In [18]:
```
!pip install apyori
```

```
Requirement already satisfied: apyori in c:\users\cylia\anaconda3\lib\site-packages (1.
1.2)
```

In [19]:
```
import numpy as np
import matplotlib.pyplot as plt
import pandas as pd
```

In [20]:
```
dataset = pd.read_csv('Market_Basket_Optimisation.csv', header = None)
transactions = []
for i in range(0, 7501):
    transactions.append([str(dataset.values[i,j]) for j in range(0, 20)])
```

In [21]:
```
from apyori import apriori
rules = apriori(transactions, min_support = 0.003, min_confidence = 0.2, min_lift = 3, m
```

In [22]:
```
results = list(rules)
```

In [ ]:
```
results
```

In [36]:
```
def inspect(results):
    lhs = [tuple(result[2][0][0])[0] for result in results]
    rhs = [tuple(result[2][0][1])[0] for result in results]
    supports = [result[1] for result in results]
    confidences = [result[2][0][2] for result in results]
    lifts = [result[2][0][3] for result in results]
    return list(zip(lhs, rhs, supports, confidences, lifts))
resultsinDataFrame = pd.DataFrame(inspect(results), columns = ['Left Hand Side', 'Right
```

In [37]:
```
# pd.set_option('display.max_rows', None)
```

In [ ]:
```
resultsinDataFrame
```

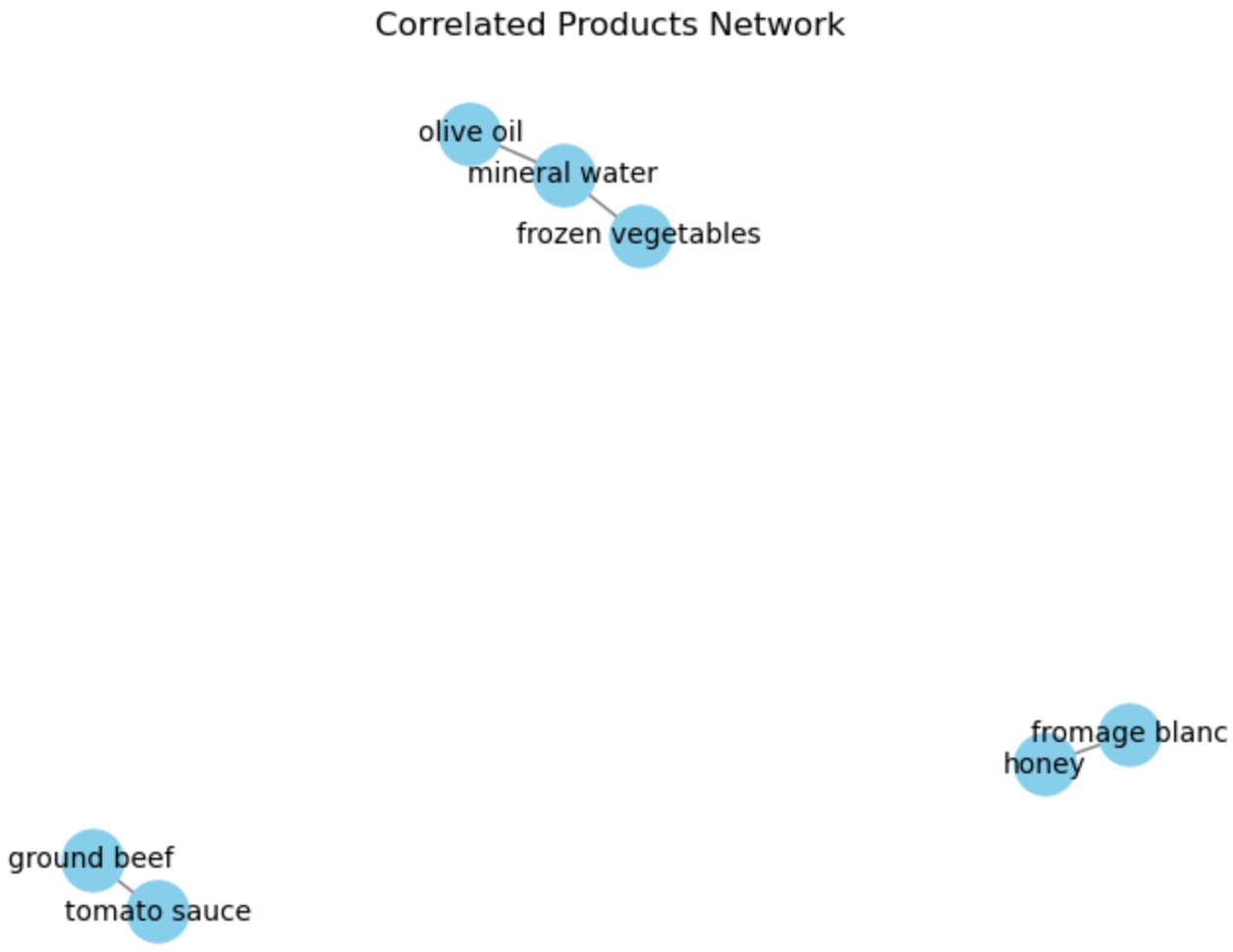
In [34]:
```
resultsinDataFrame.nlargest(n= 10, columns = 'Lift')
```

Out[34]:

	Left Hand Side	Right Hand Side	Support	Confidence	Lift
97	frozen vegetables	mineral water	0.003066	0.383333	7.987176
150	frozen vegetables	mineral water	0.003066	0.383333	7.987176
96	olive oil	mineral water	0.003333	0.294118	6.128268
149	olive oil	mineral water	0.003333	0.294118	6.128268
132	mineral water	olive oil	0.003866	0.402778	6.128268
59	mineral water	olive oil	0.003866	0.402778	6.115863
50	tomato sauce	ground beef	0.003066	0.216981	5.535971
122	tomato sauce	ground beef	0.003066	0.216981	5.535971
28	fromage blanc	honey	0.003333	0.245098	5.178818
3	fromage blanc	honey	0.003333	0.245098	5.164271

In [31]:
```
import networkx as nx
import matplotlib.pyplot as plt

# Sample data
```

```
correlated_products = [
    ("frozen vegetables", "mineral water"),
    ("olive oil", "mineral water"),
    ("mineral water", "olive oil"),
    ("tomato sauce", "ground beef"),
    ("fromage blanc", "honey")
]

# Create a new graph
G = nx.Graph()

# Add edges (product correlations) to the graph
for products in correlated_products:
    G.add_edge(products[0], products[1])

# Draw the network graph
pos = nx.spring_layout(G)
nx.draw(G, pos, with_labels=True, node_size=500, font_size=10, node_color='skyblue', edg

# Set plot title
plt.title("Correlated Products Network")

# Show the graph
plt.show()
```



In [30]:

```
import matplotlib.pyplot as plt

# Data for the chart
association_rules = [
    ('(ground beef) -> (spaghetti)', 0.004799, 0.571429),
    ('(chocolate) -> (ground beef)', 0.003999, 0.441176),
    ('(chocolate) -> (milk)', 0.003999, 0.394737),
```

```
    ('(eggs) -> (spaghetti)', 0.003733, 0.528302),
    ('(mushroom cream sauce) -> (escalope)', 0.005733, 0.300699),
    ('(pasta) -> (escalope)', 0.005866, 0.372881),
    ('(tomato sauce) -> (ground beef)', 0.005333, 0.377358),
    ('(whole wheat pasta) -> (olive oil)', 0.007999, 0.271493),
    ('(pasta) -> (shrimp)', 0.005066, 0.322034),
    ('(light cream) -> (chicken)', 0.004533, 0.290598)
]

# Extracting data for plotting
association_labels = [rule[0] for rule in association_rules]
support_values = [rule[1] for rule in association_rules]
confidence_values = [rule[2] for rule in association_rules]

# Creating the bar chart
plt.figure(figsize=(10, 6))
plt.barh(range(len(association_rules)), support_values, align='center', alpha=0.8, color
plt.barh(range(len(association_rules)), confidence_values, align='center', alpha=0.6, co

# Customizing the chart
plt.yticks(range(len(association_rules)), association_labels)
plt.xlabel('Values')
plt.title('Top 10 Association Rules')

# Adding a legend
plt.legend(loc='lower right')

# Displaying the chart
plt.show()
```