Cuisine', axis=1, inplace=True)
```

In [16]:
```
data.head()
```

Out[16]:

	Shop_Name	Location	Rating	Cost for Two	American	Andhra	Arabian	Asian	Bakery	Beverages	...	Rajasthani	Salads	Seafood	Snacks	South Indian	Sweets	Tan
0	Kanti Sweets	Koramangala, Koramangala	4.3	150.0	0	0	0	0	0	0	...	0	0	0	0	0	1	
1	Mumbai Tiffin	Sector 5, HSR	4.4	400.0	0	0	0	0	0	0	...	0	0	0	0	0	0	
2	Sri Krishna sagar	6th Block, Koramangala	4.1	126.0	0	0	0	0	0	1	...	0	0	0	0	1	0	
3	Al Daaz	HSR, HSR	4.4	400.0	1	0	1	0	0	0	...	0	0	0	0	0	0	
4	Beijing Bites	5th Block, Koramangala	4.1	450.0	0	0	0	0	0	0	...	0	0	0	0	0	0	

5 rows × 52 columns

In [17]:
```
# updated shape
size2= data.shape
print('The Number of Rows: ',size2[0], ' and Number of Columns: ',size2[1])
```

```
The Number of Rows:  118  and Number of Columns:  52
```

In [18]:
```
data.describe()
```

Out[18]:

	Rating	Cost for Two	American	Andhra	Arabian	Asian	Bakery	Beverages	Biryani	Cafe	...	Rajasthani	Salads	Seaf
count	118.000000	118.000000	118.000000	118.000000	118.000000	118.000000	118.000000	118.000000	118.000000	118.000000	...	118.000000	118.000000	118.000
mean	4.061864	321.008475	0.093220	0.127119	0.033898	0.025424	0.025424	0.076271	0.220339	0.016949	...	0.008475	0.016949	0.076
std	0.430845	137.286804	0.291981	0.334526	0.181739	0.158080	0.158080	0.266563	0.416243	0.129631	...	0.092057	0.129631	0.266
min	0.000000	100.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	...	0.000000	0.000000	0.000
25%	4.000000	204.750000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	...	0.000000	0.000000	0.000
50%	4.100000	300.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	...	0.000000	0.000000	0.000
75%	4.300000	400.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	...	0.000000	0.000000	0.000
max	4.800000	800.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	...	1.000000	1.000000	1.000

8 rows × 50 columns

EXPLORATORY DATA ANALYSIS (EDA) AND VISUALIZATION

1. Cuisine Analysis

In [19]:
```
# creating a sub dataframe having only cuisine columns
data2=data.iloc[:,4:]
data2.head(3)
```

Out[19]:

	American	Andhra	Arabian	Asian	Bakery	Beverages	Biryani	Cafe	Chaat	Chettinad	...	Rajasthani	Salads	Seafood	Snacks	South Indian	Sweets	Tandoor	Th
0	0	0	0	0	0	0	0	0	0	0	...	0	0	0	0	0	1	0	
1	0	0	0	0	0	0	0	0	0	0	...	0	0	0	0	0	0	0	
2	0	0	0	0	0	1	0	0	0	0	...	0	0	0	0	1	0	0	

3 rows × 48 columns

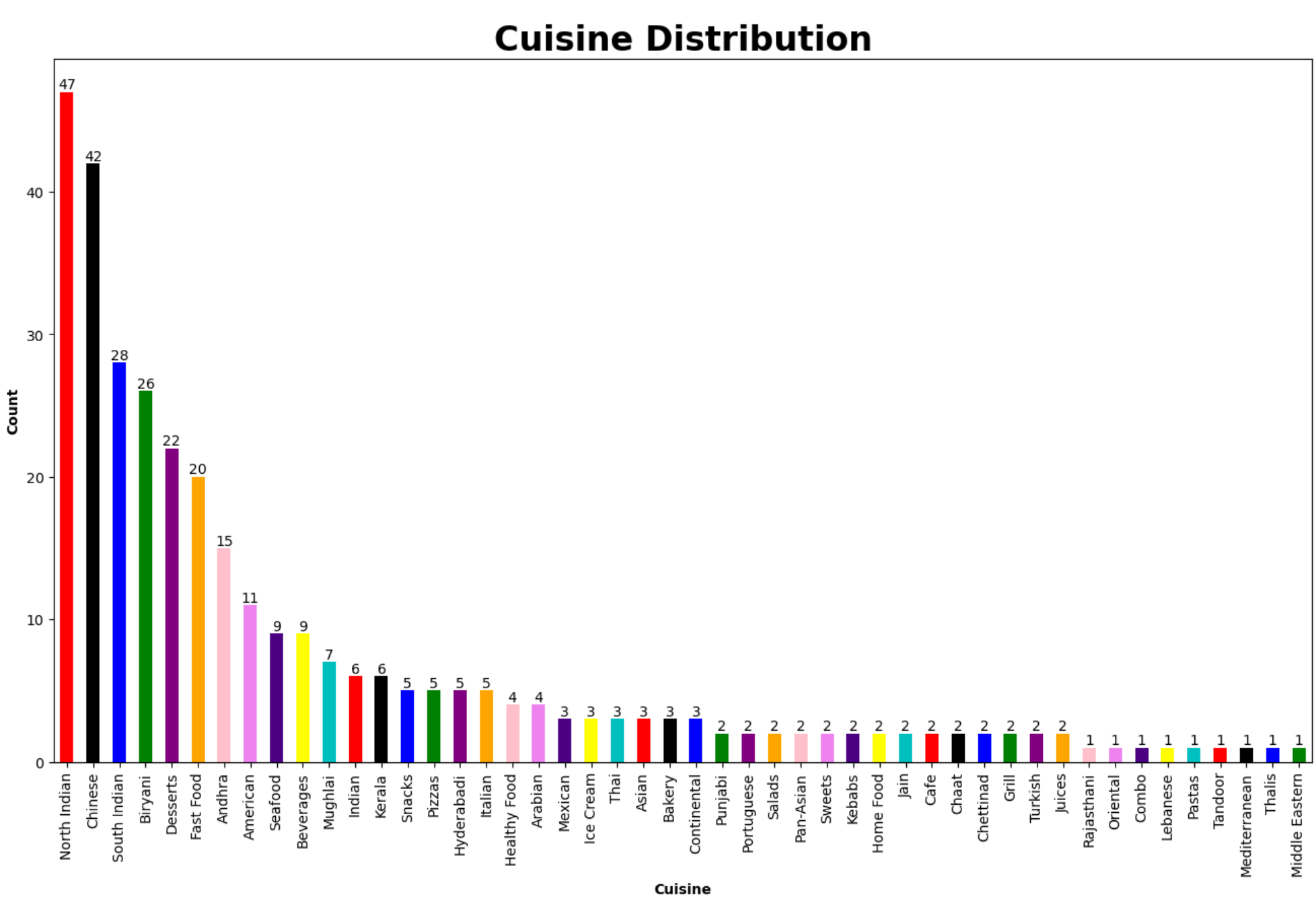
In [20]:
```
# Get the cuisine columns (assuming they are already encoded using get-dummies)
cuisine_columns = [col for col in data2.columns]

# Calculate the cuisine counts
cuisine_counts = data2[cuisine_columns].sum().sort_values(ascending=False)
print (cuisine_counts)
```

North Indian	47
Chinese	42
South Indian	28
Biryani	26
Desserts	22
Fast Food	20
Andhra	15
American	11
Seafood	9
Beverages	9
Mughlai	7
Indian	6
Kerala	6
Snacks	5
Pizzas	5
Hyderabadi	5
Italian	5
Healthy Food	4
Arabian	4
Mexican	3
Ice Cream	3
Thai	3
Asian	3
Bakery	3
Continental	3
Punjabi	2
Portuguese	2
Salads	2
Pan-Asian	2
Sweets	2
Kebabs	2
Home Food	2
Jain	2
Cafe	2
Chaat	2
Chettinad	2
Grill	2
Turkish	2
Juices	2
Rajasthani	1
Oriental	1

```
Combo              1
Lebanese           1
Pastas             1
Tandoor            1
Mediterranean      1
Thalis             1
Middle Eastern     1
dtype: int64
```

In [21]:

```
# Plot the cuisine distribution
cd=['red','black','blue','green','purple','orange','pink','violet','indigo','yellow','c']
plt.figure(figsize=(16, 9))
cuisine_counts.plot(kind='bar',color=cd)
plt.xlabel('Cuisine',fontweight='bold')
plt.ylabel('Count',fontweight='bold')
plt.title('Cuisine Distribution',fontweight='bold',size=24)
plt.xticks(rotation=90)
for i, v in enumerate(cuisine_counts.values):
    plt.annotate(str(v), xy=(i, v),ha='center',color='black',va='bottom')
plt.show()
```


Cuisine Distribution
Count
Cuisine
0
10
20
30
40
47
42
28
26
22
20
15
11
9
9
7
6
6
5
5
5
5
4
4
3
3
3
3
3
3
2
2
2
2
2
2
2
2
2
2
2
2
2
2
1
1
1
1
1
1
1
1
1
North Indian
Chinese
South Indian
Biryani
Desserts
Fast Food
Andhra
American
Seafood
Beverages
Mughlai
Indian
Kerala
Snacks
Pizzas
Hyderabadi
Italian
Healthy Food
Arabian
Mexican
Ice Cream
Thai
Asian
Bakery
Continental
Punjabi
Portuguese
Salads
Pan-Asian
Sweets
Kebabs
Home Food
Jain
Cafe
Chaat
Chettinad
Grill
Turkish
Juices
Rajasthani
Oriental
Combo
Lebanese
Pastas
Tandoor
Mediterranean
Thalis
Middle Eastern

From the Above graph we can observe that **Top 3 Cuisines in Bangalore (Swiggy Network)** are:

1. North Indian
2. Chinese
3. South Indian

and the least available Cuisines are:

1. Rajasthani
2. Oriental
3. Combo
4. Lebanese
5. Pastas
6. Tandoor
7. Mediterranean
8. Thalis
9. Middle Eastern

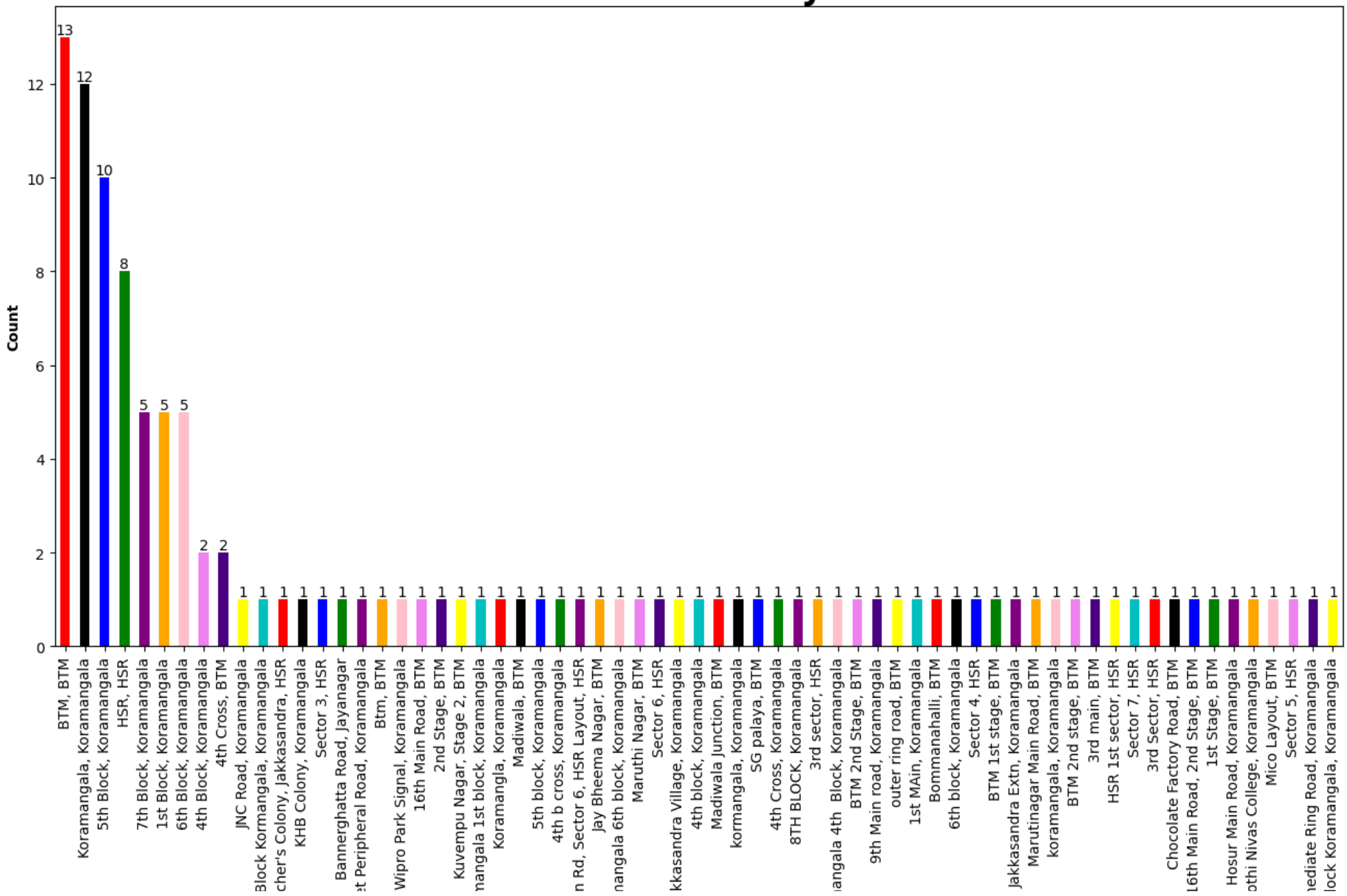
2. Location Analysis

In [22]:
```
location_counts = data['Location'].value_counts()
```

In [23]:
```
location_counts
```

Out[23]:
```
BTM, BTM                                                          13
Koramangala, Koramangala                                          12
5th Block, Koramangala                                            10
HSR, HSR                                                           8
7th Block, Koramangala                                             5
                                                                  ..
1st Cross Road, 5th Block, Near Jyothi Nivas College, Koramangala  1
Mico Layout, BTM                                                   1
Sector 5, HSR                                                      1
Intermediate Ring Road, Koramangala                                1
5th block Koramangala, Koramangala                                 1
Name: Location, Length: 65, dtype: int64
```

In [24]:
```
# Plotting the location distribution
plt.figure(figsize=(16, 8))
location_counts.plot(kind='bar',color=cd)
plt.xlabel('Location', fontweight='bold')
plt.ylabel('Count', fontweight='bold')
plt.title('Outlet Distribution by Location', fontweight='bold',size=24)
plt.xticks(rotation=90)
for i, v in enumerate(location_counts.values):
    plt.annotate(str(v), xy=(i, v),ha='center',color='black',va='bottom')
plt.show()
```


Outlet Distribution by Location
Count
0
2
4
6
8
10
12
13
12
10
8
5
5
5
2
2
1
BTM, BTM
Koramangala, Koramangala
5th Block, Koramangala
HSR, HSR
7th Block, Koramangala
1st Block, Koramangala
6th Block, Koramangala
4th Block, Koramangala
4th Cross, BTM
JNC Road, Koramangala
Sector 3, HSR
Bannerghatta Road, Jayanagar
Btm, BTM
Wipro Park Signal, Koramangala
16th Main Road, BTM
2nd Stage, BTM
Sector 6, HSR
4th block, Koramangala
Madiwala Junction, BTM
SG palaya, BTM
4th Cross, Koramangala
3rd sector, HSR
BTM 2nd Stage, BTM
9th Main road, Koramangala
1st MAin, Koramangala
6th block, Koramangala
Sector 4, HSR
BTM 1st stage, BTM
Marutinagar Main Road, BTM
BTM 2nd stage, BTM
3rd main, BTM
HSR 1st sector, HSR
Sector 7, HSR
3rd Sector, HSR
1st Stage, BTM
Hosur Main Road, Koramangala
Mico Layout, BTM
Sector 5, HSR

Only 9 Locations have more than 1 Outlets, rest 56 Locations have exactly 1 Outlet.

Top 3 Locations with most number of outlets:

1. BTM, BTM --> 13
2. Koramangala, Koramangala --> 12
3. 5th Block, Koramangala --> 10

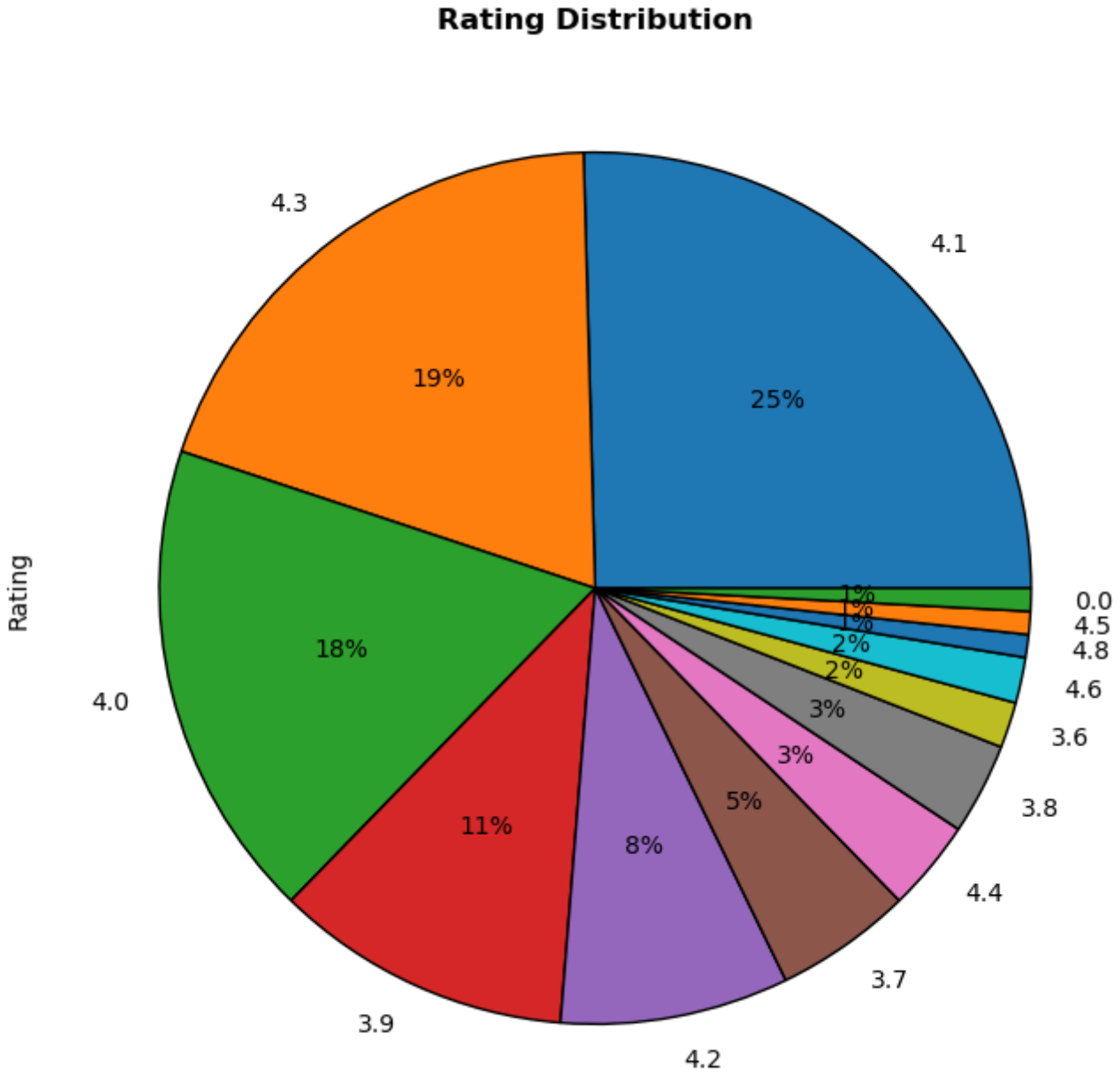
3. Rating Analysis

In [25]:
```
rating_counts = data['Rating'].value_counts()
rating_counts
```

Out[25]:
```
4.1    30
4.3    23
4.0    21
3.9    13
4.2    10
3.7     6
4.4     4
3.8     4
3.6     2
4.6     2
4.8     1
4.5     1
0.0     1
Name: Rating, dtype: int64
```

In [26]:
```
average_rating=data['Rating'].mean()
```

In [27]:
```
# Plotting the rating distribution
rating_counts.plot.pie(subplots=True, figsize=(14, 8), wedgeprops={"edgecolor":"0",'linewidth': 1, 'antialiased': True},
autopct='%1.0f%%')
plt.title('Rating Distribution',fontweight=600)
plt.show()
```

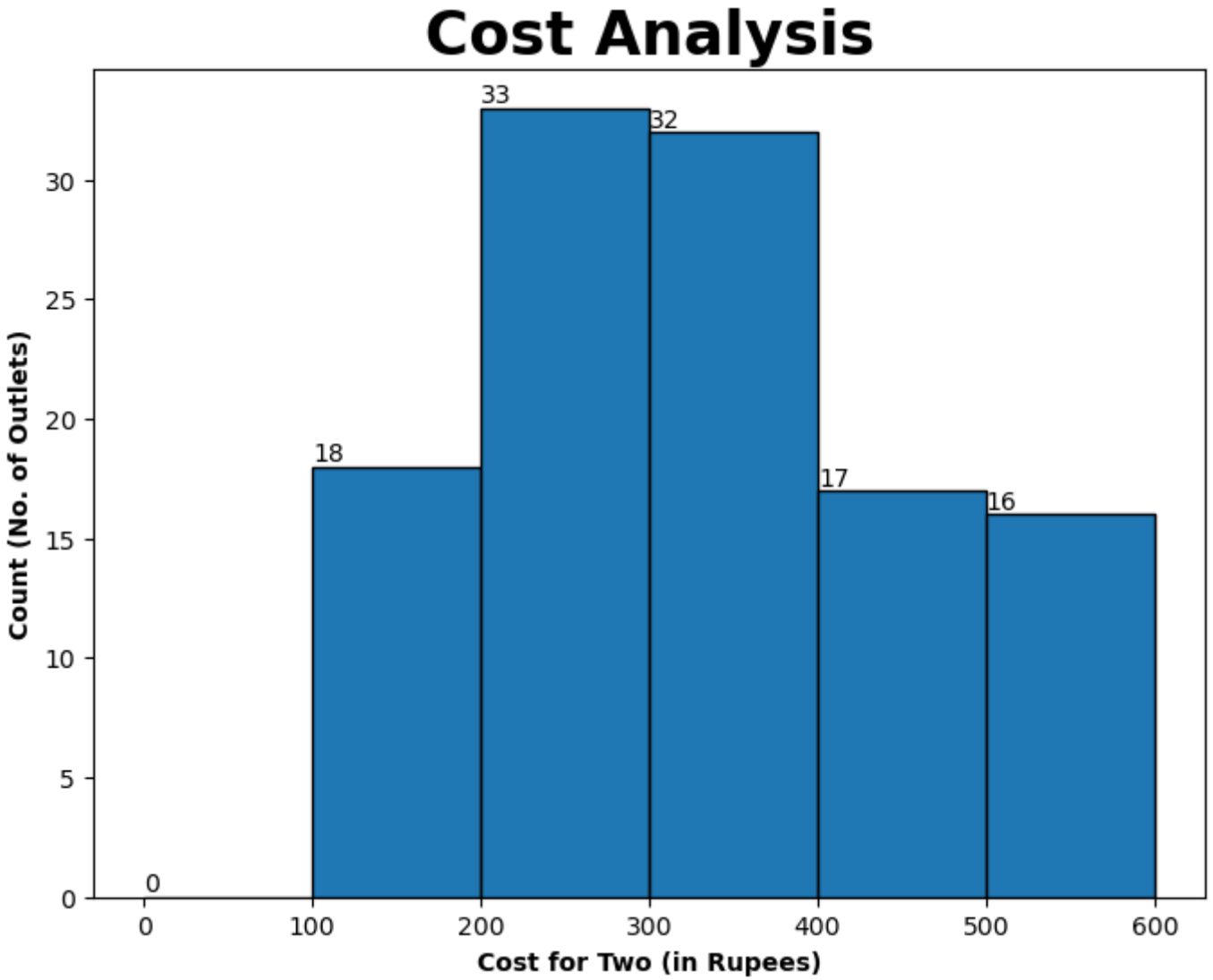

Rating Distribution
Rating
4.1
25%
4.3
19%
4.0
18%
3.9
11%
4.2
8%
3.7
5%
4.4
3%
3.8
3%
3.6
2%
4.6
2%
4.8
1%
4.5
1%
0.0
1%

In [28]:
```
# Additional statistics
print('Average Rating:', average_rating)
print('Maximum Rating:', data['Rating'].max())
print('Minimum Rating:', data['Rating'].min())
```

```
Average Rating: 4.061864406779662
Maximum Rating: 4.8
Minimum Rating: 0.0
```

4. Cost Analysis

In [29]:
```
# Cost Analysis
plt.figure(figsize=(8, 6))
bins1=[0,100,200,300,400,500,600]
n, bins, patches = plt.hist(data['Cost for Two'], bins=bins1, edgecolor='k')
plt.xlabel('Cost for Two (in Rupees)', fontweight='bold')
plt.ylabel('Count (No. of Outlets)',fontweight='bold')
plt.title('Cost Analysis',fontweight='bold',size=24)
for i in range(len(patches)):
    plt.text(bins[i], n[i], int(n[i]), ha='left',va='bottom',wrap=True)

plt.show()
```



In [30]:
```
# Additional statistics

print('Maximum Cost:', data['Cost for Two'].max())
print('Minimum Cost:', data['Cost for Two'].min())
print('Average Cost:', data['Cost for Two'].mean())
```

```
Maximum Cost: 800.0
Minimum Cost: 100.0
Average Cost: 321.00847457627117
```

THANK YOU