```python
import pandas as pd

zone_3445_flow_df = pd.read_csv("/home/datascience/Downloads/cleaning1/3445/flow.tsv",
        na_values=['-'], sep='\t', names = ['f_d1','f_d2','f_d3','f_d4'])

zone_3445_speed_df = pd.read_csv("/home/datascience/Downloads/cleaning1/3445/speed.tsv",
        na_values=['-'], sep='\t', names = ['s_d1','s_d2','s_d3','s_d4'])

zone_3445_occupancy_df =
pd.read_csv("/home/datascience/Downloads/cleaning1/3445/occupancy.tsv",
        na_values=['-'], sep='\t', names = ['o_d1','o_d2','o_d3','o_d4'])

zone_3445_d1_vector = pd.concat([zone_3445_flow_df['f_d1'], zone_3445_speed_df['s_d1'],
zone_3445_occupancy_df['o_d1']], axis=1)

def isNaN(x):
    return (x == x) == False

is_3445_f_d1_Nan = ~isNaN(zone_3445_d1_vector['f_d1'])

zone_3445_d1_vector = zone_3445_d1_vector[is_3445_f_d1_Nan]

is_3445_s_d1_Nan = ~isNaN(zone_3445_d1_vector['s_d1'])

zone_3445_d1_vector = zone_3445_d1_vector[is_3445_s_d1_Nan]

is_3445_o_d1_Nan = ~isNaN(zone_3445_d1_vector['o_d1'])

zone_3445_d1_vector = zone_3445_d1_vector[is_3445_o_d1_Nan]

zone_3445_d2_vector = pd.concat([zone_3445_flow_df['f_d2'], zone_3445_speed_df['s_d2'],
zone_3445_occupancy_df['o_d2']], axis=1)

is_3445_f_d2_Nan = ~isNaN(zone_3445_d2_vector['f_d2'])

zone_3445_d2_vector = zone_3445_d2_vector[is_3445_f_d2_Nan]

is_3445_s_d2_Nan = ~isNaN(zone_3445_d2_vector['s_d2'])

zone_3445_d2_vector = zone_3445_d2_vector[is_3445_s_d2_Nan]

is_3445_o_d2_Nan = ~isNaN(zone_3445_d2_vector['o_d2'])

zone_3445_d2_vector = zone_3445_d2_vector[is_3445_o_d2_Nan]

zone_3445_d3_vector = pd.concat([zone_3445_flow_df['f_d3'], zone_3445_speed_df['s_d3'],
zone_3445_occupancy_df['o_d3']], axis=1)

is_3445_f_d3_Nan = ~isNaN(zone_3445_d3_vector['f_d3'])
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zone_3445_d3_vector = zone_3445_d3_vector[is_3445_f_d3_Nan]

is_3445_s_d3_Nan = ~isNaN(zone_3445_d3_vector['s_d3'])

zone_3445_d3_vector = zone_3445_d3_vector[is_3445_s_d3_Nan]

is_3445_o_d3_Nan = ~isNaN(zone_3445_d3_vector['o_d3'])

zone_3445_d3_vector = zone_3445_d3_vector[is_3445_o_d3_Nan]

zone_3445_d4_vector = pd.concat([zone_3445_flow_df['f_d4'], zone_3445_speed_df['s_d4'],
zone_3445_occupancy_df['o_d4']], axis=1)

is_3445_f_d4_Nan = ~isNaN(zone_3445_d4_vector['f_d4'])

zone_3445_d4_vector = zone_3445_d4_vector[is_3445_f_d4_Nan]

is_3445_s_d4_Nan = ~isNaN(zone_3445_d4_vector['s_d4'])

zone_3445_d4_vector = zone_3445_d4_vector[is_3445_s_d4_Nan]

is_3445_o_d4_Nan = ~isNaN(zone_3445_d4_vector['o_d4'])

zone_3445_d4_vector = zone_3445_d4_vector[is_3445_o_d4_Nan]

zone_3445_d1_vector.columns = ['flow','speed','occupancy']

zone_3445_d2_vector.columns = ['flow','speed','occupancy']

zone_3445_d3_vector.columns = ['flow','speed','occupancy']

zone_3445_d4_vector.columns = ['flow','speed','occupancy']

zone_3445_vector =
zone_3445_d1_vector.append(zone_3445_d2_vector.append(zone_3445_d3_vector.append(zone_3445_d4_vector)))

from scipy.stats import multivariate_normal

import numpy as np

mean = np.mean(zone_3445_vector)

cov = zone_3445_vector.cov()

zone_3445_vector['probability'] = multivariate_normal.pdf(zone_3445_vector, mean, cov)

zone_3445_vector['flow'] = zone_3445_vector['flow'].astype(int)

zone_3445_vector['speed'] = zone_3445_vector['speed'].astype(int)

zone_3445_vector['occupancy'] = zone_3445_vector['occupancy'].astype(int)

zone_3445_vector = zone_3445_vector.reset_index()

is_occ_neg = zone_3445_vector['occupancy'] <0
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zone_3445_vector_is_neg_occ = zone_3445_vector[is_occ_neg]

is_speed_neg = zone_3445_vector['speed'] <0

zone_3445_vector_is_neg_speed = zone_3445_vector[is_speed_neg]

is_flow_neg = zone_3445_vector['flow'] <0

zone_3445_vector_is_neg_flow = zone_3445_vector[is_flow_neg]

zone_3445_vector_is_neg =
zone_3445_vector_is_neg_flow.append(zone_3445_vector_is_neg_speed.append(zone_3445_vector_is
_neg_occ))

zone_3445_vector_is_neg = zone_3445_vector_is_neg.drop_duplicates()

zone_3445_vector_is_neg['probability'] = 0

zone_3445_vector = zone_3445_vector.append(zone_3445_vector_is_neg)

zone_3445_vector['index'] = zone_3445_vector.index

zone_3445_vector= zone_3445_vector.drop_duplicates(['index'], take_last = True)

zone_3445_vector.set_index = zone_3445_vector['index']

zone_3445_vector = zone_3445_vector.drop('index', axis =1)

zone_3445_vector = zone_3445_vector.sort_index()

zone_3445_sorted_vector = zone_3445_vector.sort(['probability'])

zone_3445_sorted_vector = zone_3445_sorted_vector.reset_index(drop=True)

is_100th_row = zone_3445_sorted_vector.index % 100 == 0

zone_3445_sorted_vector_is_100th = zone_3445_sorted_vector[is_100th_row]

zone_3445_sorted_vector_is_100th['probability'] =
zone_3445_sorted_vector_is_100th['probability'].apply('{:.8f}'.format)

zone_3445_sorted_vector_is_100th.to_csv("/home/datascience/Downloads/cleaning1/3445/3445.txt",
sep='\t', index=False)
```