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 Data Visualization HW
 University of Texas at El Paso
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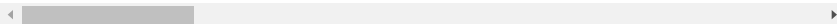
```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
import numpy as np
import matplotlib.pyplot as plt
import matplotlib.dates as mdates
from matplotlib.dates import DateFormatter
sns.set()
```

▼ Load in the Data and select only Canada

```
sample_data = pd.read_csv("https://covid.ourworldindata.org/data/owid-covid-data.csv")
sample_data = sample_data.loc[sample_data['location'] == "Canada"]
sample_data
```

	iso_code	continent	location	date	total_cases	new_cases	new_cases_smo
40382	CAN	North America	Canada	2020-01-23	2.0	2.0	
40383	CAN	North America	Canada	2020-01-24	3.0	1.0	
40384	CAN	North America	Canada	2020-01-25	3.0	0.0	
40385	CAN	North America	Canada	2020-01-26	3.0	0.0	
40386	CAN	North America	Canada	2020-01-27	3.0	0.0	
...	
41508	CAN	North America	Canada	2023-02-22	4595042.0	1117.0	164
41509	CAN	North America	Canada	2023-02-23	4599334.0	4292.0	139
41510	CAN	North America	Canada	2023-02-24	4600064.0	730.0	138
41511	CAN	North America	Canada	2023-02-25	4600513.0	449.0	138
41512	CAN	North America	Canada	2023-02-26	4600840.0	327.0	137

1131 rows × 67 columns



```
type(sample_data)
```

```
pandas.core.frame.DataFrame
```

```
jan_2020 = sample_data.date.iloc[0]
feb_2020 = sample_data.date.iloc[9]
mar_2020 = sample_data.date.iloc[38]
apr_2020 = sample_data.date.iloc[69]
may_2020 = sample_data.date.iloc[99]
jun_2020 = sample_data.date.iloc[130]
jul_2020 = sample_data.date.iloc[160]
aug_2020 = sample_data.date.iloc[191]
sep_2020 = sample_data.date.iloc[222]
oct_2020 = sample_data.date.iloc[252]
nov_2020 = sample_data.date.iloc[283]
dec_2020 = sample_data.date.iloc[313]
jan_2021 = sample_data.date.iloc[344]
```

```

feb_2021 = sample_data.date.iloc[376]
mar_2021 = sample_data.date.iloc[403]
apr_2021 = sample_data.date.iloc[434]
may_2021 = sample_data.date.iloc[464]
jun_2021 = sample_data.date.iloc[495]
jul_2021 = sample_data.date.iloc[525]
aug_2021 = sample_data.date.iloc[556]
sep_2021 = sample_data.date.iloc[587]
oct_2021 = sample_data.date.iloc[617]
nov_2021 = sample_data.date.iloc[648]
dec_2021 = sample_data.date.iloc[678]
jan_2022 = sample_data.date.iloc[709]
feb_2022 = sample_data.date.iloc[740]
mar_2022 = sample_data.date.iloc[768]
apr_2022 = sample_data.date.iloc[799]
may_2022 = sample_data.date.iloc[829]
jun_2022 = sample_data.date.iloc[860]
jul_2022 = sample_data.date.iloc[890]
aug_2022 = sample_data.date.iloc[921]
sep_2022 = sample_data.date.iloc[952]
oct_2022 = sample_data.date.iloc[982]
nov_2022 = sample_data.date.iloc[1013]
dec_2022 = sample_data.date.iloc[1043]
jan_2023 = sample_data.date.iloc[1075]
feb_2023 = sample_data.date.iloc[1105]
dates = [jan_2020, feb_2020, mar_2020, apr_2020, may_2020, jun_2020, jul_2020, aug_2020, sep_2020, oct_2020, nov_2020, dec_2020,
        jan_2021, feb_2021, mar_2021, apr_2021, may_2021, jun_2021, jul_2021, aug_2021, sep_2021, oct_2021, nov_2021, dec_2021,
        jan_2022, feb_2022, mar_2022, apr_2022, may_2022, jun_2022, jul_2022, aug_2022, sep_2022, oct_2022, nov_2022, dec_2022,
        jan_2023, feb_2023]

```

```

jan_2020td = sample_data.total_deaths.iloc[0]
feb_2020td = sample_data.total_deaths.iloc[9]
mar_2020td = sample_data.total_deaths.iloc[38]
apr_2020td = sample_data.total_deaths.iloc[69]
may_2020td = sample_data.total_deaths.iloc[99]
jun_2020td = sample_data.total_deaths.iloc[130]
jul_2020td = sample_data.total_deaths.iloc[160]
aug_2020td = sample_data.total_deaths.iloc[191]
sep_2020td = sample_data.total_deaths.iloc[222]
oct_2020td = sample_data.total_deaths.iloc[252]
nov_2020td = sample_data.total_deaths.iloc[283]
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jan_2021td = sample_data.total_deaths.iloc[344]
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mar_2021td = sample_data.total_deaths.iloc[403]
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jun_2021td = sample_data.total_deaths.iloc[495]
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oct_2022td = sample_data.total_deaths.iloc[982]
nov_2022td = sample_data.total_deaths.iloc[1013]
dec_2022td = sample_data.total_deaths.iloc[1043]
jan_2023td = sample_data.total_deaths.iloc[1075]
feb_2023td = sample_data.total_deaths.iloc[1105]
totaldeaths = [jan_2020td, feb_2020td, mar_2020td, apr_2020td, may_2020td, jun_2020td, jul_2020td, aug_2020td, sep_2020td, oct_2020td, nov_20
        jan_2021td, feb_2021td, mar_2021td, apr_2021td, may_2021td, jun_2021td, jul_2021td, aug_2021td, sep_2021td, oct_2021td, nov_2021td,
        jan_2022td, feb_2022td, mar_2022td, apr_2022td, may_2022td, jun_2022td, jul_2022td, aug_2022td, sep_2022td, oct_2022td, nov_2022td,
        jan_2023td, feb_2023td]

```

```

jan_2020tc = sample_data.total_cases.iloc[0]
feb_2020tc = sample_data.total_cases.iloc[9]
mar_2020tc = sample_data.total_cases.iloc[38]

```

```

apr_2020tc = sample_data.total_cases.iloc[69]
may_2020tc = sample_data.total_cases.iloc[99]
jun_2020tc = sample_data.total_cases.iloc[130]
jul_2020tc = sample_data.total_cases.iloc[160]
aug_2020tc = sample_data.total_cases.iloc[191]
sep_2020tc = sample_data.total_cases.iloc[222]
oct_2020tc = sample_data.total_cases.iloc[252]
nov_2020tc = sample_data.total_cases.iloc[283]
dec_2020tc = sample_data.total_cases.iloc[313]
jan_2021tc = sample_data.total_cases.iloc[344]
feb_2021tc = sample_data.total_cases.iloc[376]
mar_2021tc = sample_data.total_cases.iloc[403]
apr_2021tc = sample_data.total_cases.iloc[434]
may_2021tc = sample_data.total_cases.iloc[464]
jun_2021tc = sample_data.total_cases.iloc[495]
jul_2021tc = sample_data.total_cases.iloc[525]
aug_2021tc = sample_data.total_cases.iloc[556]
sep_2021tc = sample_data.total_cases.iloc[587]
oct_2021tc = sample_data.total_cases.iloc[617]
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dec_2021tc = sample_data.total_cases.iloc[678]
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oct_2022tc = sample_data.total_cases.iloc[982]
nov_2022tc = sample_data.total_cases.iloc[1013]
dec_2022tc = sample_data.total_cases.iloc[1043]
jan_2023tc = sample_data.total_cases.iloc[1075]
feb_2023tc = sample_data.total_cases.iloc[1105]
totalcases = [jan_2020tc, feb_2020tc, mar_2020tc, apr_2020tc, may_2020tc, jun_2020tc, jul_2020tc, aug_2020tc, sep_2020tc, oct_2020tc, nov_2020tc,
              jan_2021tc, feb_2021tc, mar_2021tc, apr_2021tc, may_2021tc, jun_2021tc, jul_2021tc, aug_2021tc, sep_2021tc, oct_2021tc, nov_2021tc,
              jan_2022tc, feb_2022tc, mar_2022tc, apr_2022tc, may_2022tc, jun_2022tc, jul_2022tc, aug_2022tc, sep_2022tc, oct_2022tc, nov_2022tc,
              jan_2023tc, feb_2023tc]
totalcases = np.divide(totalcases, 10)

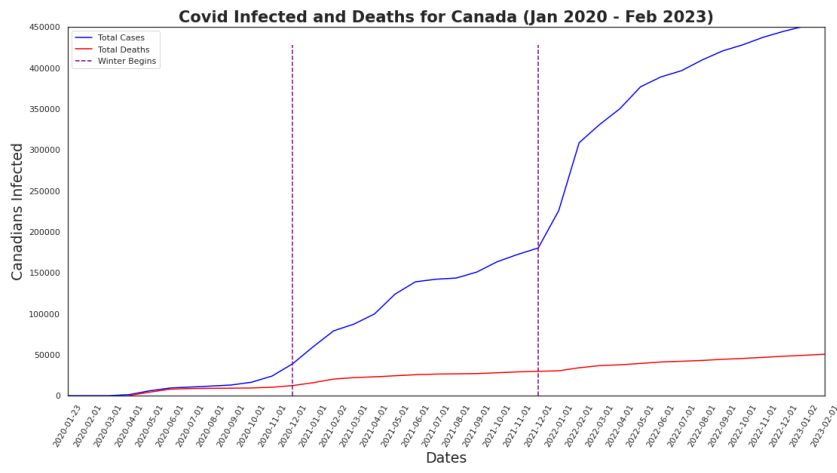
```

Create the line graph of the total number of infected and total number of deaths in Canada

```

sns.set_style("white")
plt.figure(figsize = (18, 9))
plt.plot(dates, totalcases, color = "blue", label = "Total Cases")
plt.plot(dates, totaldeaths, color = "red", label = "Total Deaths")
plt.xticks(dates, rotation = 60)
plt.xlabel("Dates", fontsize = 19)
plt.ylabel("Canadians Infected", fontsize = 19)
plt.title("Covid Infected and Deaths for Canada (Jan 2020 - Feb 2023)", fontsize = 21, weight = "bold")
plt.ylim([0, 450000])
plt.xlim(['2020-01-23', '2023-02-01'])
plt.axvline(x='2020-12-01', ymin=0.00, ymax=0.95, color='purple', ls='--', label="Winter Begins")
plt.axvline(x='2021-12-01', ymin=0.00, ymax=0.95, color='purple', ls='--', label='axvline - % of full height')
plt.legend(labels = labels, loc = "upper left")
plt.gcf().axes[0].yaxis.get_major_formatter().set_scientific(False)

```



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