In [1]:
```
import os
```

In [2]:
```
import numpy as np
```

In [3]:
```
from sklearn.model_selection import train_test_split
```

In [4]:
```
from sklearn.svm import SVC
```

In [5]:
```
from sklearn.metrics import accuracy_score
```

In [6]:
```
import cv2
```

In [7]:
```
def extract_features(image_path):
    img = cv2.imread(image_path, cv2.IMREAD_GRAYSCALE)
    resized_img = cv2.resize(img, (64, 64))  # Resize images to a consistent s
    flattened_img = resized_img.flatten()  # Flatten the 2D array to a 1D arra
    return flattened_img
```

In [14]:
```
dataset_path = "G:\\ML\\DS\\task3\\train\\train"
```

In [15]:
```
X = []  # Feature vectors
y = []  # Labels

for category in ["cat", "dog"]:
    category_path = os.path.join(dataset_path, category)
    for filename in os.listdir(category_path):
        if filename.endswith(".jpg"):
            image_path = os.path.join(category_path, filename)
            features = extract_features(image_path)
            X.append(features)
            y.append(category)
```

In [16]:
```
X = np.array(X)
y = np.array(y)
```

In [17]:
```
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, rando
```

In [18]:
```
svm_classifier = SVC(kernel='linear', C=1.0)
svm_classifier.fit(X_train, y_train)
```

Out[18]:
```
SVC(kernel='linear')
```

In a Jupyter environment, please rerun this cell to show the HTML representation or trust the notebook.
On GitHub, the HTML representation is unable to render, please try loading this page with nbviewer.org.

In [19]:
```
y_pred = svm_classifier.predict(X_test)
```

In [20]:
```
accuracy = accuracy_score(y_test, y_pred)
print(f"Accuracy: {accuracy * 100:.2f}%")
```

```
Accuracy: 56.82%
```

In [ ]:
```

```