```python
import pandas as pd
import matplotlib.pyplot as plt
from sklearn.datasets import load_iris
data = load_iris()
df = pd.DataFrame(data['data'], columns=data['feature_names'])
df['target'] = data['target']
df.head()
```

In [46]:

Out[46]:

	sepal length (cm)	sepal width (cm)	petal length (cm)	petal width (cm)	target
0	5.1	3.5	1.4	0.2	0
1	4.9	3.0	1.4	0.2	0
2	4.7	3.2	1.3	0.2	0
3	4.6	3.1	1.5	0.2	0
4	5.0	3.6	1.4	0.2	0

In [61]:
```python
X = df.iloc[:,:].values
y = df.iloc[:,4].values
```

In [62]:
```python
from sklearn.preprocessing import LabelEncoder
label_encoder_y = LabelEncoder()
y = label_encoder_y.fit_transform(y)
```

In [63]:
```python
from sklearn.decomposition import PCA
pca = PCA(n_components=3)
X = pca.fit_transform(X)
```

In [64]:
```python
from mpl_toolkits.mplot3d import Axes3D
fig = plt.figure(1, figsize=(4, 3))
plt.clf()
ax = Axes3D(fig, rect=[0, 0, .95, 1], elev=48, azim=134)
plt.cla()
ax.scatter(X[:, 0], X[:, 1], X[:, 2], c=y,
           cmap=plt.cm.coolwarm)

ax.set_title("First three PCA directions")
ax.set_xlabel("1st eigenvector")
# ax.w_xaxis.set_ticklabels([])

ax.set_ylabel("2nd eigenvector")
# ax.w_yaxis.set_ticklabels([])


ax.set_zlabel("3rd eigenvector")
# ax.w_zaxis.set_ticklabels([])

plt.show()
```
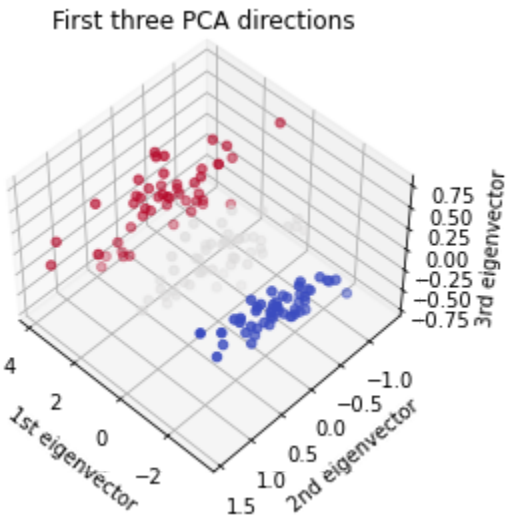

First three PCA directions

In [ ]: