```
import pandas as pd
```

```
# Load the pre-processed dataset
file_path = 'merged_cleaned_data.csv'
survey_df = pd.read_csv(file_path)

# Display the first few rows of the dataset to verify
survey_df.head()
raw_df = pd.read_csv("Online questionnaire _ (Responses) - Form Responses 5.csv")
```

```
survey_df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 102 entries, 0 to 101
Data columns (total 36 columns):
 #   Column                                                     Non-Null Count  Dtype  
---  ------                                                     --------------  -----  
 0   Age                                                        102 non-null    int64  
 1   Gender                                                     102 non-null    int64  
 2   Country/Region                                             102 non-null    int64  
 3   Field of Study                                             102 non-null    int64  
 4   Level of Education                                         102 non-null    int64  
 5   Are you currently employed?                                102 non-null    int64  
 6   If employed, what is your current role?                    102 non-null    object 
 7   Job applications in the past 6 months                      102 non-null    int64  
 8   Familiarity with AI tools                                  102 non-null    float64
 9   Frequency of AI tool usage for job purposes                102 non-null    float64
 10  Tasks used AI tools for                                    102 non-null    int64  
 11  Most frequently used AI tools                              102 non-null    int64  
 12  Impact of AI tools on job tasks                            102 non-null    object 
 13  Empowered                                                  102 non-null    int64  
 14  Confident                                                  102 non-null    int64  
 15  Anxious                                                    102 non-null    int64  
 16  Frustrated                                                 102 non-null    int64  
 17  Overwhelmed                                                102 non-null    int64  
 18  Hopeful                                                    102 non-null    int64  
 19  Other                                                      102 non-null    int64  
 20  Motivation to apply for jobs using AI tools                102 non-null    int64  
 21  Less stress using AI tools for job hunting                 102 non-null    int64  
 22  Uncertainty about trusting AI recommendations              102 non-null    int64  
 23  Sense of control in job search using AI tools              102 non-null    int64  
 24  Alienation from traditional job-seeking methods using AI tools 102 non-null    int64  
 25  Emotional support comparison: AI tools vs human advisors   102 non-null    int64  
 26  Feeling more competitive using AI tools                    102 non-null    int64  
 27  AI tools reinforcing belief in skills                      102 non-null    int64  
 28  Doubts about ability without AI assistance                 102 non-null    int64  
 29  AI tools reducing individuality in job applications        102 non-null    int64  
 30  Confidence in job market success with AI tools             102 non-null    int64  
 31  Confidence in job security with AI tools                   102 non-null    int64  
 32  AI tools alignment with career aspirations                 102 non-null    int64  
 33  Lack of personal connection in AI job processes            102 non-null    int64  
 34  Emotional impact of AI tools in job applications           102 non-null    int64  
 35  Impact of AI tools on job performance                      102 non-null    int64  
dtypes: float64(2), int64(32), object(2)
memory usage: 28.8+ KB
```

```
# Section Summary: Features by Questionnaire Section
# This part documents which columns are used from each section and what preprocessing was applied
```

```
questionnaire_sections = {
    'Section 1 - Demographics and Background': {
        'columns': [
            'Age', 'Gender', 'Country/Region', 'Field of Study', 'Level of Education',
            'Are you currently employed?', 'If employed, what is your current role?'
        ],
        'preprocessing': 'Label encoded where needed; missing values filled; general text cleaning applied.'
    },

    'Section 2 - AI Familiarity and Usage': {
        'columns': [
            'Job applications in the past 6 months',
            'Familiarity with AI tools',
            'Frequency of AI tool usage for job purposes',
            'Tasks used AI tools for',
            'Most frequently used AI tools'
        ],
        'preprocessing': 'Text converted to numeric where needed; scaled using StandardScaler; cleaned inputs.'
    },

    'Section 3 - Emotional and Psychological Impact': {
        'columns': [
            'Empowered', 'Confident', 'Anxious', 'Frustrated', 'Overwhelmed', 'Hopeful', 'Other',
            'Motivation to apply for jobs using AI tools',
            'Less stress using AI tools for job hunting',
            'Uncertainty about trusting AI recommendations',
            'Sense of control in job search using AI tools',
            'Alienation from traditional job-seeking methods using AI tools',
            'Emotional support comparison: AI tools vs human advisors'
        ],
        'preprocessing': 'Binary encoded emotions; Likert-scale (1–5) mapping for the rest.'
    },

    'Section 4 - Self-Perception and Confidence': {
        'columns': [
            'Feeling more competitive using AI tools',
            'AI tools reinforcing belief in skills',
            'Doubts about ability without AI assistance',
            'AI tools reducing individuality in job applications',
            'Confidence in job market success with AI tools'
        ],
        'preprocessing': 'Mapped to Likert scale (1–5); missing values filled with mode.'
    },

    'Section 5 - Job Satisfaction and General Experience': {
        'columns': [
            'Confidence in job security with AI tools',
            'AI tools alignment with career aspirations',
            'Lack of personal connection in AI job processes',
            'Emotional impact of AI tools in job applications',
            'Impact of AI tools on job performance'
        ],
        'preprocessing': 'Standard Likert scale applied; reverse-coded where needed; basic cleaning.'
    }
}


for section, details in questionnaire_sections.items():
    print(f"\n{section}")
    print("Selected columns:", ', '.join(details['columns']))
    print("Preprocessing steps:", details['preprocessing'])
```

```
Section 1 - Demographics and Background
Selected columns: Age, Gender, Country/Region, Field of Study, Level of Education, Are you currently employed?, If employed, what is your current role?
Preprocessing steps: Label encoded where needed; missing values filled; general text cleaning applied.

Section 2 - AI Familiarity and Usage
Selected columns: Job applications in the past 6 months, Familiarity with AI tools, Frequency of AI tool usage for job purposes, Tasks used AI tools for, Most frequently used AI tools
Preprocessing steps: Text converted to numeric where needed; scaled using StandardScaler; cleaned inputs.

Section 3 - Emotional and Psychological Impact
Selected columns: Empowered, Confident, Anxious, Frustrated, Overwhelmed, Hopeful, Other, Motivation to apply for jobs using AI tools, Less stress using AI tools for job hunting, Uncertainty about trusting AI r
Preprocessing steps: Binary encoded emotions; Likert-scale (1–5) mapping for the rest.

Section 4 - Self-Perception and Confidence
Selected columns: Feeling more competitive using AI tools, AI tools reinforcing belief in skills, Doubts about ability without AI assistance, AI tools reducing individuality in job applications, Confidence in j
Preprocessing steps: Mapped to Likert scale (1–5); missing values filled with mode.

Section 5 - Job Satisfaction and General Experience
Selected columns: Confidence in job security with AI tools, AI tools alignment with career aspirations, Lack of personal connection in AI job processes, Emotional impact of AI tools in job applications, Impact
Preprocessing steps: Standard Likert scale applied; reverse-coded where needed; basic cleaning.
```

1

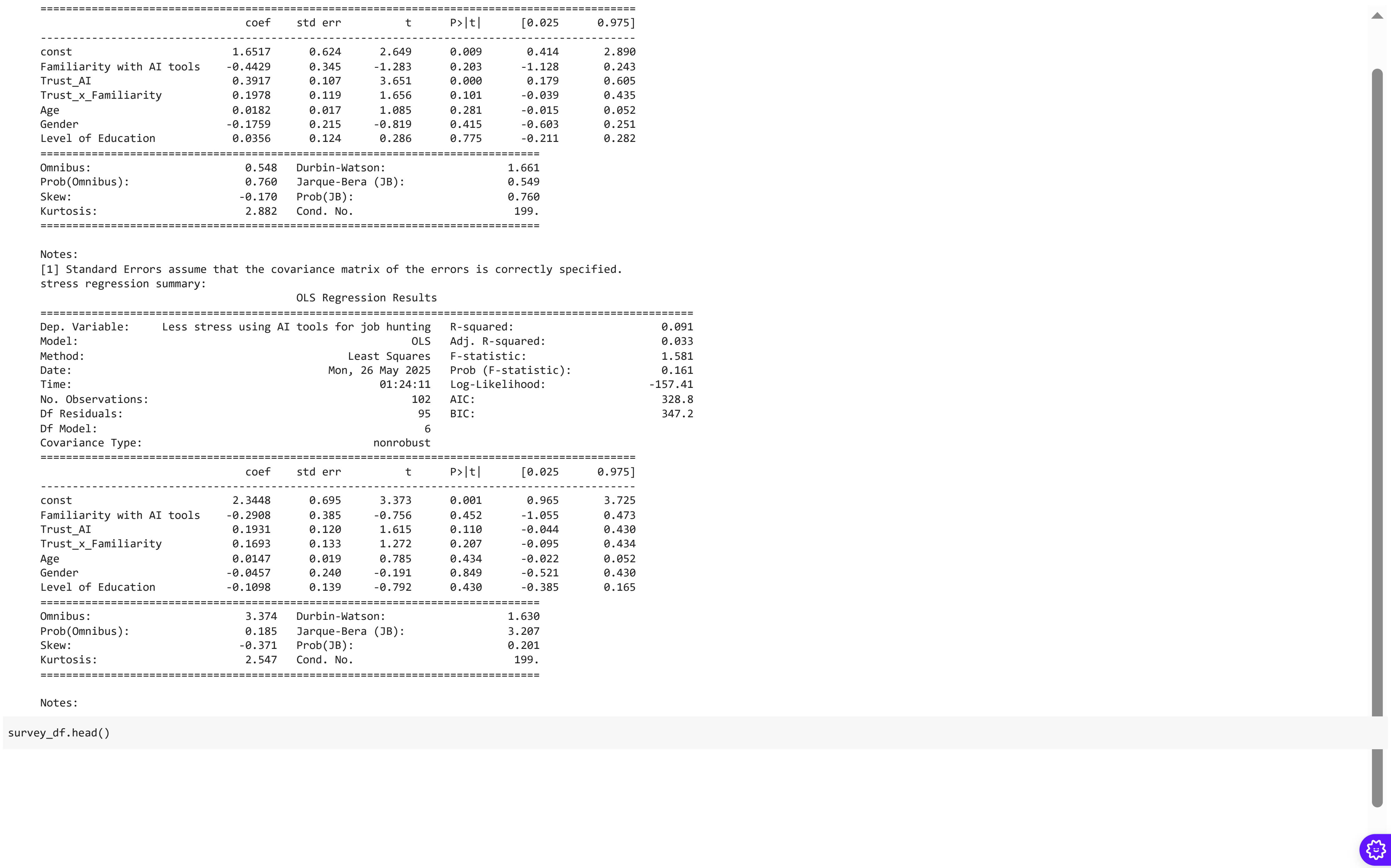
Analysis of Dependent Variable 1: Regression

Motivation to Apply for Jobs Using AI Tools

```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns

from sklearn.model_selection import train_test_split
from sklearn.linear_model import Ridge
from sklearn.ensemble import RandomForestRegressor
from sklearn.metrics import mean_squared_error, r2_score
from sklearn.preprocessing import StandardScaler
from sklearn.cluster import KMeans
from sklearn.metrics import silhouette_score

import statsmodels.api as sm
```

Start coding or generate with AI.

```
Dep. Variable:     Motivation to apply for jobs using AI tools   R-squared:                       0.198
Model:                                                    OLS   Adj. R-squared:                  0.148
Method:                                         Least Squares   F-statistic:                     3.914
Date:                                        Mon, 26 May 2025   Prob (F-statistic):            0.00154
Time:                                                01:24:11   Log-Likelihood:                -146.34
No. Observations:                                         102   AIC:                             306.7
```



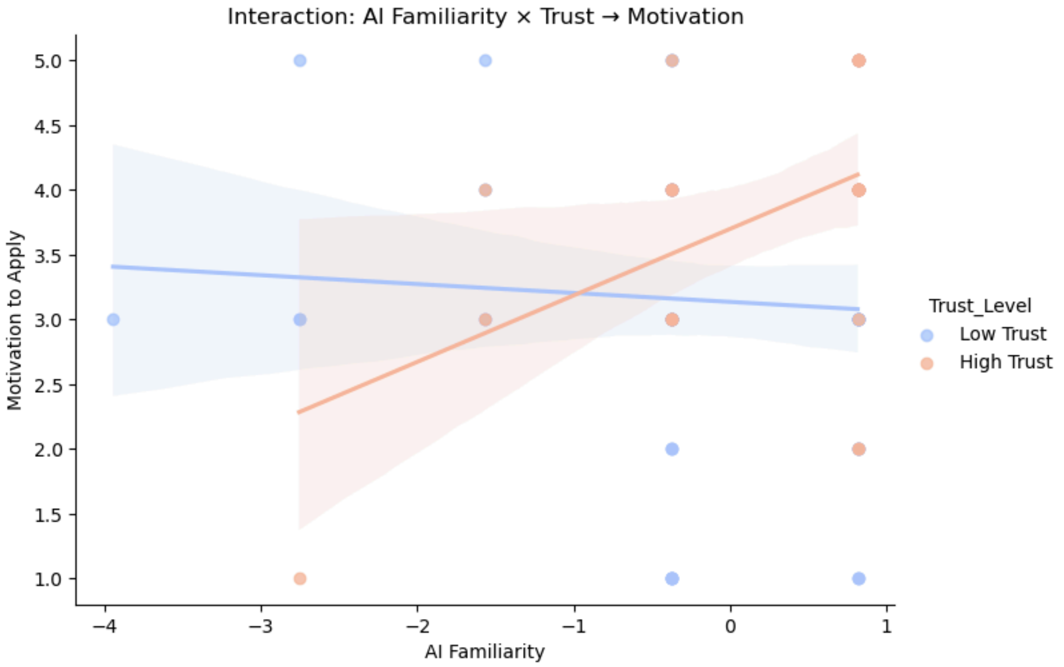
```
=============================================================================================
                          coef    std err          t      P>|t|      [0.025      0.975]
---------------------------------------------------------------------------------------------
const                         1.6517      0.624      2.649      0.009       0.414       2.890
Familiarity with AI tools    -0.4429      0.345     -1.283      0.203      -1.128       0.243
Trust_AI                      0.3917      0.107      3.651      0.000       0.179       0.605
Trust_x_Familiarity           0.1978      0.119      1.656      0.101      -0.039       0.435
Age                           0.0182      0.017      1.085      0.281      -0.015       0.052
Gender                       -0.1759      0.215     -0.819      0.415      -0.603       0.251
Level of Education            0.0356      0.124      0.286      0.775      -0.211       0.282
==============================================================================
Omnibus:                        0.548   Durbin-Watson:                   1.661
Prob(Omnibus):                  0.760   Jarque-Bera (JB):                0.549
Skew:                          -0.170   Prob(JB):                        0.760
Kurtosis:                       2.882   Cond. No.                         199.
==============================================================================

Notes:
[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.
stress regression summary:
                                        OLS Regression Results
======================================================================================================
Dep. Variable:     Less stress using AI tools for job hunting   R-squared:                       0.091
Model:                                                    OLS   Adj. R-squared:                  0.033
Method:                                         Least Squares   F-statistic:                     1.581
Date:                                        Mon, 26 May 2025   Prob (F-statistic):              0.161
Time:                                                01:24:11   Log-Likelihood:                -157.41
No. Observations:                                         102   AIC:                             328.8
Df Residuals:                                              95   BIC:                             347.2
Df Model:                                                   6
Covariance Type:                                    nonrobust
=============================================================================================
                          coef    std err          t      P>|t|      [0.025      0.975]
---------------------------------------------------------------------------------------------
const                         2.3448      0.695      3.373      0.001       0.965       3.725
Familiarity with AI tools    -0.2908      0.385     -0.756      0.452      -1.055       0.473
Trust_AI                      0.1931      0.120      1.615      0.110      -0.044       0.430
Trust_x_Familiarity           0.1693      0.133      1.272      0.207      -0.095       0.434
Age                           0.0147      0.019      0.785      0.434      -0.022       0.052
Gender                       -0.0457      0.240     -0.191      0.849      -0.521       0.430
Level of Education           -0.1098      0.139     -0.792      0.430      -0.385       0.165
==============================================================================
Omnibus:                        3.374   Durbin-Watson:                   1.630
Prob(Omnibus):                  0.185   Jarque-Bera (JB):                3.207
Skew:                          -0.371   Prob(JB):                        0.201
Kurtosis:                       2.547   Cond. No.                         199.
==============================================================================

Notes:
```

```
survey_df.head()
```

	Age	Gender	Country/Region	Field of Study	Level of Education	Are you currently employed?	If employed, what is your current role?	Job applications in the past 6 months	Familiarity with AI tools	Frequency of AI tool usage for job purposes	...	Doubts about ability without AI assistance	AI tools reducing individuality in job applications	Confidence in job market success with AI tools	Confidence in job security with AI tools	AI tools alignment with career aspirations	Lack of personal connection in AI job processes	Emotional impact of AI tools in job applications	Impact AI tools performa
0	25	0	7	20	1	1	Unknown	40	0.817053	0.127546	...	4	4	4	3	4	3	3	
1	54	1	7	20	1	2	Security Lead	0	-0.373510	0.127546	...	3	2	5	4	4	3	2	
2	38	1	8	20	0	2	Testing specialist	0	-1.564072	-1.403004	...	1	3	3	3	4	4	3	

```
survey_df['Trust_Level'] = pd.cut(survey_df['Trust_AI'], [0, 3, 5], labels=['Low Trust', 'High Trust'])

sns.lmplot(
    data=survey_df,
    x='Familiarity with AI tools',
    y='Motivation to apply for jobs using AI tools',
    hue='Trust_Level',
    palette='coolwarm',
    aspect=1.4
)

plt.title("Interaction: AI Familiarity × Trust → Motivation")
plt.xlabel("AI Familiarity")
plt.ylabel("Motivation to Apply")
plt.show()
```

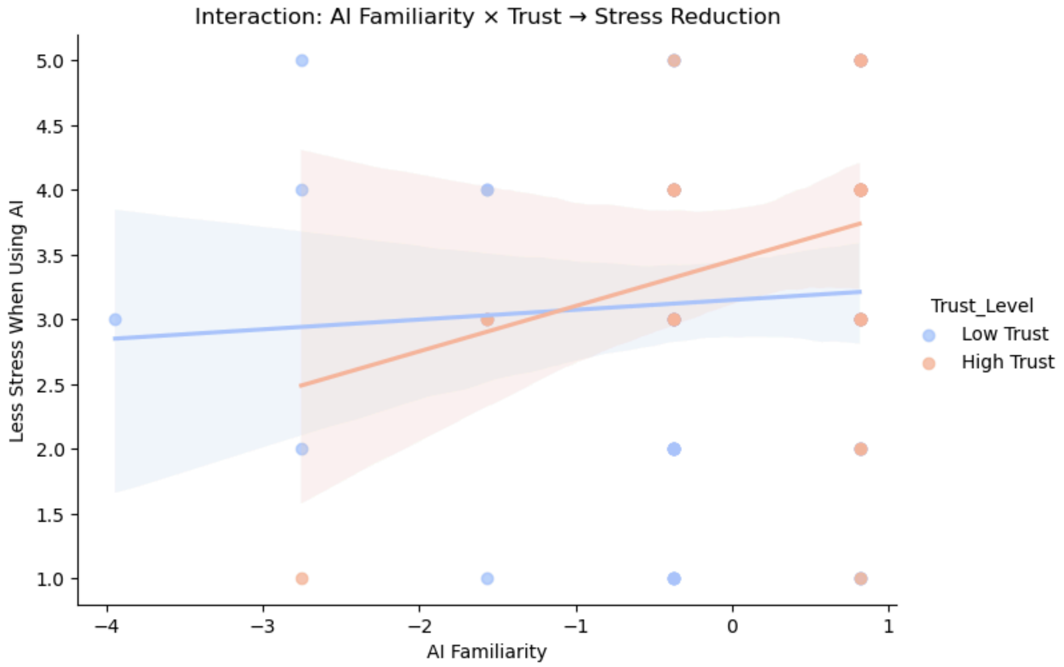
```
/opt/conda/envs/anaconda-panel-2023.05-py310/lib/python3.11/site-packages/seaborn/axisgrid.py:118: UserWarning: The figure layout has changed to tight
  self._figure.tight_layout(*args, **kwargs)
/opt/conda/envs/anaconda-panel-2023.05-py310/lib/python3.11/site-packages/seaborn/axisgrid.py:118: UserWarning: The figure layout has changed to tight
  self._figure.tight_layout(*args, **kwargs)
```



```
Start coding or generate with AI.
```

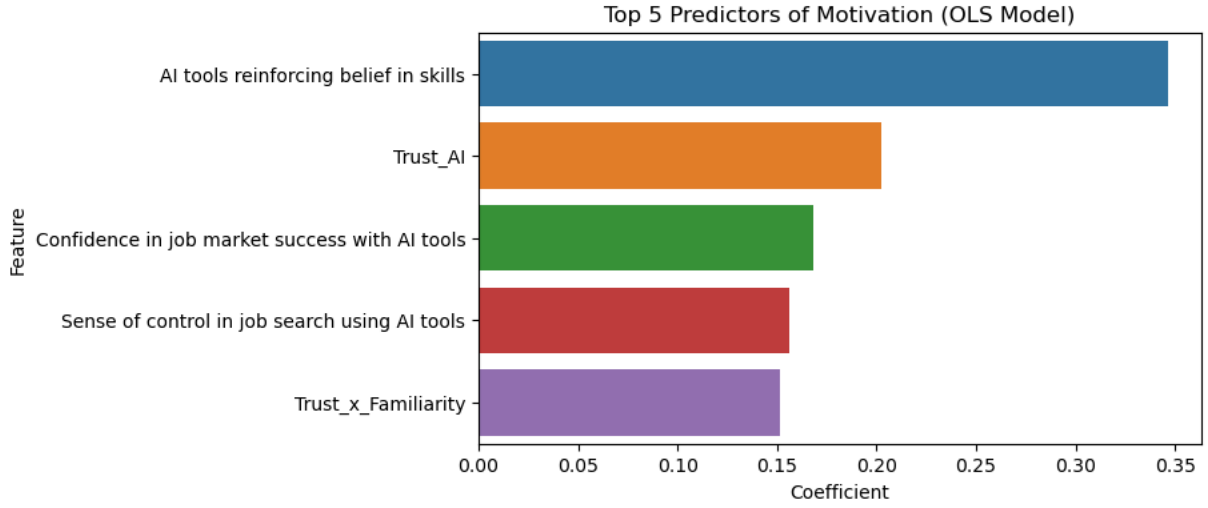
```
sns.lmplot(
    data=survey_df,
    x='Familiarity with AI tools',
    y='Less stress using AI tools for job hunting',
    hue='Trust_Level',
    palette='coolwarm',
    aspect=1.4
)

plt.title("Interaction: AI Familiarity × Trust → Stress Reduction")
plt.xlabel("AI Familiarity")
plt.ylabel("Less Stress When Using AI")
plt.show()
```

```
/opt/conda/envs/anaconda-panel-2023.05-py310/lib/python3.11/site-packages/seaborn/axisgrid.py:118: UserWarning: The figure layout has changed to tight
  self._figure.tight_layout(*args, **kwargs)
/opt/conda/envs/anaconda-panel-2023.05-py310/lib/python3.11/site-packages/seaborn/axisgrid.py:118: UserWarning: The figure layout has changed to tight
  self._figure.tight_layout(*args, **kwargs)
```



Top 5 Predictors of Motivation to Use AI Tools for Job Applications

Start coding or generate with AI.



```
                                 OLS Regression Results                                 
========================================================================================
Dep. Variable:     Motivation to apply for jobs using AI tools   R-squared:                       0.366
Model:                                     OLS   Adj. R-squared:                  0.311
Method:                          Least Squares   F-statistic:                     6.707
Date:                         Sat, 24 May 2025   Prob (F-statistic):           6.59e-07
Time:                                 13:34:48   Log-Likelihood:                -134.38
No. Observations:                          102   AIC:                             286.8
Df Residuals:                               93   BIC:                             310.4
Df Model:                                    8                                         
Covariance Type:                     nonrobust                                         
=======================================================================================================================
                                                    coef    std err          t      P>|t|      [0.025      0.975]
-----------------------------------------------------------------------------------------------------------------------
const                                             1.0192      0.542      1.881      0.063      -0.057       2.095
Trust_AI                                          0.2026      0.106      1.912      0.059      -0.008       0.413
Familiarity with AI tools                        -0.1366      0.213     -0.640      0.524      -0.560       0.287
Trust_x_Familiarity                               0.1515      0.107      1.415      0.161      -0.061       0.364
Sense of control in job search using AI tools     0.1560      0.106      1.465      0.146      -0.056       0.367
Confidence in job market success with AI tools    0.1681      0.120      1.403      0.164      -0.070       0.406
Feeling more competitive using AI tools          -0.0296      0.111     -0.267      0.790      -0.250       0.191
AI tools reinforcing belief in skills             0.3462      0.123      2.808      0.006       0.101       0.591
AI tools reducing individuality in job applications   -0.0565      0.086     -0.658      0.512      -0.227       0.114
==============================================================================
Omnibus:                        4.801   Durbin-Watson:                   1.880
Prob(Omnibus):                  0.091   Jarque-Bera (JB):                4.236
Skew:                          -0.389   Prob(JB):                        0.120
Kurtosis:                       3.625   Cond. No.                         46.3
==============================================================================

Notes:
[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.
```

2

Clustering :

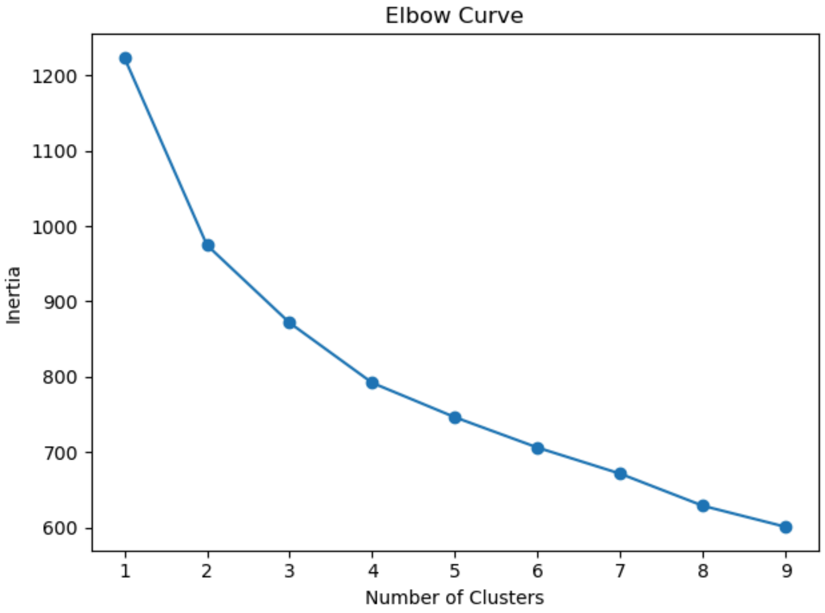
Emotional & Behavioral Profiles

Select & Prepare Features:

```
Start coding or generate with AI.
```

Determine Optimal Number of Clusters (Elbow Method)

```
inertia = []
k_range = range(1, 10)

for k in k_range:
    kmeans = KMeans(n_clusters=k, n_init=10, random_state=42)
    kmeans.fit(X_clustered)
    inertia.append(kmeans.inertia_)

# Elbow plot to select optimal k
plt.plot(k_range, inertia, marker='o')
plt.xlabel("Number of Clusters")
plt.ylabel("Inertia")
plt.title("Elbow Curve")
plt.tight_layout()
plt.show()
```



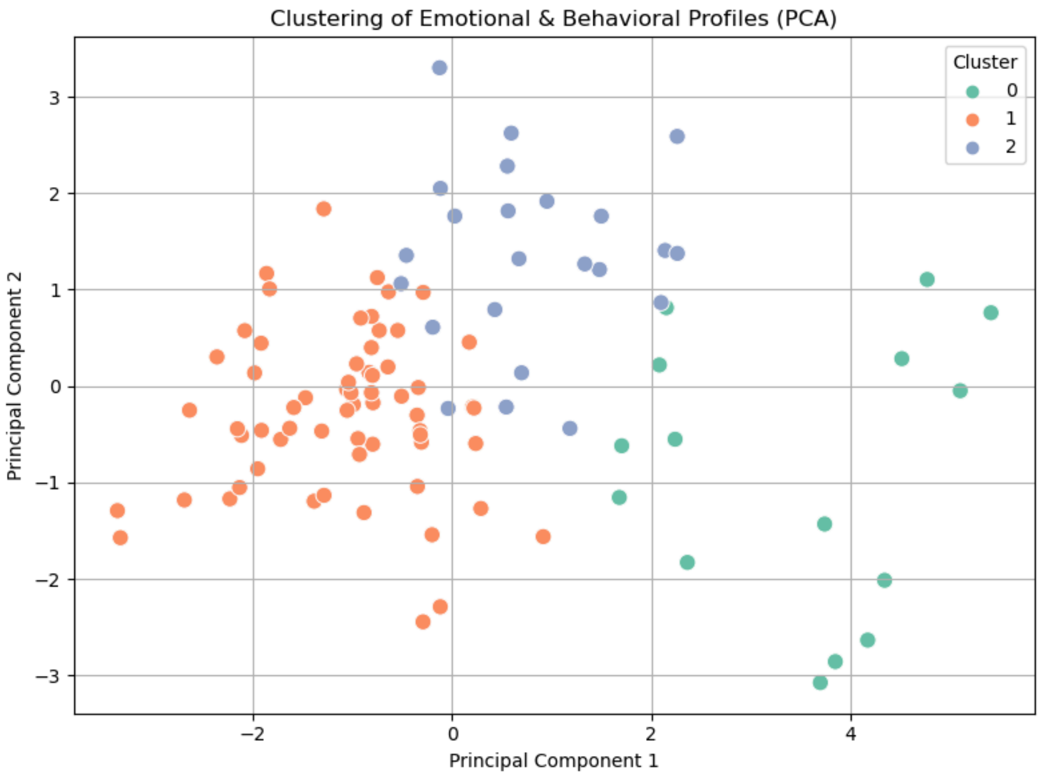
Run Final KMeans Clustering (e.g., k=3 as example)

```
# Apply KMeans clustering with the selected number of clusters
k = 3
kmeans = KMeans(n_clusters=k,n_init=10, random_state=42)
clusters = kmeans.fit_predict(X_clustered)
```

```
# Assign cluster labels to the original DataFrame
survey_df['Cluster'] = clusters
```

PCA + Cluster Visualization

```
Start coding or generate with AI.
```



Cluster Profiling & Interpretation

```
Start coding or generate with AI.
```

```
# Recalculate trust as a positive scale
survey_df['Trust_AI'] = 6 - survey_df['Uncertainty about trusting AI recommendations']

# Define features to profile each cluster
cluster_features = [
    'Empowered', 'Confident', 'Anxious', 'Frustrated', 'Overwhelmed', 'Hopeful',
    'Motivation to apply for jobs using AI tools',
    'Less stress using AI tools for job hunting',
    'Trust_AI', 'Sense of control in job search using AI tools',
    'Familiarity with AI tools', 'Frequency of AI tool usage for job purposes',
    'Cluster'
]
```

```
# Calculate average feature values per cluster
cluster_profiles = survey_df[cluster_features].groupby('Cluster').mean().round(2)

print("Cluster Profiles")
print(cluster_profiles)
```

```
=== Cluster Profiles ===
         Empowered  Confident  Anxious  Frustrated  Overwhelmed  Hopeful  \
Cluster
0             0.20       0.13     0.67        0.80         0.33     0.13
1             0.31       0.78     0.00        0.03         0.05     0.38
2             0.52       0.43     0.00        0.04         0.04     0.39

         Motivation to apply for jobs using AI tools  \
Cluster
0                                               2.40
1                                               3.92
2                                               2.39

         Less stress using AI tools for job hunting  Trust_AI  \
Cluster
0                                              2.73      1.73
1                                              3.83      3.27
2                                              2.04      2.74

         Sense of control in job search using AI tools  \
Cluster
0                                                 2.27
1                                                 3.70
2                                                 2.35

         Familiarity with AI tools  \
Cluster
0                            -0.53
1                             0.11
2                             0.04

         Frequency of AI tool usage for job purposes
Cluster
0                                              -1.10
1                                               0.31
2                                              -0.14
```

```
# Evaluate clustering quality using Silhouette Score
score = silhouette_score(X_clustered, clusters)
print("Silhouette Score:", round(score, 3))
```

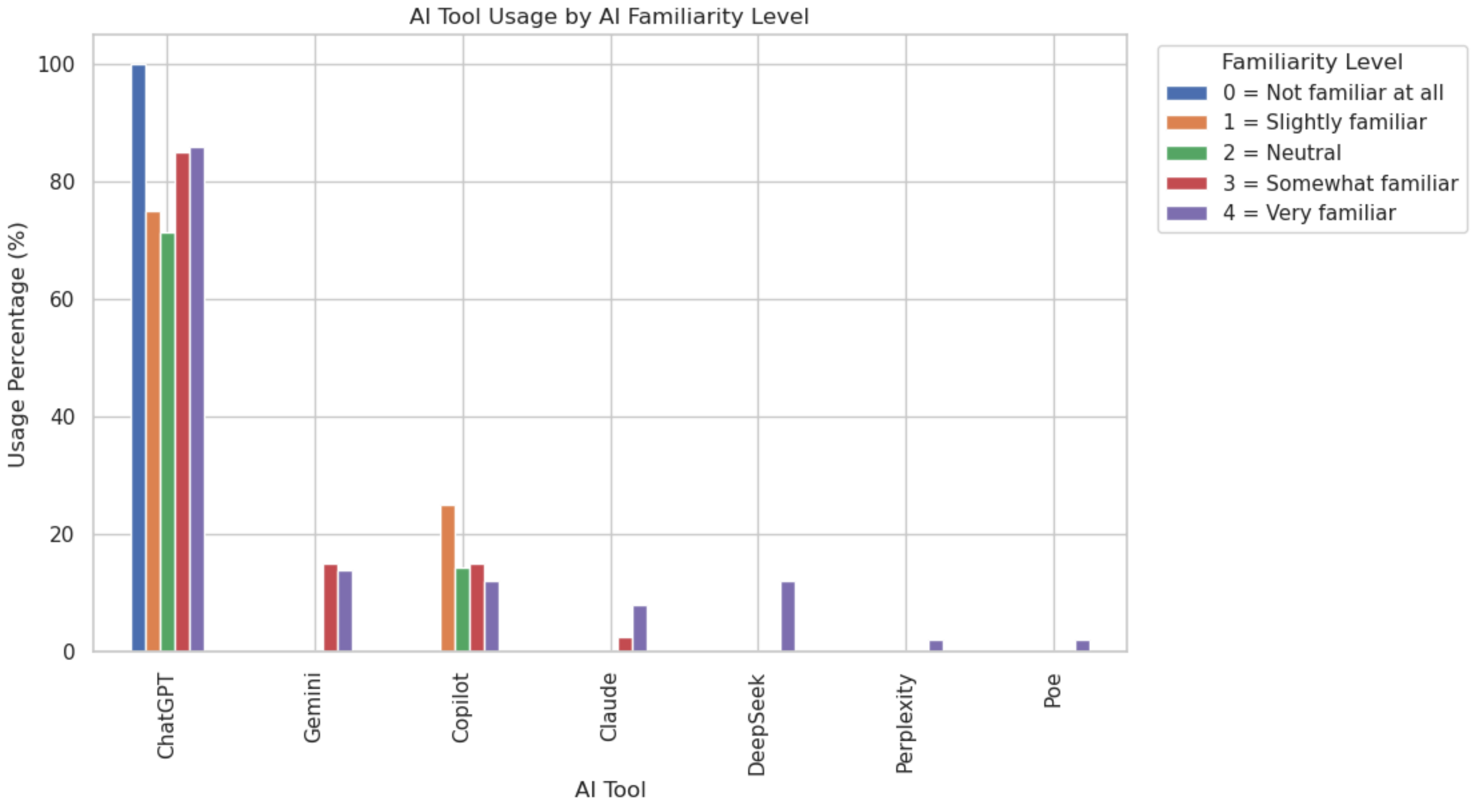
```
Silhouette Score: 0.163
```

```
# Analyze gender distribution across clusters
gender_distribution = pd.crosstab(survey_df['Cluster'], survey_df['Gender'])

print("Gender Distribution:")
print(gender_distribution)
```

```
Gender Distribution:
Gender    0   1
Cluster
0         6   9
1        35  29
2         9  14
```

cluster2- Plot 3: AI Tool Usage by Familiarity Level

```
Start coding or generate with AI.
```



Double-click (or enter) to edit

3

Analysis 3: Classification

Employment Prediction with Random Forest

```
import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.ensemble import RandomForestClassifier
from sklearn.metrics import classification_report, confusion_matrix, roc_auc_score, roc_curve
import matplotlib.pyplot as plt
import seaborn as sns
```

Start coding or generate with AI.

Start coding or generate with AI.

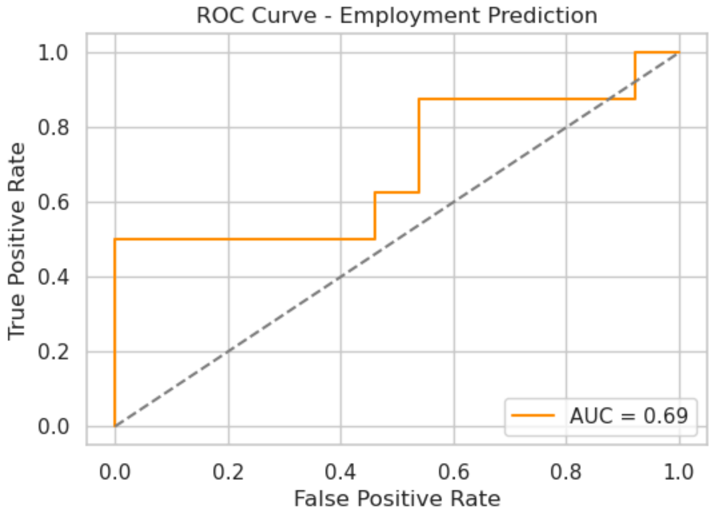
```
=== Classification Report ===
              precision    recall  f1-score   support

           0       0.73      0.85      0.79        13
           1       0.67      0.50      0.57         8

    accuracy                           0.71        21
   macro avg       0.70      0.67      0.68        21
weighted avg       0.71      0.71      0.70        21

=== Confusion Matrix ===
[[11  2]
 [ 4  4]]
```

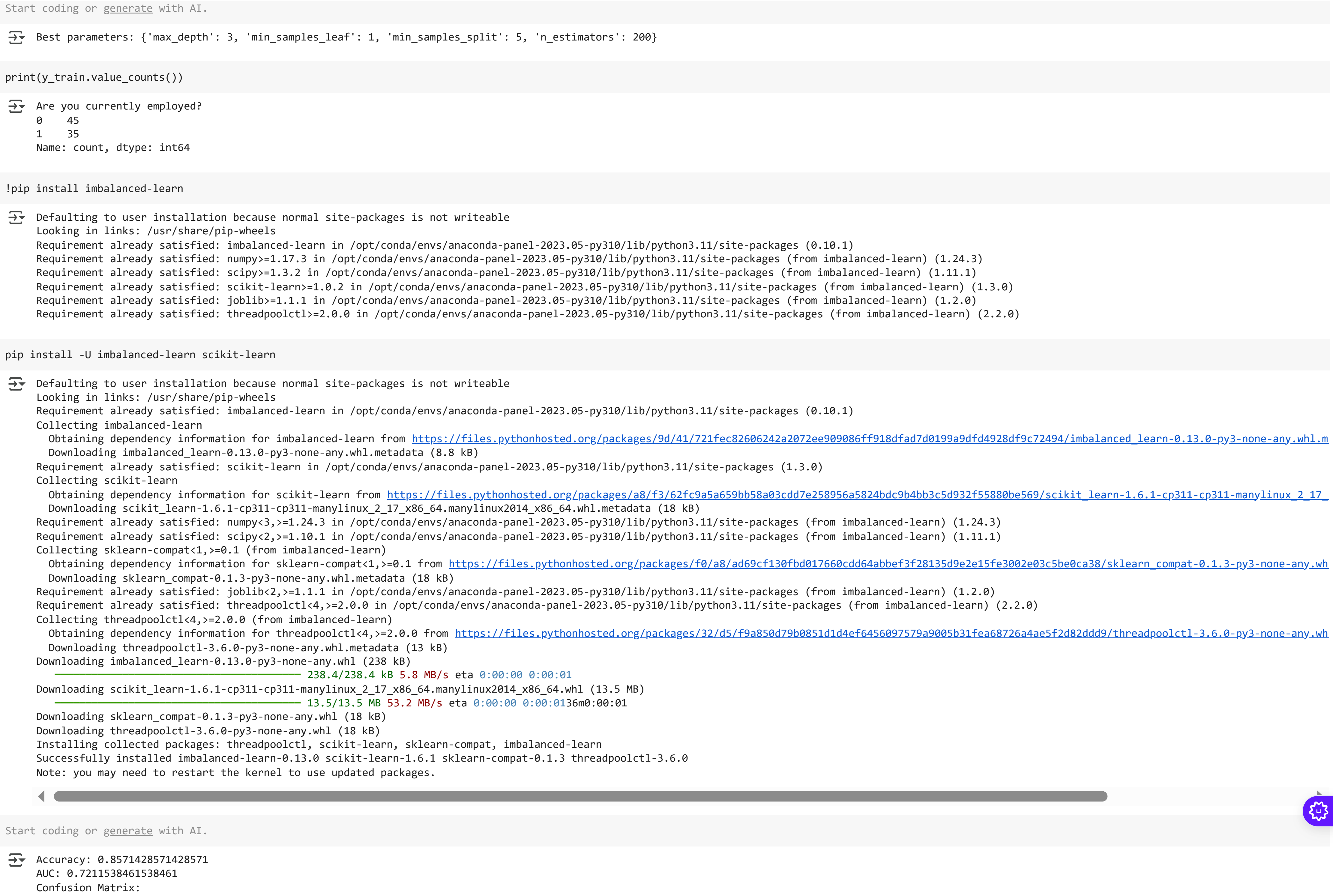
Start coding or generate with AI.

```
Are you currently employed?
0    45
1    35
Name: count, dtype: int64
```

Start coding or generate with AI.

```
ROC-AUC Score: 0.69
```





```
Start coding or generate with AI.
```

```
Best parameters: {'max_depth': 3, 'min_samples_leaf': 1, 'min_samples_split': 5, 'n_estimators': 200}
```

```
print(y_train.value_counts())
```

```
Are you currently employed?
0    45
1    35
Name: count, dtype: int64
```

```
!pip install imbalanced-learn
```

```
Defaulting to user installation because normal site-packages is not writeable
Looking in links: /usr/share/pip-wheels
Requirement already satisfied: imbalanced-learn in /opt/conda/envs/anaconda-panel-2023.05-py310/lib/python3.11/site-packages (0.10.1)
Requirement already satisfied: numpy>=1.17.3 in /opt/conda/envs/anaconda-panel-2023.05-py310/lib/python3.11/site-packages (from imbalanced-learn) (1.24.3)
Requirement already satisfied: scipy>=1.3.2 in /opt/conda/envs/anaconda-panel-2023.05-py310/lib/python3.11/site-packages (from imbalanced-learn) (1.11.1)
Requirement already satisfied: scikit-learn>=1.0.2 in /opt/conda/envs/anaconda-panel-2023.05-py310/lib/python3.11/site-packages (from imbalanced-learn) (1.3.0)
Requirement already satisfied: joblib>=1.1.1 in /opt/conda/envs/anaconda-panel-2023.05-py310/lib/python3.11/site-packages (from imbalanced-learn) (1.2.0)
Requirement already satisfied: threadpoolctl>=2.0.0 in /opt/conda/envs/anaconda-panel-2023.05-py310/lib/python3.11/site-packages (from imbalanced-learn) (2.2.0)
```

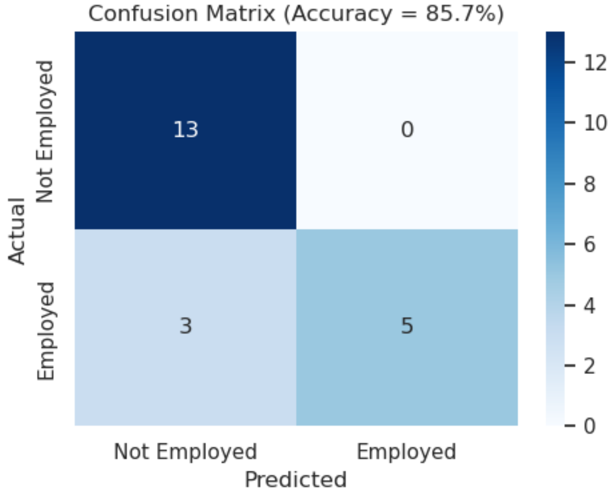
```
pip install -U imbalanced-learn scikit-learn
```

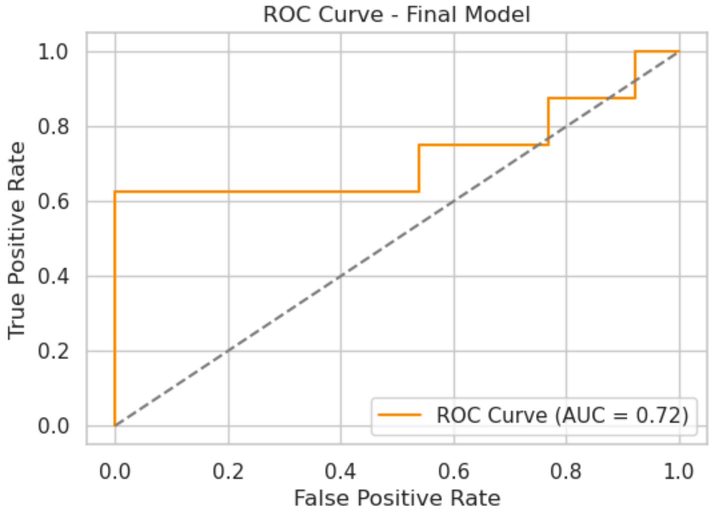
```
Defaulting to user installation because normal site-packages is not writeable
Looking in links: /usr/share/pip-wheels
Requirement already satisfied: imbalanced-learn in /opt/conda/envs/anaconda-panel-2023.05-py310/lib/python3.11/site-packages (0.10.1)
Collecting imbalanced-learn
  Obtaining dependency information for imbalanced-learn from https://files.pythonhosted.org/packages/9d/41/721fec82606242a2072ee909086ff918dfad7d0199a9dfd4928df9c72494/imbalanced_learn-0.13.0-py3-none-any.whl.m
  Downloading imbalanced_learn-0.13.0-py3-none-any.whl.metadata (8.8 kB)
Requirement already satisfied: scikit-learn in /opt/conda/envs/anaconda-panel-2023.05-py310/lib/python3.11/site-packages (1.3.0)
Collecting scikit-learn
  Obtaining dependency information for scikit-learn from https://files.pythonhosted.org/packages/a8/f3/62fc9a5a659bb58a03cdd7e258956a5824bdc9b4bb3c5d932f55880be569/scikit_learn-1.6.1-cp311-cp311-manylinux_2_17_
  Downloading scikit_learn-1.6.1-cp311-cp311-manylinux_2_17_x86_64.manylinux2014_x86_64.whl.metadata (18 kB)
Requirement already satisfied: numpy<3,>=1.24.3 in /opt/conda/envs/anaconda-panel-2023.05-py310/lib/python3.11/site-packages (from imbalanced-learn) (1.24.3)
Requirement already satisfied: scipy<2,>=1.10.1 in /opt/conda/envs/anaconda-panel-2023.05-py310/lib/python3.11/site-packages (from imbalanced-learn) (1.11.1)
Collecting sklearn-compat<1,>=0.1 (from imbalanced-learn)
  Obtaining dependency information for sklearn-compat<1,>=0.1 from https://files.pythonhosted.org/packages/f0/a8/ad69cf130fbd017660cdd64abbef3f28135d9e2e15fe3002e03c5be0ca38/sklearn_compat-0.1.3-py3-none-any.wh
  Downloading sklearn_compat-0.1.3-py3-none-any.whl.metadata (18 kB)
Requirement already satisfied: joblib<2,>=1.1.1 in /opt/conda/envs/anaconda-panel-2023.05-py310/lib/python3.11/site-packages (from imbalanced-learn) (1.2.0)
Requirement already satisfied: threadpoolctl<4,>=2.0.0 in /opt/conda/envs/anaconda-panel-2023.05-py310/lib/python3.11/site-packages (from imbalanced-learn) (2.2.0)
Collecting threadpoolctl<4,>=2.0.0 (from imbalanced-learn)
  Obtaining dependency information for threadpoolctl<4,>=2.0.0 from https://files.pythonhosted.org/packages/32/d5/f9a850d79b0851d1d4ef6456097579a9005b31fea68726a4ae5f2d82ddd9/threadpoolctl-3.6.0-py3-none-any.wh
  Downloading threadpoolctl-3.6.0-py3-none-any.whl.metadata (13 kB)
Downloading imbalanced_learn-0.13.0-py3-none-any.whl (238 kB)
   ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 238.4/238.4 kB 5.8 MB/s eta 0:00:00 0:00:01
Downloading scikit_learn-1.6.1-cp311-cp311-manylinux_2_17_x86_64.manylinux2014_x86_64.whl (13.5 MB)
   ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 13.5/13.5 MB 53.2 MB/s eta 0:00:00 0:00:0136m0:00:01
Downloading sklearn_compat-0.1.3-py3-none-any.whl (18 kB)
Downloading threadpoolctl-3.6.0-py3-none-any.whl (18 kB)
Installing collected packages: threadpoolctl, scikit-learn, sklearn-compat, imbalanced-learn
Successfully installed imbalanced-learn-0.13.0 scikit-learn-1.6.1 sklearn-compat-0.1.3 threadpoolctl-3.6.0
Note: you may need to restart the kernel to use updated packages.
```

```
Start coding or generate with AI.
```

```
Accuracy: 0.8571428571428571
AUC: 0.7211538461538461
Confusion Matrix:
 [[13  0]
 [ 3  5]]
Classification Report:
               precision    recall  f1-score   support

           0       0.81      1.00      0.90        13
           1       1.00      0.62      0.77         8

    accuracy                           0.86        21
   macro avg       0.91      0.81      0.83        21
weighted avg       0.88      0.86      0.85        21
```

Start coding or generate with AI.



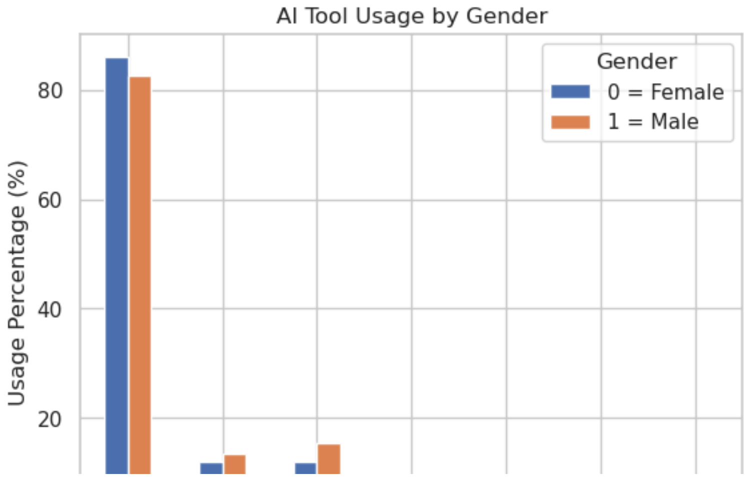


classification 2 - Plot 1: AI Tool Usage by Gender

```
Start coding or generate with AI.
```

```
# Group data by gender and calculate mean usage
grouped_gender_usage = tool_binary_df.groupby("Gender")[ai_tool_columns].mean().T * 100

# Plot bar chart
plt.figure(figsize=(10, 6))
grouped_gender_usage.plot(kind="bar")
plt.title("AI Tool Usage by Gender")
plt.ylabel("Usage Percentage (%)")
plt.xlabel("AI Tool")
plt.legend(title="Gender", labels=["0 = Female", "1 = Male"])
plt.show()
```

```
<Figure size 1000x600 with 0 Axes>
```


AI Tool Usage by Gender
Usage Percentage (%)
Gender
0 = Female
1 = Male