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Assignment 1

Problem Statement:

Using a dataset from India's General Elections (Lok Sabha), write a code that generates meaningful graphs with respect to the Election results.

Dataset:

Lok Sabha 2009 Candidates, Lok Sabha 2009 Electors,

Lok Sabha 2014 Candidates, Lok Sabha 2014 Electors

Code:

```
# Age Distribution of Winning Candidates in 2009 & 2014 for NDA & UPA in India Elections

plt.figure(figsize=(20,8))
plt.subplot(1,2,1)
plt.style.use('seaborn-deep')

Age09UPA=LS0914Cand[(LS0914Cand.Position==1) & (LS0914Cand.Year==2009)& (LS0914Cand.Alliance=='UPA')][ 'Candidate Age'].tolist()
Age14UPA=LS0914Cand[(LS0914Cand.Position==1) & (LS0914Cand.Year==2014)& (LS0914Cand.Alliance=='UPA')][ 'Candidate Age'].tolist()
Age09NDA=LS0914Cand[(LS0914Cand.Position==1) & (LS0914Cand.Year==2009)& (LS0914Cand.Alliance=='NDA')][ 'Candidate Age'].tolist()
Age14NDA=LS0914Cand[(LS0914Cand.Position==1) & (LS0914Cand.Year==2014)& (LS0914Cand.Alliance=='NDA')][ 'Candidate Age'].tolist()

bins = np.linspace(20, 90, 10)
plt.hist([Age09NDA, Age14NDA], bins, label=['2009', '2014'])
plt.legend(loc='upper right')
plt.xlabel('Age Of NDA winners in years')
plt.ylabel('Total Number of NDA winners')
plt.title('Distribution of Age of NDA winners')

plt.subplot(1,2,2)
bins = np.linspace(20, 90, 10)
plt.hist([Age09UPA, Age14UPA], bins, label=['2009', '2014'])
plt.legend(loc='upper right')
plt.xlabel('Age Of UPA winners in years')
plt.ylabel('Total Number of UPA winners')
plt.title('Distribution of Age of UPA winners')

plt.show();
```

```
# Gender Distribution of Winning Candidates in 2009 & 2014 India Elections
colors = ['#0000CD', '#CD3333']
plt.figure(figsize=(10,5))
plt.subplot(1,2,1)
plt.pie(LS0914Cand[(LS0914Cand.Position==1) & (LS0914Cand.Year==2009)][Candidate Sex].value_counts(), labels=['Male', 'Female'], autopct='%1.1f%%', colors=colors, startangle=90)
my_circle1=plt.Circle( (0,0), 0.7, color='white')
fig = plt.gcf()
fig.suptitle("Gender Distribution in 2009 & 2014 India Elections", fontsize=14) # Adding supertitle with pyplot import
ax = fig.gca()
ax.add_patch(my_circle1)
label = ax.annotate("2009", xy=(0, 0), fontsize=30, ha="center", va="center")
ax.axis('off')
ax.set_aspect('equal')
ax.autoscale_view()

plt.subplot(1,2,2)
plt.pie(LS0914Cand[(LS0914Cand.Position==1) & (LS0914Cand.Year==2014)][Candidate Sex].value_counts(), labels=['Male', 'Female'], autopct='%1.1f%%', colors=colors, startangle=90)
my_circle2=plt.Circle( (0,0), 0.7, color='white')
fig = plt.gcf() #gcf means get current figure
ax = fig.gca() # gca means get current axis
ax.add_patch(my_circle2)

label = ax.annotate("2014", xy=(0, 0), fontsize=30, ha="center", va="center")

ax.axis('off')
ax.set_aspect('equal')
ax.autoscale_view()

plt.show();
```

```
# Distribution of Winning Seats across states in 2009 & 2014 for NDA & UPA in India Elections

color = ("green", "orange")

State09UPA=pd.DataFrame(LS0914Cand[(LS0914Cand.Position==1) & (LS0914Cand.Year==2009)& (LS0914Cand.Alliance=='UPA')][State name].value_counts())
State14UPA=pd.DataFrame(LS0914Cand[(LS0914Cand.Position==1) & (LS0914Cand.Year==2014)& (LS0914Cand.Alliance=='UPA')][State name].value_counts())
State09NDA=pd.DataFrame(LS0914Cand[(LS0914Cand.Position==1) & (LS0914Cand.Year==2009)& (LS0914Cand.Alliance=='NDA')][State name].value_counts())
State14NDA=pd.DataFrame(LS0914Cand[(LS0914Cand.Position==1) & (LS0914Cand.Year==2014)& (LS0914Cand.Alliance=='NDA')][State name].value_counts())

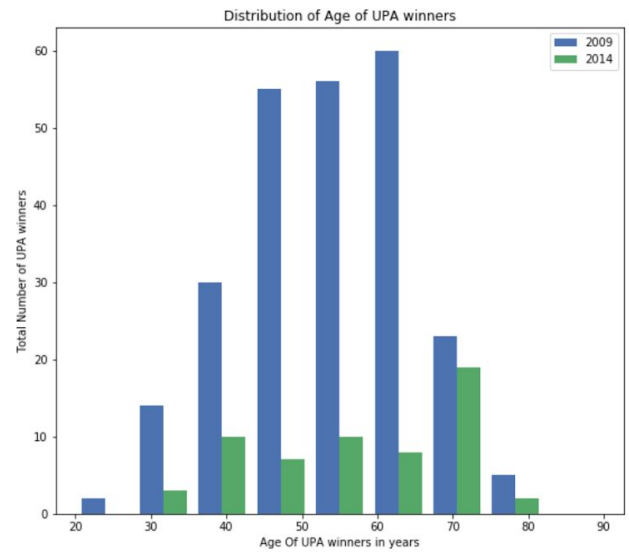
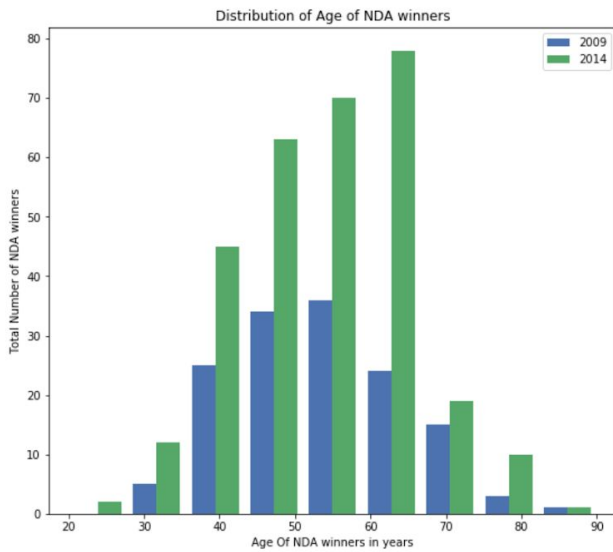
State09 = pd.concat([State09UPA, State09NDA], axis=1, sort=False).fillna(0)
State09.columns = ['UPA', 'NDA']

State14 = pd.concat([State14UPA, State14NDA], axis=1, sort=False).fillna(0)
State14.columns = ['UPA', 'NDA']

nx = State09.plot(kind='bar', # Plot a bar chart
                 legend=True, # Turn the Legend off
                 title = "NDA vs UPA across States of India (In 2009)",
                 width=0.75, # Set bar width as 75% of space available
                 figsize=(15,5), # Set area size (width,height) of plot in inches
                 colors= color)
nx.set_xlabel("Election States", fontsize=12)
nx.set_ylabel("Seats Won", fontsize=12)
annot_plot(nx,0.05,0.5);

kx = State14.plot(kind='bar', # Plot a bar chart
                 legend=True, # Turn the Legend off
                 title = "NDA vs UPA across States of India (In 2014)",
                 width=0.75, # Set bar width as 75% of space available
                 figsize=(15,5), # Set area size (width,height) of plot in inches
                 colors= color)
kx.set_xlabel("Election States", fontsize=12)
kx.set_ylabel("Seats Won", fontsize=12)
annot_plot(kx,0.05,0.5);
```

Results:



Gender Distribution in 2009 & 2014 India Elections

