In [1]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
```

In [2]:
```
df = pd.read_csv(r"C:/Users/saswa/OneDrive/Desktop/Pinaki_Bank_Marketing/bank/bank.csv")
df.head()
```

Out[2]:

	age;"job";"marital";"education";"default";"balance";"housing";"loan";"contact";"day";"month";"duration";"campaign";"pdays";"previous";"poutcome";"y"
0	30;"unemployed";"married";"primary";"no";1787;...
1	33;"services";"married";"secondary";"no";4789;...
2	35;"management";"single";"tertiary";"no";1350;...
3	30;"management";"married";"tertiary";"no";1476...
4	59;"blue-collar";"married";"secondary";"no";0;...

In [3]:
```
df.tail()
```

Out[3]:

	age;"job";"marital";"education";"default";"balance";"housing";"loan";"contact";"day";"month";"duration";"campaign";"pdays";"previous";"poutcome";"y"
4516	33;"services";"married";"secondary";"no";-333;...
4517	57;"self-employed";"married";"tertiary";"yes";...
4518	57;"technician";"married";"secondary";"no";295...
4519	28;"blue-collar";"married";"secondary";"no";11...
4520	44;"entrepreneur";"single";"tertiary";"no";113...

In [4]:
```
df.shape
```

Out[4]:
```
(4521, 1)
```

In [5]:
```
df.columns
```

Out[5]:
```
Index(['age;"job";"marital";"education";"default";"balance";"housing";"loan";"contact";"day";"month";"duration";"campaign";"pdays";"previous";"poutcome";"y"'], dtype='object')
```

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

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 4521 entries, 0 to 4520
Data columns (total 1 columns):
 #   Column                                                                                                                                                  Non-Null Count  Dtype 
---  ------                                                                                                                                                  --------------  ----- 
 0   age;"job";"marital";"education";"default";"balance";"housing";"loan";"contact";"day";"month";"duration";"campaign";"pdays";"previous";"poutcome";"y"  4521 non-null   object
dtypes: object(1)
memory usage: 35.4+ KB
```

In [7]:
```
df.describe()
```

Out[7]:

	age;"job";"marital";"education";"default";"balance";"housing";"loan";"contact";"day";"month";"duration";"campaign";"pdays";"previous";"poutcome";"y"
count	4521
unique	4521
top	30;"unemployed";"married";"primary";"no";1787;...
freq	1

In [8]:
```
df.isnull().sum()
```

Out[8]:
```
age;"job";"marital";"education";"default";"balance";"housing";"loan";"contact";"day";"month";"duration";"campaign";"pdays";"previous";"poutcome";"y"    0
dtype: int64
```

In [9]:
```
plt.figure(figsize = (16,9))
sns.countplot(x = "job",data = df)
```

```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
Cell In[9], line 2
      1 plt.figure(figsize = (16,9))
----> 2 sns.countplot(x = "job",data = df)

File ~\AppData\Roaming\Python\Python311\site-packages\seaborn\categorical.py:2943, in countplot(data, x, y, hue, order, hue_order, orient, color, palette, saturation, width, dodge, ax, **kwargs)
   2940 elif x is not None and y is not None:
   2941     raise ValueError("Cannot pass values for both `x` and `y`")
-> 2943 plotter = _CountPlotter(
   2944     x, y, hue, data, order, hue_order,
   2945     estimator, errorbar, n_boot, units, seed,
   2946     orient, color, palette, saturation,
   2947     width, errcolor, errwidth, capsize, dodge
   2948 )
   2950 plotter.value_label = "count"
   2952 if ax is None:

File ~\AppData\Roaming\Python\Python311\site-packages\seaborn\categorical.py:1530, in _BarPlotter.__init__(self, x, y, hue, data, order, hue_order, estimator, errorbar, n_boot, units, seed, orient,
color, palette, saturation, width, errcolor, errwidth, capsize, dodge)
   1525 def __init__(self, x, y, hue, data, order, hue_order,
   1526              estimator, errorbar, n_boot, units, seed,
   1527              orient, color, palette, saturation, width,
   1528              errcolor, errwidth, capsize, dodge):
   1529     """Initialize the plotter."""
-> 1530     self.establish_variables(x, y, hue, data, orient,
   1531                              order, hue_order, units)
   1532     self.establish_colors(color, palette, saturation)
   1533     self.estimate_statistic(estimator, errorbar, n_boot, seed)

File ~\AppData\Roaming\Python\Python311\site-packages\seaborn\categorical.py:541, in _CategoricalPlotter.establish_variables(self, x, y, hue, data, orient, order, hue_order, units)
    539     if isinstance(var, str):
    540         err = f"Could not interpret input '{var}'"
--> 541         raise ValueError(err)
    543 # Figure out the plotting orientation
    544 orient = infer_orient(
    545     x, y, orient, require_numeric=self.require_numeric
    546 )

ValueError: Could not interpret input 'job'
```

<Figure size 1600x900 with 0 Axes>

In [10]:
```
sns.countplot(x = "job",data = df)
```

```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
Cell In[10], line 1
----> 1 sns.countplot(x = "job",data = df)

File ~\AppData\Roaming\Python\Python311\site-packages\seaborn\categorical.py:2943, in countplot(data, x, y, hue, order, hue_order, orient, color, palette, saturation, width, dodge, ax, **kwargs)
   2940 elif x is not None and y is not None:
   2941     raise ValueError("Cannot pass values for both `x` and `y`")
-> 2943 plotter = _CountPlotter(
   2944     x, y, hue, data, order, hue_order,
   2945     estimator, errorbar, n_boot, units, seed,
   2946     orient, color, palette, saturation,
   2947     width, errcolor, errwidth, capsize, dodge
   2948 )
   2950 plotter.value_label = "count"
   2952 if ax is None:

File ~\AppData\Roaming\Python\Python311\site-packages\seaborn\categorical.py:1530, in _BarPlotter.__init__(self, x, y, hue, data, order, hue_order, estimator, errorbar, n_boot, units, seed, orient,
color, palette, saturation, width, errcolor, errwidth, capsize, dodge)
   1525 def __init__(self, x, y, hue, data, order, hue_order,
   1526              estimator, errorbar, n_boot, units, seed,
   1527              orient, color, palette, saturation, width,
   1528              errcolor, errwidth, capsize, dodge):
   1529     """Initialize the plotter."""
-> 1530     self.establish_variables(x, y, hue, data, orient,
   1531                              order, hue_order, units)
   1532     self.establish_colors(color, palette, saturation)
   1533     self.estimate_statistic(estimator, errorbar, n_boot, seed)

File ~\AppData\Roaming\Python\Python311\site-packages\seaborn\categorical.py:541, in _CategoricalPlotter.establish_variables(self, x, y, hue, data, orient, order, hue_order, units)
    539     if isinstance(var, str):
    540         err = f"Could not interpret input '{var}'"
--> 541         raise ValueError(err)
    543 # Figure out the plotting orientation
    544 orient = infer_orient(
    545     x, y, orient, require_numeric=self.require_numeric
    546 )

ValueError: Could not interpret input 'job'
```

In [ ]: