In [46]:
```
import pandas as pd
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt
```

In [47]:
```
df=pd.read_csv("https://gist.githubusercontent.com/stoicsapien1/72729ffbcd4b75b7bedd4b01b65bc9b5/raw/bf95a2e30fceb9f2ae990eac8379
```

In [48]:
```
df.head()
```

Out[48]:

	Gender	Height	Weight
0	Male	73.847017	241.893563
1	Male	68.781904	162.310473
2	Male	74.110105	212.740856
3	Male	71.730978	220.042470
4	Male	69.881796	206.349801

In [49]:
```
df["Gender"]=df["Gender"].map({"Male":0,"Female":1})
```

In [50]:
```
df
```

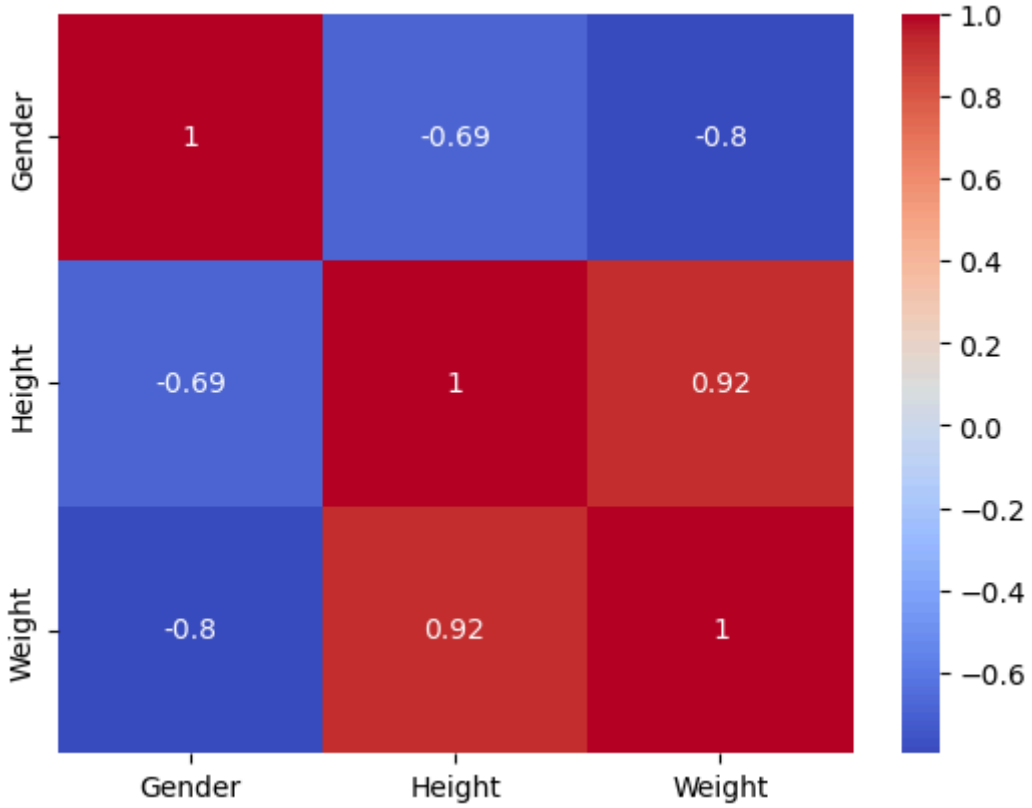
Out[50]:

	Gender	Height	Weight
0	0	73.847017	241.893563
1	0	68.781904	162.310473
2	0	74.110105	212.740856
3	0	71.730978	220.042470
4	0	69.881796	206.349801
...	...	...	...
9995	1	66.172652	136.777454
9996	1	67.067155	170.867906
9997	1	63.867992	128.475319
9998	1	69.034243	163.852461
9999	1	61.944246	113.649103

10000 rows × 3 columns

In [51]:
```
sns.heatmap(df.corr(),annot=True,cmap="coolwarm")
```

Out[51]:
```
<Axes: >
```



In [52]:
```
from sklearn.linear_model import LinearRegression
lr=LinearRegression()
```

In [53]:
```
from sklearn.model_selection import train_test_split
```

In [54]:
```
X=df.iloc[:,0:2]
y=df.iloc[:,-1]
```

In [55]:
```
X
```

Out[55]:

	Gender	Height
0	0	73.847017
1	0	68.781904
2	0	74.110105
3	0	71.730978
4	0	69.881796
...	...	...
9995	1	66.172652
9996	1	67.067155
9997	1	63.867992
9998	1	69.034243
9999	1	61.944246

10000 rows × 2 columns

In [56]:
```
y
```

Out[56]:
```
0       241.893563
1       162.310473
2       212.740856
3       220.042470
4       206.349801
           ...
9995    136.777454
9996    170.867906
9997    128.475319
9998    163.852461
9999    113.649103
Name: Weight, Length: 10000, dtype: float64
```

In [57]:
```
from sklearn.model_selection import train_test_split
X_train,X_test,y_train,y_test=train_test_split(X,y,test_size=0.25,random_state=42)
```

In [58]:
```
lr.fit(X_train,y_train)
```

Out[58]:

LinearRegression

```
LinearRegression()
```

In [59]:

```
X_test
```

Out[59]:

	Gender	Height
6252	1	68.687232
4684	0	68.829334
1731	0	66.398128
4742	0	71.929340
4521	0	67.042903
...	...	...
4862	0	70.534667
7025	1	65.873106
7647	1	60.646988
7161	1	67.122422
73	0	67.595269

2500 rows × 2 columns

In [60]:

```
y_test
```

Out[60]:
```
6252    173.115813
4684    195.162042
1731    170.217451
4742    215.049660
4521    182.721452
           ...
4862    203.763292
7025    155.915544
7647    123.862430
7161    165.324899
73      163.108002
Name: Weight, Length: 2500, dtype: float64
```

In [61]:
```
y_pred=lr.predict(X_test)
```

In [62]:
```
y_pred
```

Out[62]:
```
array([165.57063635, 185.78881695, 171.26964188, ..., 117.55424148,
       156.22557983, 178.41897264])
```

In [63]:
```
m=lr.coef_
```

In [64]:
```
m
```

Out[64]:
```
array([-19.36954901,   5.97200677])
```

In [68]:
```
X_test["ypred"]=y_pred
```

In [69]:
```
X_test
```

Out[69]:

	Gender	Height	ypred
6252	1	68.687232	165.570636
4684	0	68.829334	185.788817
1731	0	66.398128	171.269642
4742	0	71.929340	204.302076
4521	0	67.042903	175.120240
...	...	...	...
4862	0	70.534667	195.973080
7025	1	65.873106	148.764658
7647	1	60.646988	117.554241
7161	1	67.122422	156.225580
73	0	67.595269	178.418973

2500 rows × 3 columns

In [70]:
```
X_test["y_test"]=y_test
```

In [71]:
```
X_test
```

Out[71]:

	Gender	Height	ypred	y_test
6252	1	68.687232	165.570636	173.115813
4684	0	68.829334	185.788817	195.162042
1731	0	66.398128	171.269642	170.217451
4742	0	71.929340	204.302076	215.049660
4521	0	67.042903	175.120240	182.721452
...	...	...	...	...
4862	0	70.534667	195.973080	203.763292
7025	1	65.873106	148.764658	155.915544
7647	1	60.646988	117.554241	123.862430
7161	1	67.122422	156.225580	165.324899
73	0	67.595269	178.418973	163.108002

2500 rows × 4 columns

In [72]:
```
lr.predict([[0,74]])
```

```
C:\Users\lucius seneca\anaconda3\lib\site-packages\sklearn\base.py:493: UserWarning: X does not have valid feature names, but LinearRegression was fitted with feature names
  warnings.warn(
```

Out[72]:
```
array([216.66807065])
```

In [74]:
```
from sklearn.metrics import mean_absolute_error,mean_squared_error,r2_score
```

In [75]:
```
r2_score(y_test,y_pred)
```

Out[75]:
```
0.9026809109766419
```

In [76]:
```
mean_absolute_error(y_test,y_pred)
```

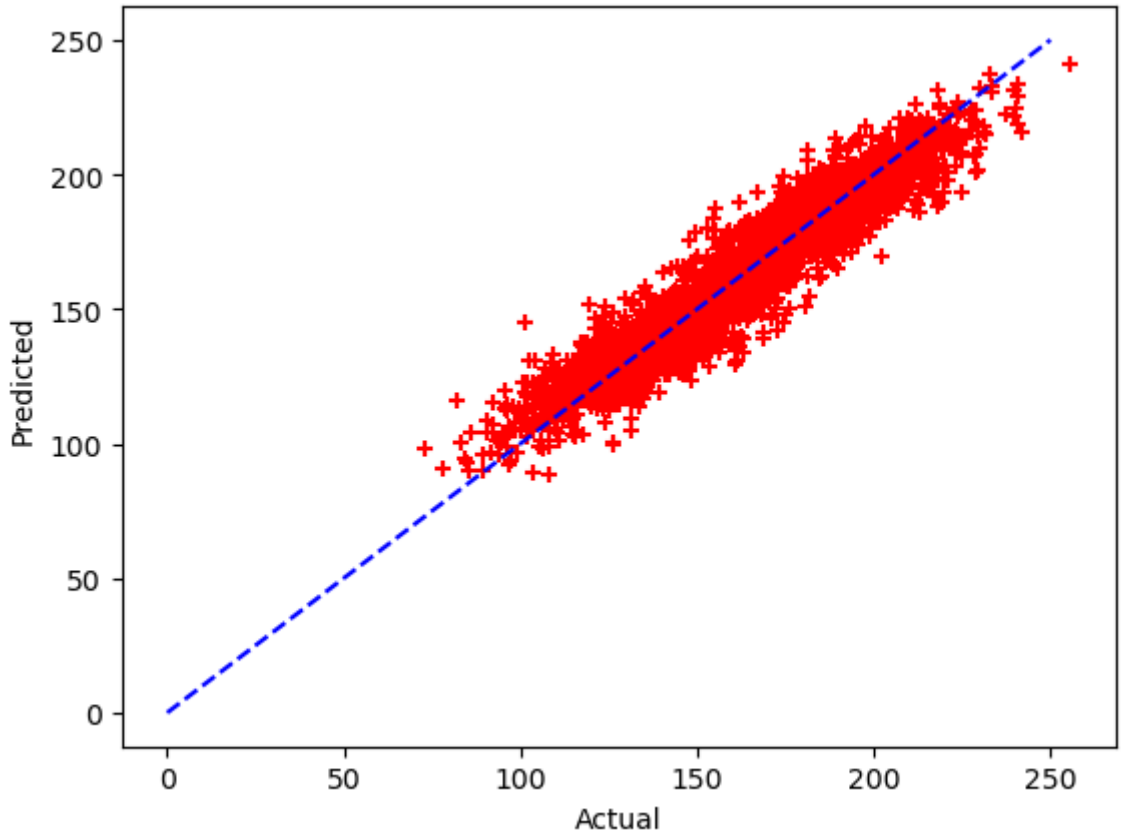
Out[76]:
```
7.993905209333191
```

In [77]:
```
mean_squared_error(y_test,y_pred)
```

Out[77]:
```
101.86825136044213
```

In [84]:
```
plt.scatter(y_test,y_pred,marker="+",color="red")
plt.xlabel("Actual")
plt.ylabel("Predicted")
plt.plot([0, 250], [0, 250], color='blue', linestyle='--', label='y=x')
```

Out[84]:
```
[<matplotlib.lines.Line2D at 0x198c7f32050>]
```



In [ ]: