In [1]:
```
# Import important packages
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
```

In [2]:
```
%matplotlib inline
```

In [3]:
```
from sklearn.model_selection import train_test_split
from sklearn.ensemble import RandomForestClassifier
from sklearn.metrics import accuracy_score
from sklearn.preprocessing import StandardScaler, MinMaxScaler
import pandas_profiling
```

In [4]:
```
from matplotlib import rcParams
import warnings
```

In [5]:
```
warnings.filterwarnings("ignore")
```

In [6]:
```
# figure size in inches
rcParams["figure.figsize"] = 10, 6
np.random.seed(42)
```

In [7]:
```
# Load dataset
data = pd.read_csv("pima_indians_diabetes.csv")
```

In [8]:
```
# Show sample of the dataset
data.head(5)
```

Out[8]:

	id	preg	plas	pres	skin	insu	mass	pedi	age	class
0	1	6	148	72	35	0	33.6	0.627	50	tested_positive
1	2	1	85	66	29	0	26.6	0.351	31	tested_negative
2	3	8	183	64	0	0	23.3	0.672	32	tested_positive
3	4	1	89	66	23	94	28.1	0.167	21	tested_negative
4	5	0	137	40	35	168	43.1	2.288	33	tested_positive

In [9]:
```
data.columns
```

Out[9]:
```
Index(['id', 'preg', 'plas', 'pres', 'skin', 'insu', 'mass', 'pedi', 'age',
       'class'],
      dtype='object')
```

In [10]:
```
# Split data into input and taget variable(s)
X = data.drop("class", axis=1)
y = data["class"]
```

In [11]:
```
# Standardize the dataset
scaler = StandardScaler()
X_scaled = scaler.fit_transform(X)
```

In [12]:
```
# split into train and test set
X_train, X_test, y_train, y_test = train_test_split(
    X_scaled, y, stratify=y, test_size=0.10, random_state=42
)
```

In [13]:
```
# create the classifier
classifier = RandomForestClassifier(n_estimators=100)

# Train the model using the training sets
classifier.fit(X_train, y_train)
```

Out[13]:
```
▾ RandomForestClassifier

RandomForestClassifier()
```

In [14]:
```
# predictin on the test set
y_pred = classifier.predict(X_test)
```

In [15]:
```
# Calculate Model Accuracy
print("Accuracy:", accuracy_score(y_test, y_pred))
```

```
Accuracy: 0.7922077922077922
```

In [16]:

```
# check Important features
feature_importances_df = pd.DataFrame(
    {"feature": list(X.columns), "importance": classifier.feature_importances_}
).sort_values("importance", ascending=False)

# Display
feature_importances_df
```

Out[16]:

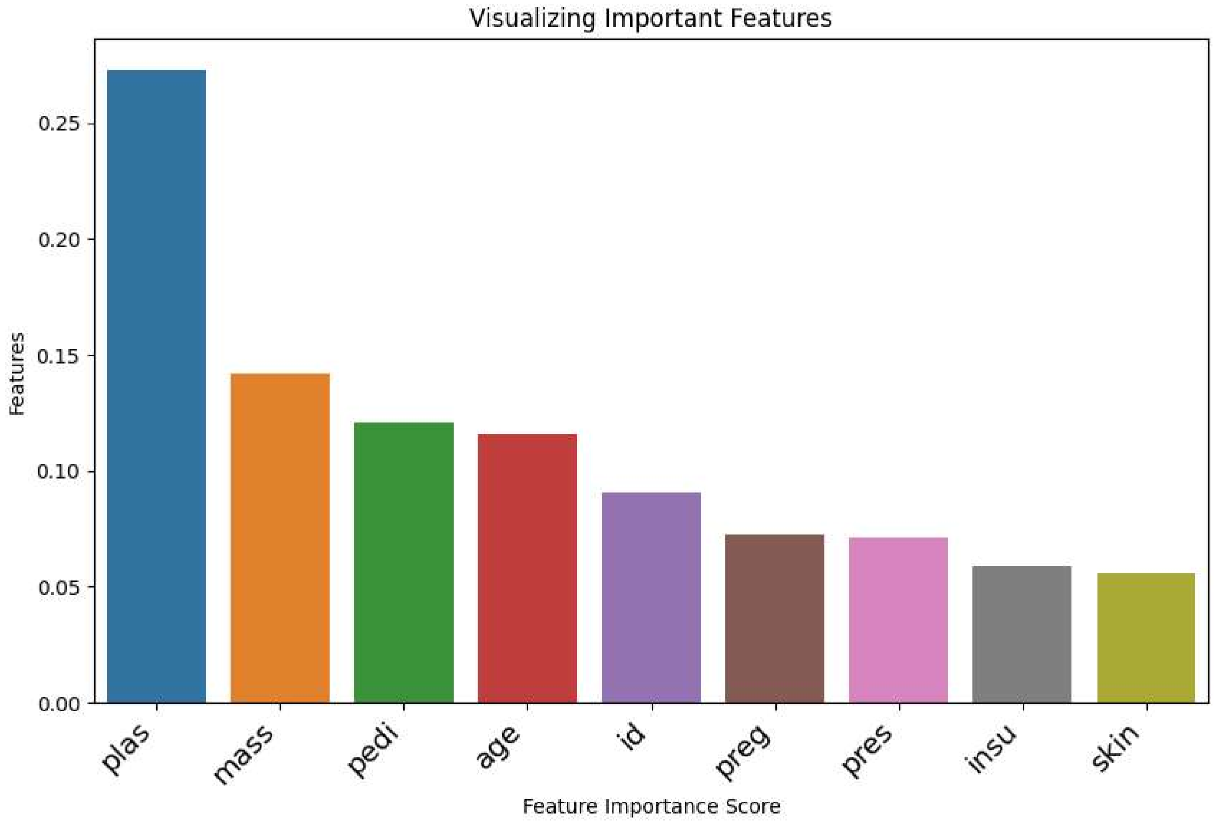
	feature	importance
2	plas	0.272698
6	mass	0.142133
7	pedi	0.120578
8	age	0.116021
0	id	0.090216
1	preg	0.072328
3	pres	0.070957
5	insu	0.059116
4	skin	0.055953

In [17]:

```
# visualize important featuers

# Creating a bar plot
sns.barplot(x=feature_importances_df.feature, y=feature_importances_df.importance
# Add labels to your

plt.xlabel("Feature Importance Score")
plt.ylabel("Features")
plt.title("Visualizing Important Features")
plt.xticks(
    rotation=45, horizontalalignment="right", fontweight="light", fontsize="x-lar
)
plt.show()
```



In [18]:

```
# Load data with selected features
X = data.drop(["class", "skin"], axis=1)
y = data["class"]

# standardize the dataset
scaler = StandardScaler()
X_scaled = scaler.fit_transform(X)

# split into train and test set
X_train, X_test, y_train, y_test = train_test_split(
    X_scaled, y, stratify=y, test_size=0.10, random_state=42
)
```

In [19]:

```
# Create a Random Classifier
clf = RandomForestClassifier(n_estimators=100)

# Train the model using the training sets
clf.fit(X_train, y_train)

# prediction on test set
y_pred = clf.predict(X_test)

# Calculate Model Accuracy,
print("Accuracy:", accuracy_score(y_test, y_pred))
```

```
Accuracy: 0.8311688311688312
```

In [ ]: