```python
import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.ensemble import RandomForestRegressor
from sklearn.metrics import mean_squared_error, r2_score

# Load the data
data = pd.read_csv("empdata.csv")

# Drop rows with missing values
data.dropna(inplace=True)

# Convert Gender and Company Type to one-hot encoded variables
data = pd.get_dummies(data, columns=['Gender', 'Company Type'])

# Replace Yes/No with 1/0 for WFH Setup Available
data['WFH Setup Available'] = data['WFH Setup Available'].replace({'Yes': 1, 'No': 0})

# Fill missing values in 'Resource Allocation' with median
data['Resource Allocation'].fillna(data['Resource Allocation'].median(), inplace=True)

# Split data into features and target variable
X = data.drop(['Employee ID', 'Burn Rate','Date of Joining'], axis=1)
y = data['Burn Rate']

# Split data into training and testing sets
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=42)

# Initialize and train the Random Forest Regressor model
rf_model = RandomForestRegressor(random_state=42)
rf_model.fit(X_train, y_train)

# Make predictions on the test set
y_pred = rf_model.predict(X_test)

# Calculate accuracy metrics
mse = mean_squared_error(y_test, y_pred)
r2 = r2_score(y_test, y_pred)

print("Mean Squared Error:", mse)
print("R^2 Score:", r2)
```

```
Mean Squared Error: 0.003368592548960564
R^2 Score: 0.9122871687405746
```

```python
import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.ensemble import RandomForestRegressor
from sklearn.metrics import mean_squared_error, r2_score


data = pd.read_csv("empdata.csv")
data.head()
```

	Employee ID	Date of Joining	Gender	Company Type	WFH Setup Available	Designation	Resource Allocation	Ment Fatig Scor
0	fffe32003000360033003200	2008-09-30	Female	Service	No	2.0	3.0	3
1	fffe3700360033003500	2008-11-30	Male	Service	Yes	1.0	2.0	5
2	fffe31003300320037003900	2008-03-10	Female	Product	Yes	2.0	NaN	5
3	fffe32003400380032003900	2008-11-03	Male	Service	Yes	1.0	1.0	2
4	fffe31003900340031003600	2008-07-24	Female	Service	No	3.0	7.0	6

```
data.corr()
```

	Designation	Resource Allocation	Mental Fatigue Score	Burn Rate
Designation	1.000000	0.878459	0.690983	0.737556
Resource Allocation	0.878459	1.000000	0.799662	0.856278
Mental Fatigue Score	0.690983	0.799662	1.000000	0.944546
Burn Rate	0.737556	0.856278	0.944546	1.000000

```
data = pd.get_dummies(data, columns=['Gender', 'Company Type', 'WFH Setup Available'], prefix=['Ger
```

```
data.dropna(inplace=True)
```

```
X = data.drop(['Employee ID', 'Burn Rate','Date of Joining'], axis=1)
y = data['Burn Rate']
```

```
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.1, random_state=42)
```

```
rf_model = RandomForestRegressor(random_state=42)
rf_model.fit(X_train, y_train)
```

```
RandomForestRegressor(random_state=42)
```

```
y_pred = rf_model.predict(X_test)
```

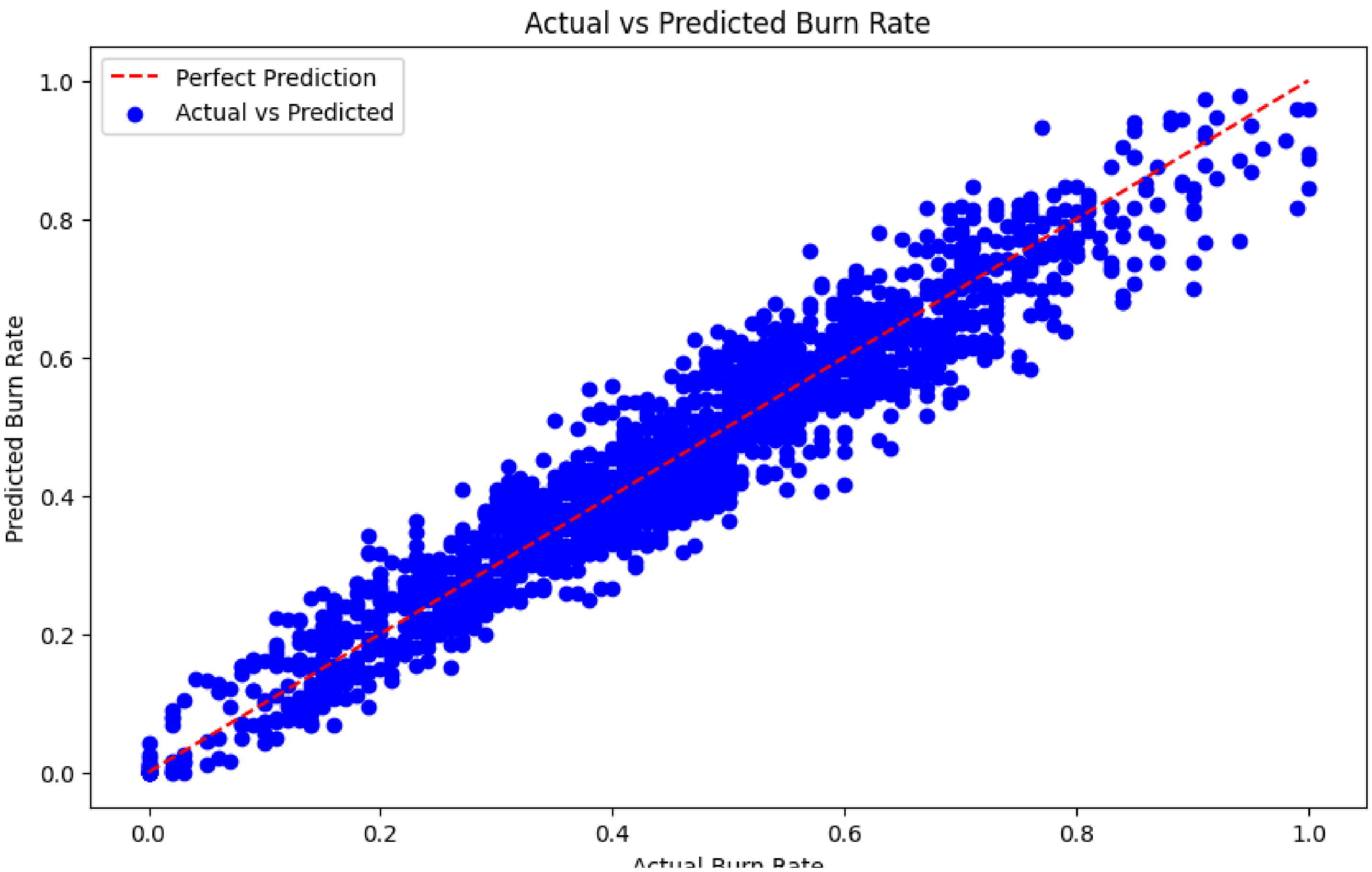
```
mse = mean_squared_error(y_test, y_pred)
r2 = r2_score(y_test, y_pred)

print("Mean Squared Error:", mse)
print("R^2 Score:", r2)
```

```
Mean Squared Error: 0.0033164644169136484
R^2 Score: 0.9142422705803112
```

```
import matplotlib.pyplot as plt

# Plotting the predicted vs actual values
plt.figure(figsize=(10, 6))
plt.scatter(y_test, y_pred, color='blue', label='Actual vs Predicted')
plt.plot([min(y_test), max(y_test)], [min(y_test), max(y_test)], color='red', linestyle='--', label
plt.xlabel('Actual Burn Rate')
plt.ylabel('Predicted Burn Rate')
plt.title('Actual vs Predicted Burn Rate')
plt.legend()
plt.show()
```


Actual vs Predicted Burn Rate
Perfect Prediction
Actual vs Predicted
Predicted Burn Rate
Actual Burn Rate