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import pandas as pd


#Q0: TODO: Load the data to a pandas dataframe.
#Put the csv file is in the same directory with the py file.
#Use relative path to access the csv file.

df = pd.read_csv("us-counties2020.csv")







#Q1
def num_entries():
    return int(df.shape[0])


#Q2
def num_states():
    state_list = df["state"].unique()
    state_list_length = len(state_list)
    return int(state_list_length)



#Q3
def num_cty(state):
    county_list = df["county"][df["state"] == state].unique()
    county_list_length = len(county_list)
    return(int(county_list_length))


#Q4

def num_cases_cty(state, county, date):
    case_amount = df["cases"][df["state"] == state][df["county"] == county]
[df["date"] == date]
    if (case_amount.empty):
        return 0
    else:
        return int(case_amount.item())



#Q5
def num_cases_state(state, date):
    state_cases = df["cases"][df["state"] == state][df["date"] == date]
    state_cases_sum = state_cases.sum()
    if (state_cases.empty):
        return 0
    else:
        return state_cases_sum



#Q6
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```
def cty_beyond_thold(state, date, threshold):
    cty_threshold = df["county"][df["state"] == state][df["date"] == date]
[df["cases"] >= threshold]
    cty_threshold_list = list(cty_threshold)
    if (cty_threshold.empty):
        return []
    else:
        return cty_threshold_list




#Q7
def first_case(state = "Illinois"):
    first_case_state = df["date"][df["state"] ==
state].sort_values(ascending=True).values[0]
    return first_case_state


#Q8
def pivot_state():
    pivot_state = df[["state", "deaths"]][df["date"] == "2020-12-31"][df["deaths"]
> 500].groupby(["state"]).mean().reset_index()["state"].values.tolist()
    return pivot_state
```