

In [1]:

```
!pip install tk
from tkinter import *
print("Running")
```

Requirement already satisfied: tk in c:\users\dnhac\anaconda3\lib\site-packages (0.1.0)
Running

In [2]:

```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
from sklearn.datasets import load_wine
wine_data = load_wine()
df = pd.DataFrame(wine_data.data, columns=wine_data.feature_names)
df['target'] = wine_data.target
```

In [3]:

```
from sklearn.model_selection import train_test_split
X_train, X_test, y_train, y_test = train_test_split(df[wine_data.feature_names], df['target'], test_size=0.3, random_state=0)
```

In [4]:

```
from sklearn.ensemble import RandomForestClassifier

rf = RandomForestClassifier(n_estimators=100, random_state=0)
rf.fit(X_train, y_train)
```

Out[4]:

RandomForestClassifier(random_state=0)

In [5]:

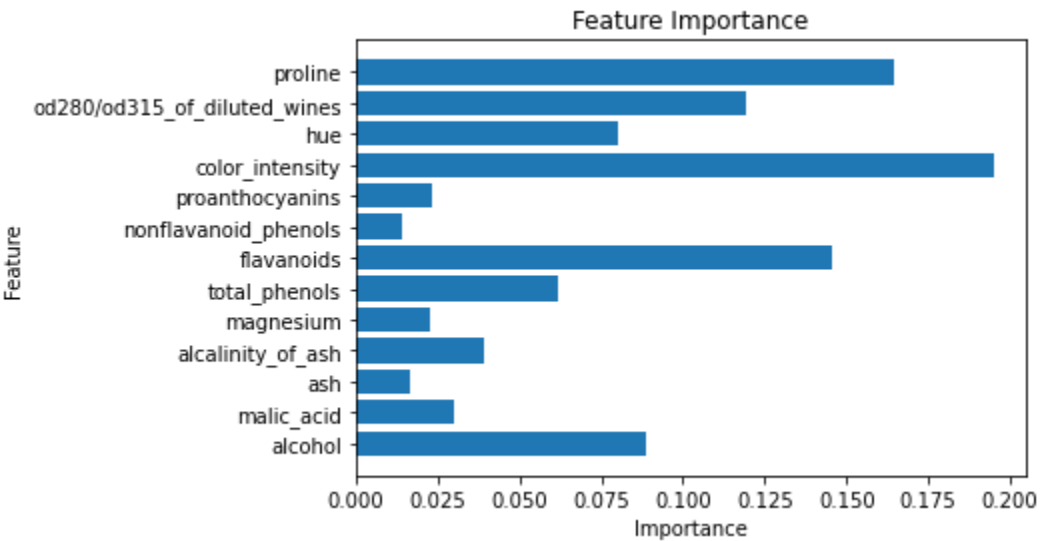
```
from sklearn.metrics import accuracy_score

y_pred = rf.predict(X_test)
accuracy = accuracy_score(y_test, y_pred)
print(f"Accuracy: {accuracy}")
```

Accuracy: 0.9814814814814815

In [7]:

```
importance = rf.feature_importances_
plt.barh(feature_labels, importance)
plt.title("Feature Importance")
plt.xlabel("Importance")
plt.ylabel("Feature")
plt.show()
```



In [6]:

```
import tkinter as tk

def predict_quality():
    features = [float(feet_entry.get()) for feat_entry in feature_entries]
    quality = rf.predict([features])[0]
    quality_label.config(text=f"Predicted Quality: {wine_data.target_names[quality]}")

root = tk.Tk()
root.title("Wine Quality Prediction")

feature_labels = wine_data.feature_names
feature_entries = []
for i, label in enumerate(feature_labels):
    tk.Label(root, text=label).grid(row=i, column=0)
    feat_entry = tk.Entry(root)
    feat_entry.grid(row=i, column=1)
    feature_entries.append(feat_entry)

predict_button = tk.Button(root, text="Predict Quality", command=predict_quality)
predict_button.grid(row=len(feature_labels)+1, column=0)

quality_label = tk.Label(root)
quality_label.grid(row=len(feature_labels)+2, column=0)

root.mainloop()
```

In []:

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