Analysis of startups in 2016

In [1]:

```
import pandas as pd
df_2016 = pd.read_excel('C:/Users/Snehal/Downloads/2016_data.xlsx')
df_2016.head()
```

Out[1]:

	Sr. No.	Date(dd-mm-yyyy)	Startup Name	Industry/ Vertical	Sub-Vertical	City / Location	Investors’ Name	Invest-mentType	Amount (in USD)
0	1.0	2016-09-01	Mad Street Den	Technology	Artificial Intelligence platform	Chennai	Sequoia India, Exfinity Ventures, growX ventures,	Private Equity	NaN
1	2.0	2016-09-01	Mihup	Technology	Personal Digital Assistant	Kolkata	Accel Partners	Private Equity	6,700,000
2	3.0	2016-09-01	Renowala	eCommerce	Home Improvement Marketplace	Hyderabad	Pradeep Dhobale	Seed Funding	NaN
3	4.0	2016-09-01	Lucideus	Technology	IT Risk Assessment and Digital Security Servic...	New Delhi	Amit Choudhary	Seed Funding	NaN
4	5.0	2016-09-04	Trackbizz	Technology	Field Force Automation System	Kochi	Grasshoppers	Private Equity	NaN

In [2]:

```
# Renaming columns for our convinience

def renaming_columns(df_2016):
    df_2016.rename(columns={
    'Date(dd-mm-yyyy)': 'Date',
    'Startup Name': 'Startup_Name',
    'City / Location': 'Location',
    'Investors’ Name': 'Investors',
    'Invest-mentType': 'Investment_Type',
    'Amount (in USD)': 'Amount($)',
    'Sub-Vertical': 'Sub_Industry',
    'Industry/ Vertical':'Industry'
     }, inplace=True)
renaming_columns(df_2016)
```

In [3]:

```
# Extracting required columns
df_2016 = df_2016[['Date', 'Startup_Name', 'Industry','Sub_Industry','Location','Investors','Investment_Type','
```

In [4]:

```
# Dealing with date column to extract Year & Month
def date_opertion(df_2016):
    df_2016['Date'] = pd.to_datetime(df_2016['Date'], format="%d %B %Y")
    df_2016['Month'] = df_2016['Date'].dt.strftime('%B')
    df_2016['Year'] = df_2016['Date'].dt.year
date_opertion(df_2016)
```

In [5]:

```
# Dealing with duplicate rows
def duplicate_rows(data):
    duplicate_rows = data[data.duplicated()]
    if len(duplicate_rows) > 0:
        data = data.drop_duplicates()
        print('Droped',len(duplicate_rows),'Duplicate Rows.')
    else:
        print('No Duplicate Rows.')
duplicate_rows(df_2016)
```

```
Droped 17 Duplicate Rows.
```

In [6]:

```
# Dealing with Amount column data type
def amount_column(data):
    data['Amount($)'] = data['Amount($)'].fillna(0)
    data['Amount($)'] = data['Amount($)'].astype(str)
    data['Amount($)'] = data['Amount($)'].str.replace(',', '')
    data['Amount($)'] = data['Amount($)'].astype(int)
amount_column(df_2016)
```

In [7]:

```
# Editing Industry column
values_to_replace = {'eCommerce' : 'E-Commerce',
                     'ECommerce' : 'E-Commerce',
                     'Ecommerce' : 'E-Commerce',
                     'ecommerce' : 'E-Commerce',
                     'healthcare' : 'Healthcare',
                     'Consumer Interne' : 'Consumer Internet'}
def replace_values(df):
    df['Industry'] = df['Industry'].replace(values_to_replace)
replace_values(df_2016)
```

In [8]:

```
# Editing Investor column
values_to_replace = {'Undisclosed investor' : 'Undisclosed Investors',
                     'Undisclosed investors' : 'Undisclosed Investors',
                      'Undisclosed Investor' : 'Undisclosed Investors',
                      'undisclosed investors' : 'Undisclosed Investors'
```

```
                    }
def replace_values(df):
    df['Investors'] = df['Investors'].replace(values_to_replace)
replace_values(df_2016)
```

In [9]:

```
# Editing Location column

def replace_values(df):
    value_to_replace = {'US': 'United States', 'USA' : 'United States'}
    df['Location'] = df['Location'].replace(value_to_replace)
replace_values(df_2016)
```

In [10]:

```
df_2016.head()
```

Out[10]:

	Date	Startup_Name	Industry	Sub_Industry	Location	Investors	Investment_Type	Amount($)	Month	Year
0	2016-09-01	Mad Street Den	Technology	Artificial Intelligence platform	Chennai	Sequoia India, Exfinity Ventures, growX ventures,	Private Equity	0	September	2016.0
1	2016-09-01	Mihup	Technology	Personal Digital Assistant	Kolkata	Accel Partners	Private Equity	6700000	September	2016.0
2	2016-09-01	Renowala	E-Commerce	Home Improvement Marketplace	Hyderabad	Pradeep Dhobale	Seed Funding	0	September	2016.0
3	2016-09-01	Lucideus	Technology	IT Risk Assessment and Digital Security Servic...	New Delhi	Amit Choudhary	Seed Funding	0	September	2016.0
4	2016-09-04	Trackbizz	Technology	Field Force Automation System	Kochi	Grasshoppers	Private Equity	0	September	2016.0

Summary of the year 2016

- Shape(1041, 10)
- Unique Industry = 14
- Unique Sub_Industry = 987
- Unique Location = 41
- Unique Investment_Type = 3

Graphs

In [11]:

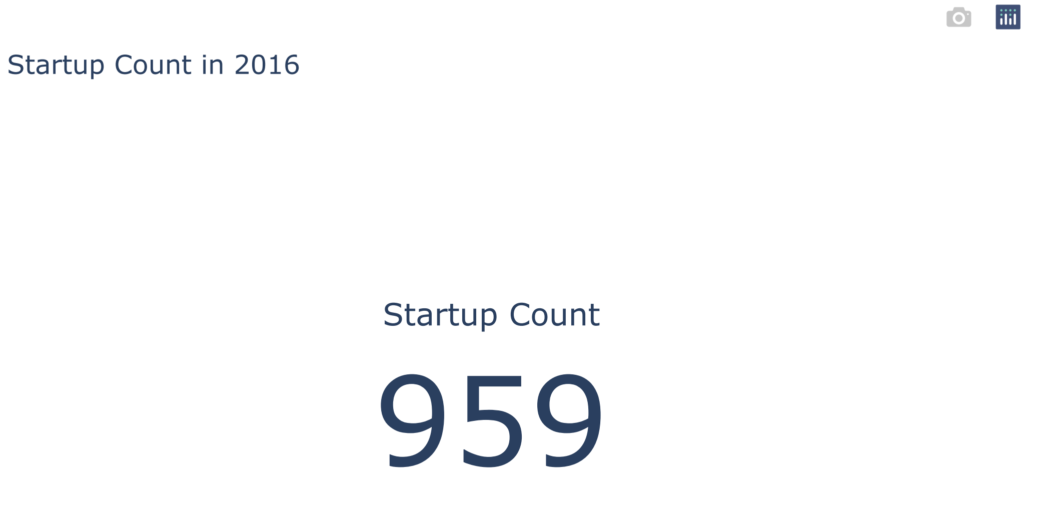
```
# Total Startup count in 2016
import plotly.graph_objects as go
from plotly.subplots import make_subplots
import pandas as pd

def startup_count(data):
    startup_count = data['Startup_Name'].nunique()
    return go.Indicator(
        mode="number",
        value=startup_count,
        title="Startup Count")

fig = make_subplots(rows=1, cols=1)

fig.add_trace(startup_count(df_2016))

fig.update_layout(title_text="Startup Count in 2016")
fig.show()
```



In [12]:

```
import pandas as pd
import ipywidgets as widgets
from IPython.display import display, HTML
import plotly.graph_objects as go

def create_table(selected_industry):
    if selected_industry == 'All':
        display(HTML("<p>Select an industry to view the table.</p>"))
    else:
        filtered_df = df_2016[df_2016['Industry'] == selected_industry]

        if filtered_df.empty:
            display(HTML("<p>No data available for the selected criteria.</p>"))
        else:
            trace = go.Table(
                header=dict(values=["Startup_Name",  "Sub_Industry", "Investors", "Investment_Type", "Location"
                            fill=dict(color='#abb8e7'),
                            align=['left', 'center']),
                cells=dict(values=[filtered_df['Startup_Name'],
                                   filtered_df['Sub_Industry'],
                                   filtered_df['Investors'],
                                   filtered_df['Investment_Type'],
                                   filtered_df['Location'],
                                   filtered_df['Amount($)'],
                                   filtered_df['Month']],
                           fill=dict(color=['white', 'lightgray']),
                           align=['left', 'center'])
            )

            layout = dict(width=950, height=800)
            fig = go.Figure(data=[trace], layout=layout)
            fig.update_layout(margin=dict(l=0, r=0, t=0, b=0))
            display(fig)

industry_dropdown = widgets.Dropdown(options=['All'] + sorted(df_2016['Industry'].dropna().unique()), value='Al
widgets.interactive(create_table, selected_industry=industry_dropdown)
```

Out[12]:

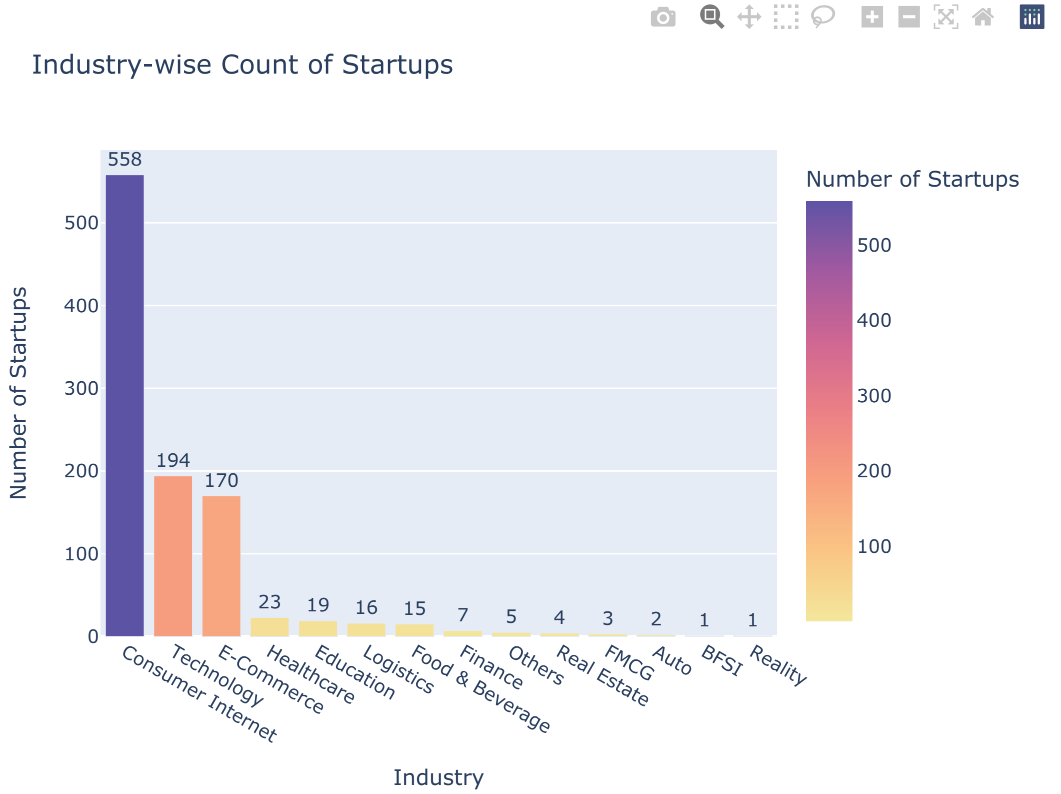
```
interactive(children=(Dropdown(description='Industry:', options=('All', 'Auto', 'BFSI', 'Consumer Internet', '…
```

In [13]:

```
import plotly.express as px

def Industry_wise_startup(df):
    industry_count = df['Industry'].value_counts().reset_index()
    industry_count.columns = ['Industry', 'Startup Count']
    fig = px.bar(industry_count, x='Industry', y='Startup Count',
             title='Industry-wise Count of Startups',
             labels={'Industry': 'Industry', 'Startup Count': 'Number of Startups'},
             color='Startup Count',
             color_continuous_scale='sunset',
             text='Startup Count')
    fig.update_traces(textposition='outside')
    fig.show()

Industry_wise_startup(df_2016)
```



In [14]:

```
import plotly.express as px

def sub_industry_top_10(data):
    top_sub_industries = data['Sub_Industry'].value_counts().nlargest(10)
    top_sub_df = top_sub_industries.reset_index()
    top_sub_df.columns = ['Sub_Industry', 'Count']
    fig = px.bar(top_sub_df, y='Sub_Industry', x='Count', title='Top 10 Sub-Industries by Startups Count', orie
    fig.update_yaxes(categoryorder='total ascending')
    fig.show()

sub_industry_top_10(df_2016)
```

In [15]:

```
import plotly.express as px

def top_10_location(data):
    location_counts = data.groupby('Location').size().reset_index(name='Count')
    top_10_locations = location_counts.sort_values(by='Count', ascending=False).head(10)
    fig = px.bar(top_10_locations, x='Location', y='Count', color='Location',
             title='Top 10 Locations by Startups Count', color_discrete_sequence=px.colors.sequential.Sunset)
    fig.update_layout(xaxis_title='Location', yaxis_title='Count')
    fig.show()

top_10_location(df_2016)
```

In [16]:

```
# Month wise startups
def monthly_startup_count(data):
    month_order = ['January', 'February', 'March', 'April', 'May', 'June', 'July', 'August', 'September', 'Octo
    data['Month'] = pd.Categorical(data['Month'], categories=month_order, ordered=True)
    monthly_count = data.groupby('Month')['Startup_Name'].nunique().reset_index()
    fig = px.line(monthly_count, x='Month', y='Startup_Name', title='Monthly Startup Count', labels={'Startup_N
    fig.update_layout(xaxis=dict(title='Month'))
    fig.update_traces(line=dict(color='brown'))
    fig.show()

monthly_startup_count(df_2016)
```

In [17]:

```
import pandas as pd
import ipywidgets as widgets
from IPython.display import display, HTML

# Location wise Startups
```

```
def create_table(selected_location):
    if selected_location == 'All':
        display(HTML("<p>Select an option from the dropdown to view the table.</p>"))
    else:
        filtered_df = df_2016[df_2016['Location'] == selected_location]

        if filtered_df.empty:
            display(HTML("<p>No data available for the selected location.</p>"))
        else:
            trace = go.Table(
                header=dict(values=["Startup Name", "Industry","Sub Industry", "Investor", "Investment Type", "
                            fill=dict(color='lightblue'),
                            align=['left', 'center']),
                cells=dict(values=[filtered_df['Startup_Name'],
                                   filtered_df['Industry'],
                                   filtered_df['Sub_Industry'],
                                   filtered_df['Investors'],
                                   filtered_df['Investment_Type'],
                                   filtered_df['Amount($)'],
                                   filtered_df['Month']],
                           fill=dict(color=['white', 'lightgray']),
                           align=['left', 'center'])
            )

            layout = dict(width=1000, height=800)
            fig = go.Figure(data=[trace], layout=layout)
            display(fig)

location_dropdown = widgets.Dropdown(options=['All'] + sorted(df_2016['Location'].dropna().unique()), value='Al
widgets.interactive(create_table, selected_location=location_dropdown)
```

Out[17]:

```
interactive(children=(Dropdown(description='Location:', options=('All', 'Agra', 'Ahmedabad', 'Bangalore', 'Ban…
```

In [ ]:

In [ ]: