In [1]:
```
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
import random
```

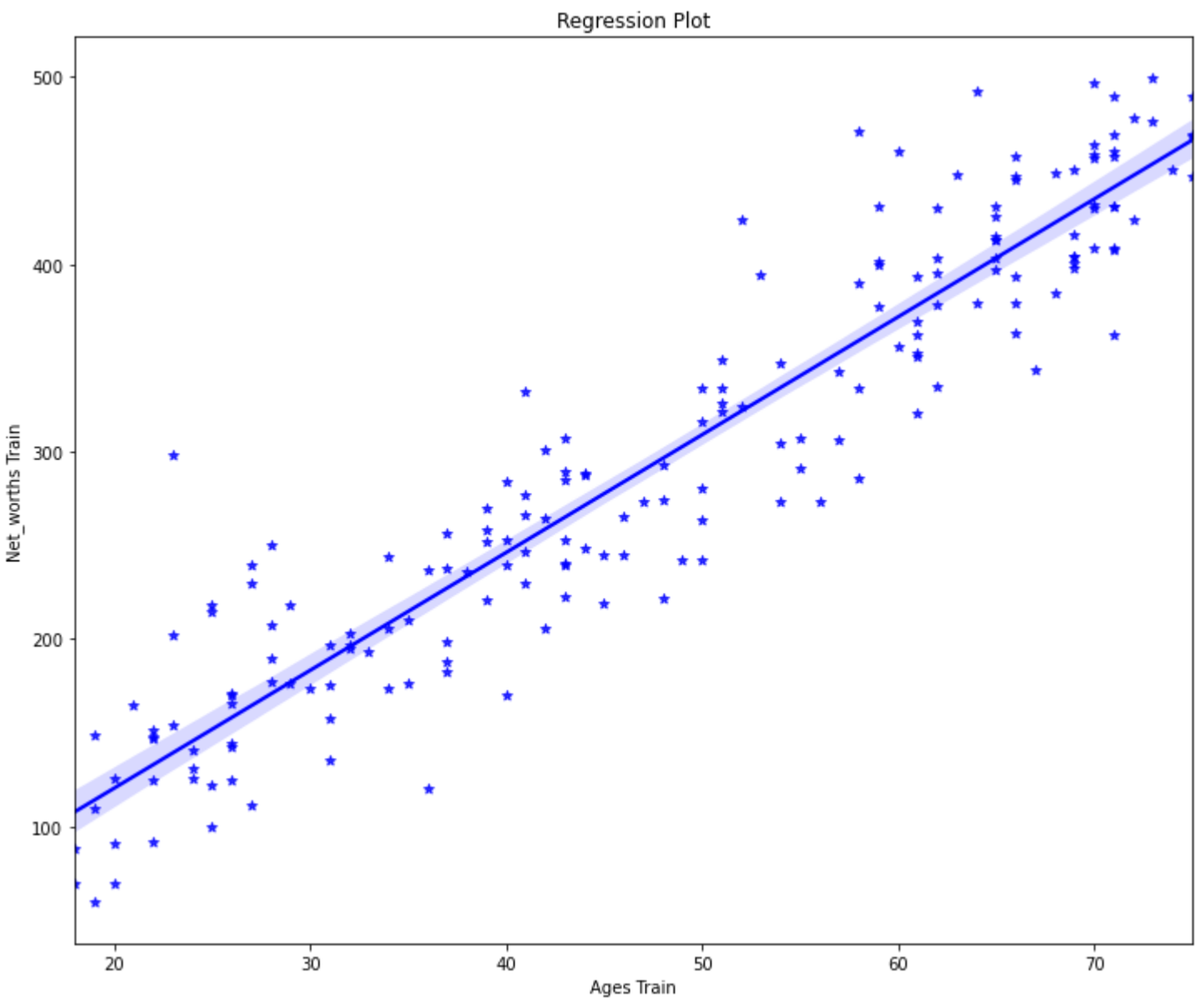
In [2]:
```
def studentReg(ages_train,net_worths_train):
    from sklearn.linear_model import LinearRegression
    reg = LinearRegression().fit(ages_train,net_worths_train)
    return reg
```

In [4]:
```
np.random.seed(42)

ages = []
for ii in range(250):
    ages.append(random.randint(18,75))

net_worths = [ii * 6.25+np.random.normal(scale=40) for ii in ages]

ages = np.reshape(np.array(ages),(len(ages),1))

net_worths = np.reshape(np.array(net_worths),(len(net_worths),1))

from sklearn.model_selection import train_test_split

ages_train, ages_test, net_worths_train, net_worths_test = train_test_split(ages,net_worths)

reg1 = studentReg(ages_train,net_worths_train)

print("Coefficient=", reg1.coef_)
print("Intercept=", reg1.intercept_)
print("Training data score=", reg1.score(ages_train,net_worths_train))
print("Testing data score=", reg1.score(ages_test,net_worths_test))
```

```
Coefficient= [[6.28799658]]
Intercept= [-5.36134805]
Training data score= 0.8818993588187447
Testing data score= 0.8967697873931636
```

In [5]:
```
plt.figure(figsize=(12,10))
sns.regplot(x=ages_train,y=net_worths_train,scatter=True,color="b",marker="*") #reg plot
plt.xlabel("Ages Train")
plt.ylabel("Net_worths Train")
plt.title("Regression Plot")
```

Out[5]:
```
Text(0.5, 1.0, 'Regression Plot')
```



In [6]:
```
plt.figure(figsize=(12,10))
plt.scatter(ages_train,net_worths_train,color="b",label="Train Data") #scatter plot
plt.scatter(ages_test,net_worths_test,color="r",label="Test Data")
plt.plot(ages_test,reg1.predict(ages_test)) #plotting predicted line for ages_test
plt.xlabel("Ages")
plt.ylabel("Net_worths")
plt.legend(loc=2)
plt.show()
```


In [ ]: