In [16]:
```
import pandas as pd
import matplotlib.pyplot as plt
from sklearn.linear_model import LinearRegression
from sklearn.preprocessing import LabelEncoder, OneHotEncoder
from sklearn.compose import ColumnTransformer
```

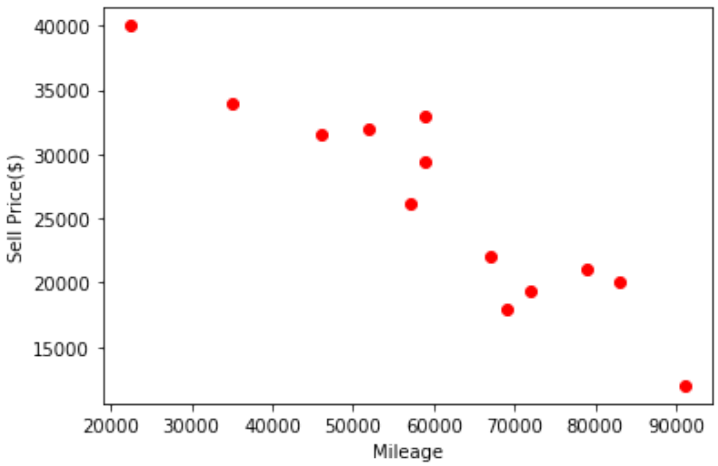
In [17]:
```
df = pd.read_csv('carlogistic.csv')
df
```

Out[17]:

	Car Model	Mileage	Sell Price($)	Age(yrs)
0	BMW X5	69000	18000	6
1	BMW X5	35000	34000	3
2	BMW X5	57000	26100	5
3	BMW X5	22500	40000	2
4	BMW X5	46000	31500	4
5	Audi A5	59000	29400	5
6	Audi A5	52000	32000	5
7	Audi A5	72000	19300	6
8	Audi A5	91000	12000	8
9	Mercedez Benz C class	67000	22000	6
10	Mercedez Benz C class	83000	20000	7
11	Mercedez Benz C class	79000	21000	7
12	Mercedez Benz C class	59000	33000	5

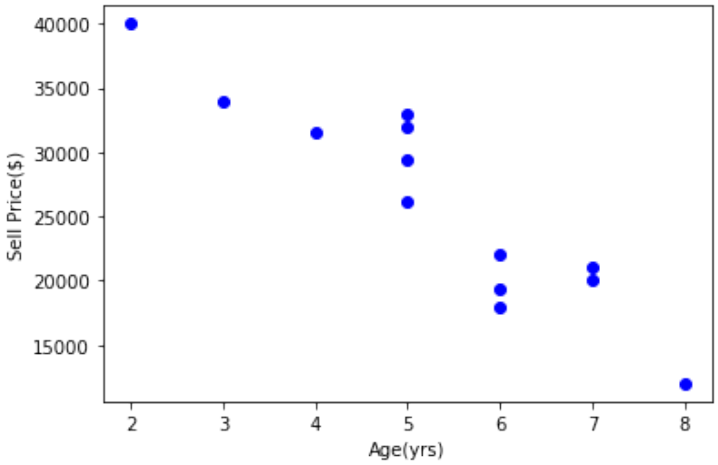
In [18]:
```
%matplotlib inline
plt.xlabel('Mileage')
plt.ylabel('Sell Price($)')
plt.scatter(df['Mileage'],df['Sell Price($)'],color='red')
```

Out[18]:
```
<matplotlib.collections.PathCollection at 0x222a2ca00a0>
```



In [19]:
```
%matplotlib inline
plt.xlabel('Age(yrs)')
plt.ylabel('Sell Price($)')
plt.scatter(df['Age(yrs)'],df['Sell Price($)'],color='blue')
```

Out[19]:
```
<matplotlib.collections.PathCollection at 0x222a28bc0d0>
```



In [20]:
```
le = LabelEncoder()
dfle = df
dfle['Car Model'] = le.fit_transform(dfle['Car Model'])
dfle
```

Out[20]:

	Car Model	Mileage	Sell Price($)	Age(yrs)
0	1	69000	18000	6
1	1	35000	34000	3
2	1	57000	26100	5
3	1	22500	40000	2
4	1	46000	31500	4
5	0	59000	29400	5
6	0	52000	32000	5
7	0	72000	19300	6
8	0	91000	12000	8
9	2	67000	22000	6
10	2	83000	20000	7
11	2	79000	21000	7
12	2	59000	33000	5

In [21]:
```
X = dfle[['Car Model','Mileage','Age(yrs)']].values
X
```

Out[21]:
```
array([[    1, 69000,     6],
       [    1, 35000,     3],
       [    1, 57000,     5],
       [    1, 22500,     2],
       [    1, 46000,     4],
       [    0, 59000,     5],
       [    0, 52000,     5],
       [    0, 72000,     6],
       [    0, 91000,     8],
       [    2, 67000,     6],
       [    2, 83000,     7],
       [    2, 79000,     7],
       [    2, 59000,     5]], dtype=int64)
```

In [22]:
```
Y = dfle[['Sell Price($)']].values
Y
```

Out[22]:
```
array([[18000],
       [34000],
       [26100],
       [40000],
       [31500],
       [29400],
       [32000],
       [19300],
       [12000],
       [22000],
       [20000],
       [21000],
       [33000]], dtype=int64)
```

In [23]:
```
ct = ColumnTransformer([('Car Model', OneHotEncoder(), [0])], remainder = 'passthrough'
```

In [24]:
```
X=ct.fit_transform(X)
X
```

Out[24]:
```
array([[0.00e+00, 1.00e+00, 0.00e+00, 6.90e+04, 6.00e+00],
       [0.00e+00, 1.00e+00, 0.00e+00, 3.50e+04, 3.00e+00],
       [0.00e+00, 1.00e+00, 0.00e+00, 5.70e+04, 5.00e+00],
       [0.00e+00, 1.00e+00, 0.00e+00, 2.25e+04, 2.00e+00],
       [0.00e+00, 1.00e+00, 0.00e+00, 4.60e+04, 4.00e+00],
       [1.00e+00, 0.00e+00, 0.00e+00, 5.90e+04, 5.00e+00],
       [1.00e+00, 0.00e+00, 0.00e+00, 5.20e+04, 5.00e+00],
       [1.00e+00, 0.00e+00, 0.00e+00, 7.20e+04, 6.00e+00],
       [1.00e+00, 0.00e+00, 0.00e+00, 9.10e+04, 8.00e+00],
       [0.00e+00, 0.00e+00, 1.00e+00, 6.70e+04, 6.00e+00],
       [0.00e+00, 0.00e+00, 1.00e+00, 8.30e+04, 7.00e+00],
       [0.00e+00, 0.00e+00, 1.00e+00, 7.90e+04, 7.00e+00],
       [0.00e+00, 0.00e+00, 1.00e+00, 5.90e+04, 5.00e+00]])
```

In [25]:
```
X=X[:,1:]
X
```

Out[25]:
```
array([[1.00e+00, 0.00e+00, 6.90e+04, 6.00e+00],
       [1.00e+00, 0.00e+00, 3.50e+04, 3.00e+00],
       [1.00e+00, 0.00e+00, 5.70e+04, 5.00e+00],
       [1.00e+00, 0.00e+00, 2.25e+04, 2.00e+00],
       [1.00e+00, 0.00e+00, 4.60e+04, 4.00e+00],
       [0.00e+00, 0.00e+00, 5.90e+04, 5.00e+00],
       [0.00e+00, 0.00e+00, 5.20e+04, 5.00e+00],
       [0.00e+00, 0.00e+00, 7.20e+04, 6.00e+00],
       [0.00e+00, 0.00e+00, 9.10e+04, 8.00e+00],
       [0.00e+00, 1.00e+00, 6.70e+04, 6.00e+00],
       [0.00e+00, 1.00e+00, 8.30e+04, 7.00e+00],
       [0.00e+00, 1.00e+00, 7.90e+04, 7.00e+00],
       [0.00e+00, 1.00e+00, 5.90e+04, 5.00e+00]])
```

In [26]:
```
model1 = LinearRegression()
model1.fit(X,Y)
```

Out[26]:
```
LinearRegression()
```

In [28]:
```
mercedez = model1.predict([[0, 1, 45000, 4]])
mercedez
```

Out[28]:
```
array([[36991.31721062]])
```

In [29]:
```
bmw = model1.predict([[1, 0, 86000, 7]])
bmw
```

Out[29]:
```
array([[11080.74313219]])
```

In [30]:
```
model1.score(X,Y)
```

Out[30]:
```
0.9417050937281082
```