Bar chart

1. Simple bar plot

In [1]:
```
import pandas as pd
df = pd.read_excel('data.xlsx',sheet_name='drink')
```

In [2]:
```
brand = pd.unique(df['Brand Purchased'])
y = [0] * len(brand)
for i in range(len(brand)):
    y[i] = df['Brand Purchased'][df['Brand Purchased']==brand[i]].count()
```

In [3]:
```
import matplotlib.pyplot as plt
fig = plt.figure()
```

```
<Figure size 432x288 with 0 Axes>
```

In [4]:
```
axes = fig.add_axes([0,0,1,1])
```

In [5]:
```
axes.bar(brand, y, width=0.5)
```

Out[5]:
```
<BarContainer object of 5 artists>
```

In [6]:
```
axes.set_xlabel('Brand')
axes.set_ylabel('Number of people purchasing')
axes.set_title('Market survey')
```

Out[6]:
```
Text(0.5, 1.0, 'Market survey')
```

2. Multiple bar plot

In [7]:
```
import pandas as pd
df = pd.read_excel('data.xlsx',sheet_name='bts')
```

In [8]:
```
import matplotlib.pyplot as plt
fig = plt.figure()
```

```
<Figure size 432x288 with 0 Axes>
```

In [9]:
```
axes = fig.add_axes([0,0,1,1])
```

In [10]:
```
df_2016 = df[ (df['date']<'2017-01-01') & (df['date']>'2015-12-31')]
df_2016['month'] = df_2016['date'].dt.month_name()
```

```
/var/folders/50/yc3xx4j955ndlwshz8251btr0000gn/T/ipykernel_35479/3129630555.py:2: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy
  df_2016['month'] = df_2016['date'].dt.month_name()
```

In [11]:
```
axes.bar(df_2016['month'], df_2016['Average daily ridership'],width=0.5)
```

Out[11]:
```
<BarContainer object of 12 artists>
```

In [12]:
```
fig.set_size_inches(11,4)
```

In [13]:
```
df_2015 = df[ (df['date']<'2016-01-01') & (df['date']>'2014-12-31')]
df_2015['month'] = df_2015['date'].dt.month_name()
```

```
/var/folders/50/yc3xx4j955ndlwshz8251btr0000gn/T/ipykernel_35479/1389134680.py:2: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy
  df_2015['month'] = df_2015['date'].dt.month_name()
```

In [14]:
```
axes.bar(df_2015['month'], df_2015['Average daily ridership'],width=0.5)
```

Out[14]:
```
<BarContainer object of 12 artists>
```

Shift the 'x' axes

In [15]:
```
fig = plt.figure()
```

```
<Figure size 432x288 with 0 Axes>
```

In [16]:
```
axes = fig.add_axes([0,0,1,1])
```

In [17]:
```
import numpy as np
m = df_2015['month']
x = np.arange(len(m))
```

In [18]:
```
width=0.3
ax2015 = axes.bar(x-width/2, df_2015['Average daily ridership'],width)
```

In [19]:
```
ax2016 = axes.bar(x+width/2, df_2016['Average daily ridership'],width)
```

In [20]:
```
axes.set_xlabel('Month')
axes.set_ylabel('Ridership')
axes.set_title('BTS')
```

Out[20]:
```
Text(0.5, 1.0, 'BTS')
```

In [21]:
```
ax2015.set_label('2015')
ax2016.set_label('2016')
axes.legend()
```

Out[21]:
```
<matplotlib.legend.Legend at 0x7fafc29663a0>
```

In [22]:
```
axes.set_xticks(x)
axes.set_xticklabels(m)
```

Out[22]:
```
[Text(0, 0, 'January'),
 Text(1, 0, 'February'),
 Text(2, 0, 'March'),
 Text(3, 0, 'April'),
 Text(4, 0, 'May'),
 Text(5, 0, 'June'),
 Text(6, 0, 'July'),
 Text(7, 0, 'August'),
 Text(8, 0, 'September'),
 Text(9, 0, 'October'),
 Text(10, 0, 'November'),
 Text(11, 0, 'December')]
```

In [23]:
```
fig.set_size_inches(11,3)
fig.set_dpi(65)
```

plot three set of data

In [24]:
```
import pandas as pd
df = pd.read_excel('data.xlsx',sheet_name='bts')
```

In [25]:
```
df_2016 = df[ (df['date']<'2017-01-01') & (df['date']>'2015-12-31')]
df_2016['month'] = df_2016['date'].dt.month_name()
```

```
/var/folders/50/yc3xx4j955ndlwshz8251btr0000gn/T/ipykernel_35479/3129630555.py:2: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a
-view-versus-a-copy
  df_2016['month'] = df_2016['date'].dt.month_name()
```

In [26]:
```
df_2015 = df[ (df['date']<'2016-01-01') & (df['date']>'2014-12-31')]
df_2015['month'] = df_2015['date'].dt.month_name()
```

```
/var/folders/50/yc3xx4j955ndlwshz8251btr0000gn/T/ipykernel_35479/1389134680.py:2: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a
-view-versus-a-copy
  df_2015['month'] = df_2015['date'].dt.month_name()
```

In [27]:
```
df_2014 = df[ (df['date']<'2015-01-01') & (df['date']>'2013-12-31')]
df_2014['month'] = df_2014['date'].dt.month_name()
```

```
/var/folders/50/yc3xx4j955ndlwshz8251btr0000gn/T/ipykernel_35479/2214402918.py:2: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a
-view-versus-a-copy
  df_2014['month'] = df_2014['date'].dt.month_name()
```

In [28]:
```
import matplotlib.pyplot as plt
fig = plt.figure()
```

```
<Figure size 432x288 with 0 Axes>
```

In [29]:
```
axes = fig.add_axes([0,0,1,1])
```

In [30]:
```
import numpy as np
m = df_2015['month']
x = np.arange(len(m))
```

In [31]:
```
width = 0.2
ax2014 = axes.bar(x-width, df_2014['Average daily ridership'],width)
ax2015 = axes.bar(x, df_2015['Average daily ridership'],width)
ax2016 = axes.bar(x+width, df_2016['Average daily ridership'],width)
```

In [32]:
```
axes.set_xlabel('Month')
axes.set_ylabel('Ridership')
axes.set_title('BTS')
```

Out[32]:
```
Text(0.5, 1.0, 'BTS')
```

In [33]:
```
ax2014.set_label('2014')
ax2015.set_label('2015')
ax2016.set_label('2016')
axes.legend()
```

Out[33]:
```
<matplotlib.legend.Legend at 0x7fafc25c94f0>
```

In [34]:
```
axes.set_xticks(x)
axes.set_xticklabels(m)
```

Out[34]:
```
[Text(0, 0, 'January'),
 Text(1, 0, 'February'),
 Text(2, 0, 'March'),
 Text(3, 0, 'April'),
 Text(4, 0, 'May'),
 Text(5, 0, 'June'),
 Text(6, 0, 'July'),
 Text(7, 0, 'August'),
 Text(8, 0, 'September'),
 Text(9, 0, 'October'),
 Text(10, 0, 'November'),
 Text(11, 0, 'December')]
```

In [35]:
```
fig.set_size_inches(11,3)
fig.set_dpi(65)
```

In [ ]:
```

```

In [ ]:
```

```