03_Results (using the model)

February 18, 2025

0.1 Use the Final Model for Predictions new data

importing libaries and init contants

[ ]:
```
import joblib
import pandas as pd


model_path = '../outputs/final_model.pkl'
transformed_csv_path = "../data/transformed_data.csv"
```

Manual Decalration of module use

[ ]:
```
import joblib
import numpy as np

#  Load the trained model and transformer
ridge_model = joblib.load("../outputs/final_model.pkl")
poly_transformer = joblib.load("../outputs/polynomial_transformer.pkl")

def predict_price(age, bmi, no_of_children, smoker, region, female, male):
    #  Convert categorical values correctly
    smoker = int(smoker)  # Convert True/False to 1/0
    region = int(region)

    #  Ensure correct feature order
    input_data = np.array([[age, no_of_children, smoker, bmi, region, female,␣
 ↪male]])

    #  Apply polynomial transformation
    input_data_poly = poly_transformer.transform(input_data)

    #  Predict using the trained Ridge model
    price = ridge_model.predict(input_data_poly)[0]

    return round(price, 2)  # Return clean output

#  Example Usage
```

```
predicted_price = predict_price(age=19, bmi=27.9, no_of_children=1,␣
  ↪smoker=True, region=3, female=True, male=False)
print("Predicted Price:", predicted_price)
```

```
Predicted Price: 26227.8

c:\Users\imadb\AppData\Local\Programs\Python\Python311\Lib\site-
packages\sklearn\base.py:493: UserWarning: X does not have valid feature names,
but PolynomialFeatures was fitted with feature names
  warnings.warn(
```

calling the module src.insurance_model to use the model

[ ]:
```
import sys
import os

# Add the 'src' folder to sys.path
sys.path.append(os.path.abspath("src"))

import insurance_model

predicted_price = insurance_model.insurance_model.predict(
    age=19, bmi=27.9, no_of_children=1, smoker=True, region=3,
      female=True, male=False
)

print("Predicted Price:", predicted_price)
```

```
Predicted Price: 26227.8

c:\Users\imadb\AppData\Local\Programs\Python\Python311\Lib\site-
packages\sklearn\base.py:493: UserWarning: X does not have valid feature names,
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