Fraud Detection – Report 1

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1. I created a mash and using keyword “sell enron stock” to find out the possible data relating to this keyword.

```
mask = df['clean_content'].str.contains('sell enron stock', na=False)
mask
```

```
# Select the data from df using the mask
df[mask]
```

	Message-ID	From	To
154	<6336501.1075841154311.JavaMail.evans@thyme>	('sarah.palmer@enron.com')	('sarah.palmer@enron.com')

2. I discovered that the key email address 'sarah.palmer@enron.com' may be related to the information we are seeking. Therefore, we created a variable named 'searchfor' to store the email address and used it to find related emails. This can help us determine whether it violated company rules.

```
# ============================================================================
# # that seems to cover internal conversation about enron stock options.
##You are a true detective.
#
# ============================================================================
#EXERCICE
#1) find the email and read it completly to make sure it violeted the companmy rules

searchfor = ['sarah.palmer@enron.com']
# Create flag variable where the emails match the searchfor terms
df['flag'] = np.where((df['To'].str.contains('|'.join(searchfor)) == True), 1, 0)

# Count the values of the flag variable
count = df['flag'].value_counts()
print(count)
```

```
0    2088
1       2
Name: flag, dtype: int64
```

3. Printed the email content.

```
def print_full(x):
    pd.set_option('display.max_rows', None)
    pd.set_option('display.max_columns', None)
    pd.set_option('display.width', 2000)
    pd.set_option('display.float_format', '{:20,.2f}'.format)
    pd.set_option('display.max_colwidth', None)
    print(x)

print_full(df[df['flag']==1])
```

```
                                          Message-ID                          From                  Date  \
135  <19071614.1075841162137.JavaMail.evans@thyme>  ('sarah.palmer@enron.com')  2001-05-23 14:45:32
154   <6336501.1075841154311.JavaMail.evans@thyme>  ('sarah.palmer@enron.com')  2001-06-01 14:53:35
```

4. I focused on the clean content of data 154. The email from Cheryl Fromholzer to Ken Lay urged him to donate the millions of dollars he received from selling Enron stock to assist Enron employees who lost their retirement savings due to the company's bankruptcy and low-income California consumers struggling to pay their energy bills. It highlighted that Enron profited significantly during California's energy crisis, while many of its employees faced financial ruin following the company's collapse. Therefore, we can know that Lay may be related to the company's fraud case because it has conducted company stock operations.