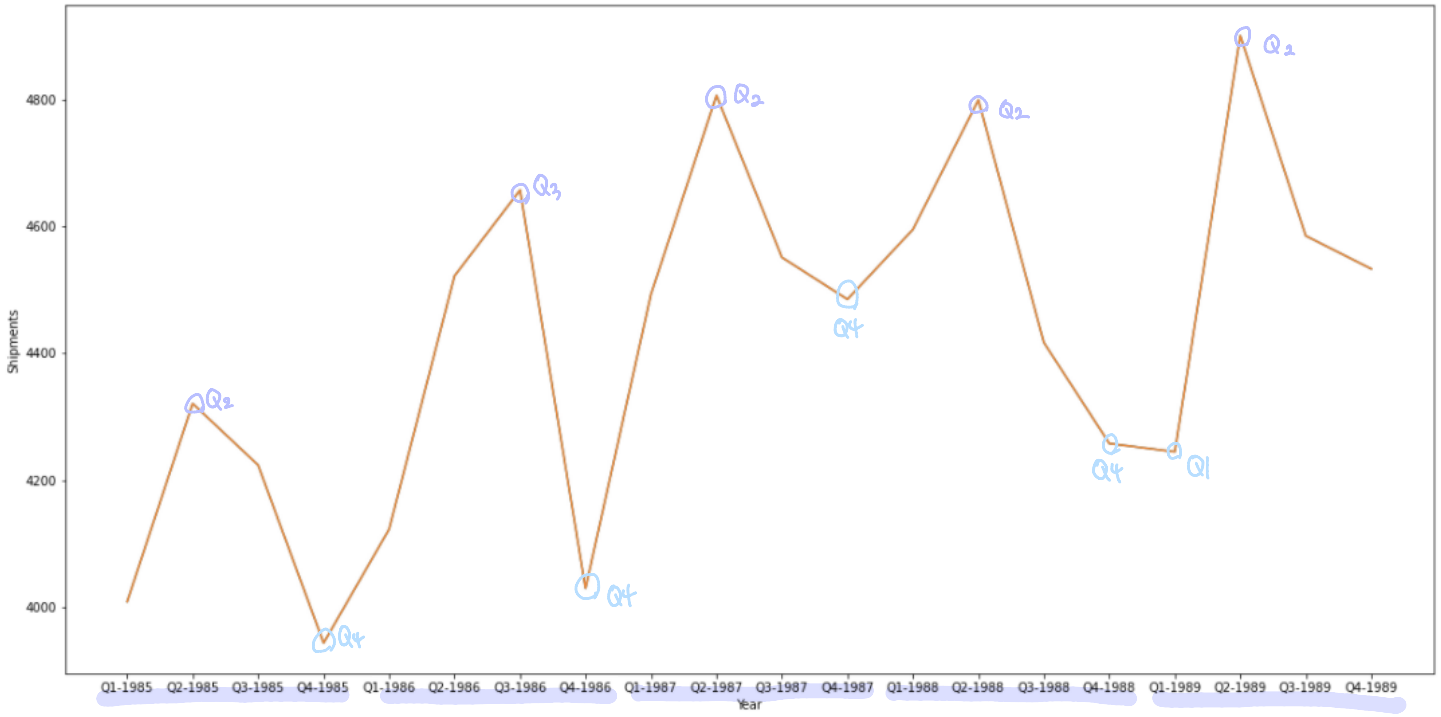
<연습문제>

#3.1 (a~b)

n [ ]:
```
#a,b
```

n [2]:
```
appliance_df = pd.read_csv('ApplianceShipments.csv', squeeze=True)
```

n [8]:
```
plt.plot(appliance_df['Quarter'],appliance_df['Shipments'])
ship_ts = pd.Series(appliance_df.Shipments.values, index=appliance_df.Quarter)
ship_ts.plot(legend=False, figsize=[20,10]) #figsize= x,y축 길이
plt.xlabel('Year')
plt.ylabel('Shipments')
plt.show()
```



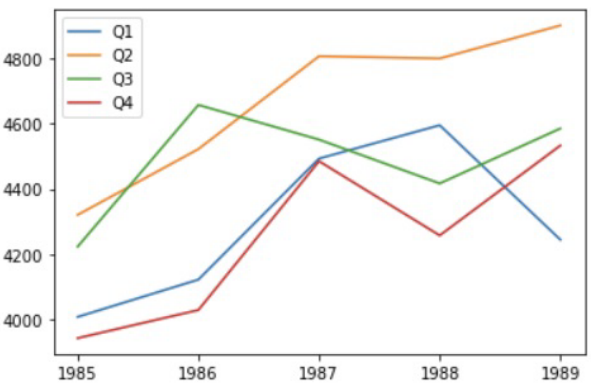
3.1.C

In [ ]:
```
#c
```

In [38]:
```
appliance_df['Year']=appliance_df['Quarter'].str[3:]
appliance_df['Quarter']=appliance_df['Quarter'].str[:2]
```

In [39]:
```
q1_r = appliance_df[appliance_df['Quarter']=="Q1"]
q2_r = appliance_df[appliance_df['Quarter']=="Q2"]
q3_r = appliance_df[appliance_df['Quarter']=="Q3"]
q4_r = appliance_df[appliance_df['Quarter']=="Q4"]
plt.plot(q1_r['Year'],q1_r['Shipments'],label="Q1")
plt.plot(q2_r['Year'],q2_r['Shipments'],label="Q2")
plt.plot(q3_r['Year'],q3_r['Shipments'],label="Q3")
plt.plot(q4_r['Year'],q4_r['Shipments'],label="Q4")
plt.legend()
```

Out[39]:
```
<matplotlib.legend.Legend at 0x24294d98730>
```

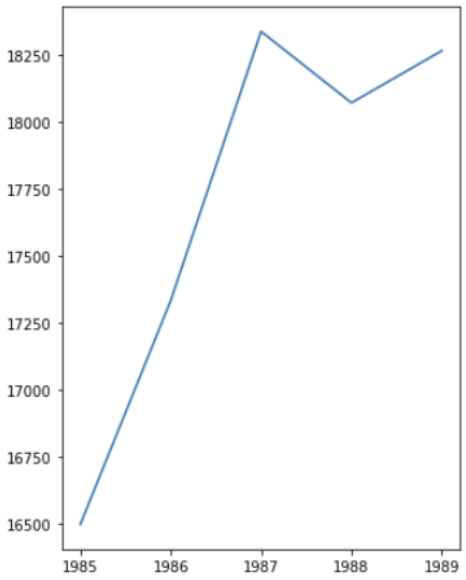


#3.1.d

In [14]:
```
#d
```

In [12]:
```
appliance_df=appliance_df.groupby(by=["Year"], as_index=False).sum()
```

In [13]:
```
plt.figure(figsize=(5,7))
plt.plot(appliance_df['Year'],appliance_df['Shipments'])
plt.show()
```



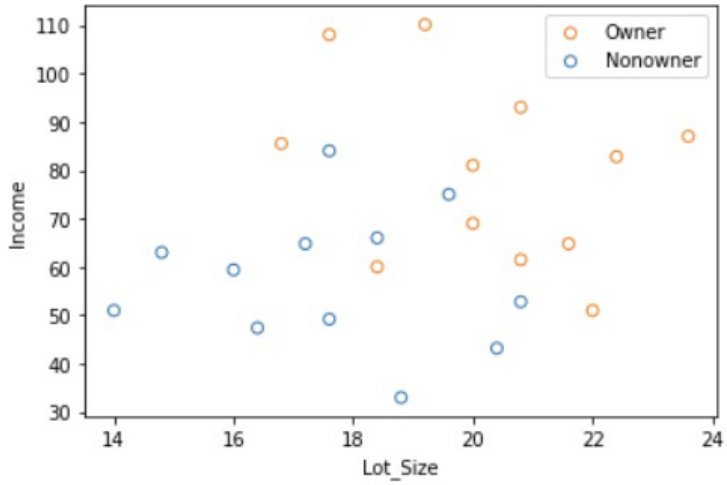
#3.2

In [54]:
```
#연습문제3.2
```

In [ ]:
```
#a
```

In [74]:
```
riding_df=pd.read_csv('RidingMowers.csv')
```

In [73]:
```
riding_df=pd.read_csv('RidingMowers.csv')
_, ax = plt.subplots()
for x,y in ("Owner", 'C1'), ("Nonowner", 'C0'):
    subset_df = riding_df[riding_df.Ownership == x]
    ax.scatter(subset_df.Lot_Size, subset_df.Income, color='none', edgecolor=y)
ax.set_xlabel('Lot_Size')
ax.set_ylabel('Income')
ax.legend(["Owner", "Nonowner"])
plt.show()
```



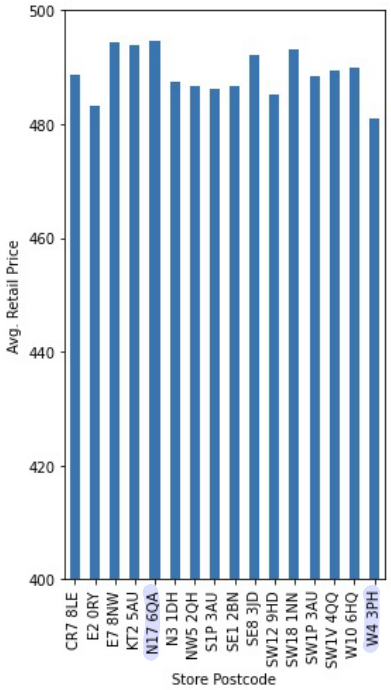
3.3.a

In [31]:
```
#연습문제3.3
```

In [55]:
```
laptop_df=pd.read_csv('LaptopSalesJanuary2008.csv', squeeze=True)
laptop_df = laptop_df.rename(columns={'Retail Price': 'Retail_Price'})
```

In [ ]:
```
#a
```

In [53]:
```
ax = laptop_df.groupby('Store Postcode').mean().Retail_Price.plot(ylim=[400,500],kind='bar', figsize=[4,7]) #16개의 매장 존재
ax.set_ylabel('Avg. Retail Price')
plt.tight_layout() #메소드는 서브 플롯간에 올바른 간격을 자동으로 유지합니다.
plt.show()
#판매량 제일 높은 매장:N17 6QA
#판매량 제일 낮은 매장:W4 3PH
```



3.3.b

In [44]:
```
#b
```

In [63]:
```
laptop_df.boxplot(column='Retail_Price', by='Store Postcode',figsize=(10,10))
plt.suptitle('')  # Suppress the overall title
plt.xticks(fontsize=10,rotation=90)
plt.tight_layout()  # Increase the separation between the plots

plt.show()
```