```python
import pandas as pd
import numpy as np
import seaborn as sns
```

```python
data = pd.read_csv('rice_beef_coffee_price_changes.csv')
data.head()
```

	Year	Month	Price_beef_kilo	Price_rice_kilo	Price_coffee_kilo	Inflation_rate	Price_rice_infl	Price_beef_infl	Price_coffee_infl
0	1992	Feb	2.52	0.28	1.51	89.59	0.53	4.78	2.86
1	1992	Mar	2.45	0.28	1.55	89.59	0.53	4.64	2.94
2	1992	Apr	2.38	0.28	1.45	89.59	0.53	4.51	2.75
3	1992	May	2.38	0.27	1.34	89.59	0.51	4.51	2.54
4	1992	Jun	2.33	0.27	1.30	89.59	0.51	4.42	2.46

```python
data.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 360 entries, 0 to 359
Data columns (total 9 columns):
 #   Column             Non-Null Count  Dtype
---  ------             --------------  -----
 0   Year               360 non-null    int64
 1   Month              360 non-null    object
 2   Price_beef_kilo    360 non-null    float64
 3   Price_rice_kilo    360 non-null    float64
 4   Price_coffee_kilo  360 non-null    float64
 5   Inflation_rate     347 non-null    float64
 6   Price_rice_infl    347 non-null    float64
 7   Price_beef_infl    347 non-null    float64
 8   Price_coffee_infl  347 non-null    float64
dtypes: float64(7), int64(1), object(1)
memory usage: 25.4+ KB
```

```python
data.describe()
```

Out[ ]:

	Year	Price_beef_kilo	Price_rice_kilo	Price_coffee_kilo	Inflation_rate	Price_rice_infl	Price_beef_infl	Price_coffee_infl
count	360.000000	360.000000	360.000000	360.000000	347.000000	347.000000	347.000000	347.000000
mean	2006.583333	3.152056	0.364083	2.999722	36.320029	0.476167	4.044006	3.953660
std	8.671906	1.167673	0.131201	1.164001	27.062804	0.135525	0.900393	1.460999
min	1992.000000	1.630000	0.160000	1.170000	-1.290000	0.240000	2.680000	1.770000
25%	1999.000000	2.117500	0.260000	2.265000	12.370000	0.390000	3.185000	3.065000
50%	2007.000000	2.730000	0.345000	2.940000	28.300000	0.460000	4.090000	3.680000
75%	2014.000000	4.220000	0.440000	3.605000	59.700000	0.550000	4.735000	4.565000
max	2022.000000	6.170000	0.910000	6.620000	89.590000	1.120000	6.930000	9.760000

In [ ]:
```python
data.isna().sum()
```

Out[ ]:
```
Year                0
Month               0
Price_beef_kilo     0
Price_rice_kilo     0
Price_coffee_kilo   0
Inflation_rate      13
Price_rice_infl     13
Price_beef_infl     13
Price_coffee_infl   13
dtype: int64
```

In [ ]:
```python
data['Month'].unique()
```

Out[ ]:
```
array(['Feb', 'Mar', 'Apr', 'May', 'Jun', 'Jul', 'Aug', 'Sep', 'Oct',
       'Nov', 'Dec', 'Jan'], dtype=object)
```

Changing data type to categorical and encoding ordinal data

In [ ]:
```python
data['Month'].replace({
    'Jan':1,
```

```
    'Feb':2,
    'Mar':3,
    'Apr':4,
    'May':5,
    'Jun':6,
    'Jul':7,
    'Aug':8,
    'Sep':9,
    'Oct':10,
    'Nov':11,
    'Dec':12
},inplace=True)

data['Month'] = data['Month'].astype('category')
```

Removing null data

```
In [ ]:   data.dropna(axis=0,inplace=True)
```

```
In [ ]:   data.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Index: 347 entries, 0 to 358
Data columns (total 9 columns):
 #   Column            Non-Null Count  Dtype
---  ------            --------------  -----
 0   Year              347 non-null    int64
 1   Month             347 non-null    category
 2   Price_beef_kilo   347 non-null    float64
 3   Price_rice_kilo   347 non-null    float64
 4   Price_coffee_kilo 347 non-null    float64
 5   Inflation_rate    347 non-null    float64
 6   Price_rice_infl   347 non-null    float64
 7   Price_beef_infl   347 non-null    float64
 8   Price_coffee_infl 347 non-null    float64
dtypes: category(1), float64(7), int64(1)
memory usage: 25.1 KB
```
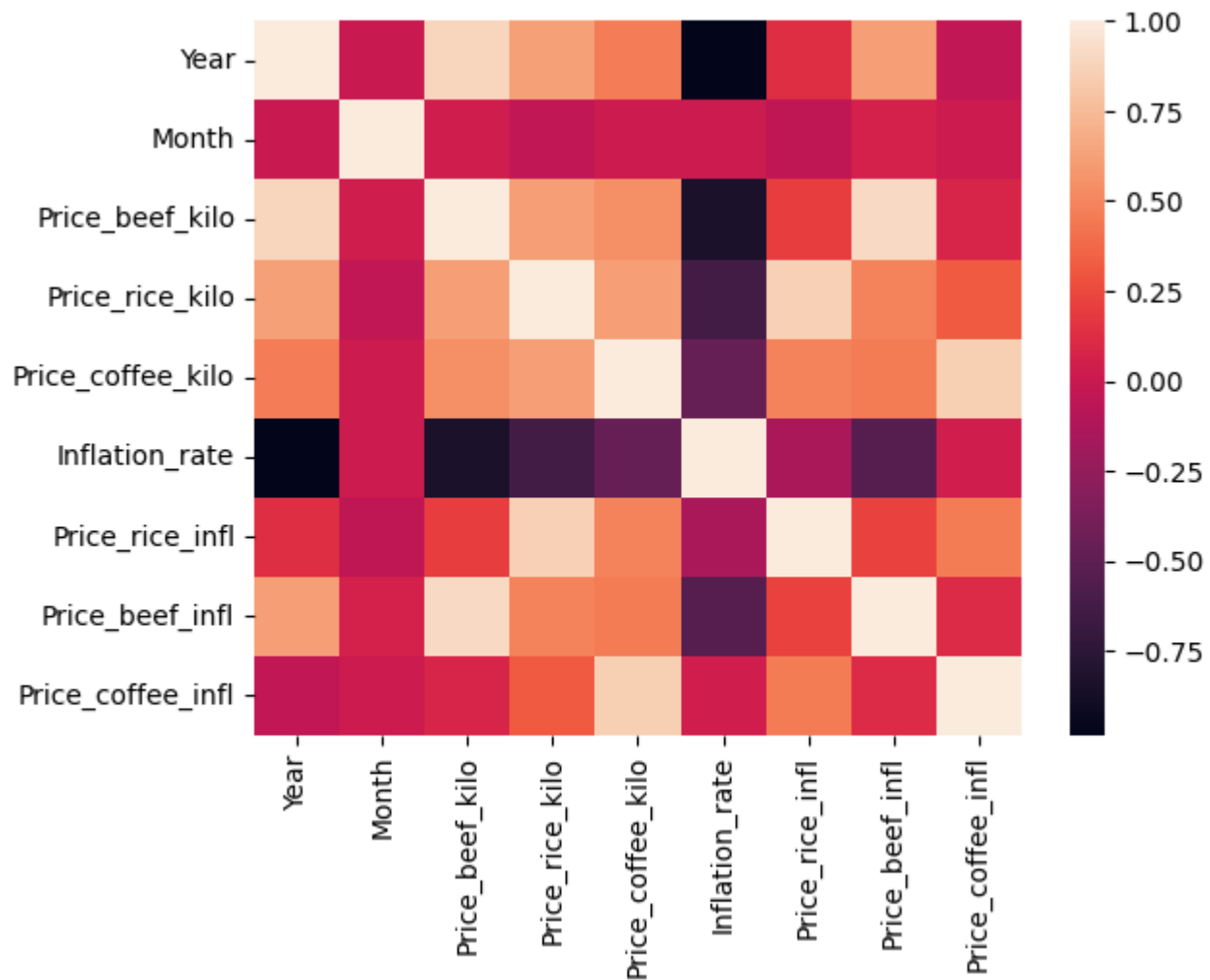
Scaling numerical data

```python
from sklearn.preprocessing import StandardScaler

scale = StandardScaler()
x = data.drop(columns=['Year','Month'])
x_scaled = scale.fit_transform(x)
x_scaled
```

```
array([[-0.54613893, -0.64676398, -1.28083093, ...,  0.39779038,
         0.81859465, -0.74965071],
       [-0.60575209, -0.64676398, -1.24662221, ...,  0.39779038,
         0.66288249, -0.6948146 ],
       [-0.66536524, -0.64676398, -1.33214402, ...,  0.39779038,
         0.51829263, -0.82505036],
       ...,
       [ 2.1620014 ,  0.25606043,  1.96899813, ..., -0.63672015,
         1.76398989,  0.88172356],
       [ 2.37490551,  0.25606043,  2.31108541, ..., -0.63672015,
         2.03092502,  1.15590411],
       [ 2.37490551,  0.25606043,  2.48212904, ..., -0.63672015,
         2.03092502,  1.28613987]])
```

```python
sns.heatmap(data.corr())
```

```
<Axes: >
```

```
In [ ]:  sns.pairplot(data=data, hue='Year')
```

```
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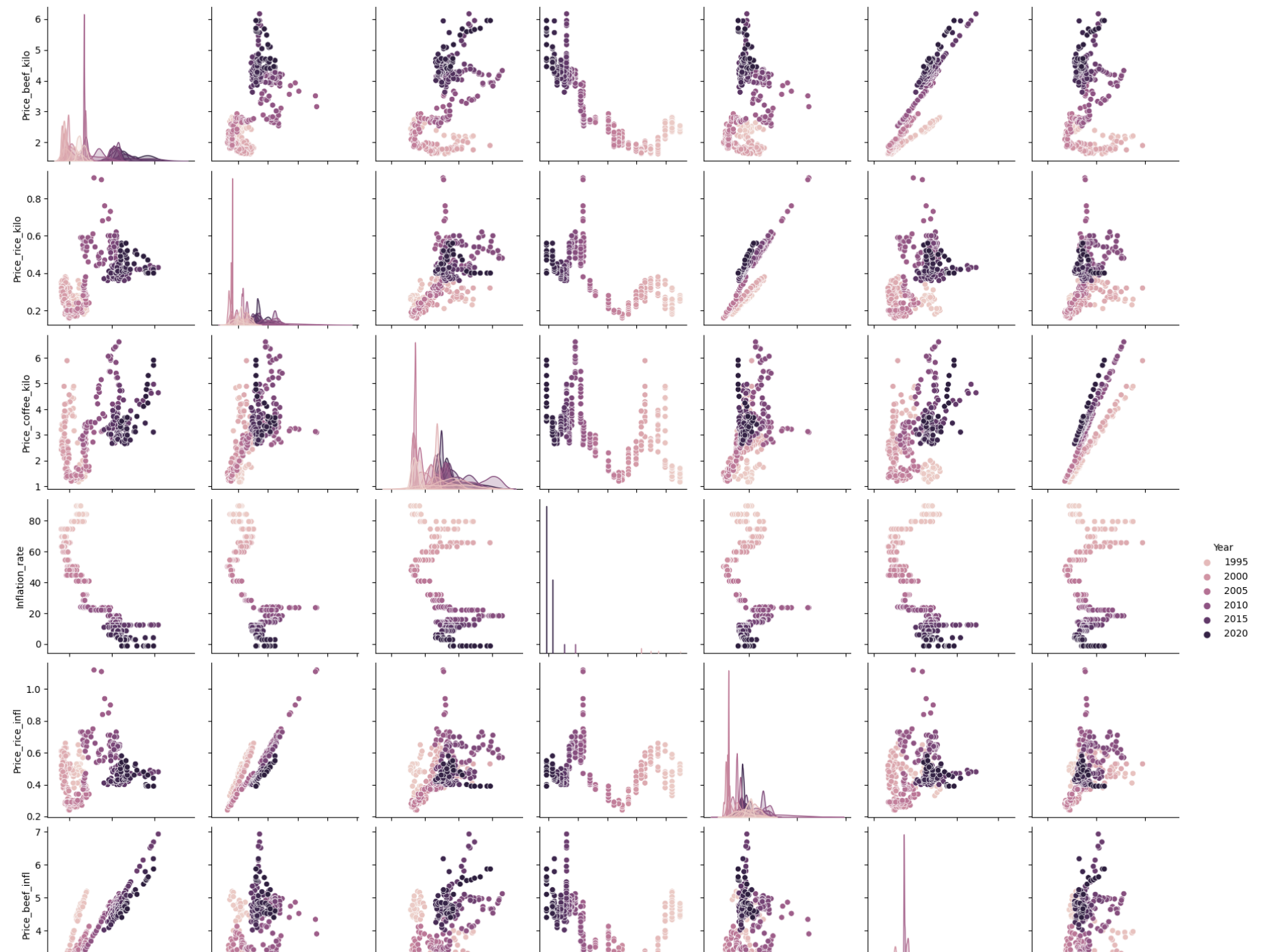
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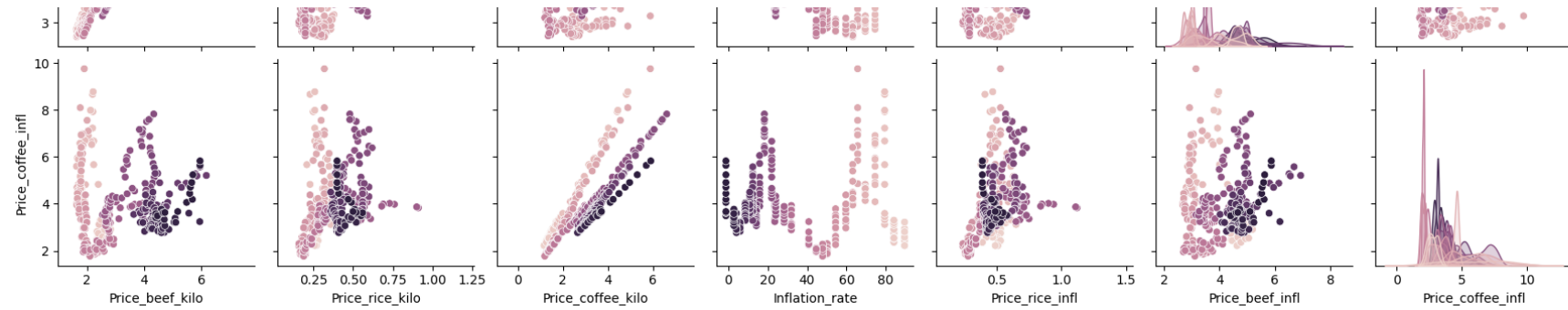
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```
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Out[ ]:   <seaborn.axisgrid.PairGrid at 0x236930da150>

In [ ]: