

INSIGHTFUL ED

أعضاء الفريق



هو مشروع يهدف إلى تقديم تنبؤات

دقيقة حول أداء الطلاب ودرجاتهم

المستقبلية بناءً على جمع وتحليل معلومات

بسهولة عنهم، مثل العمر وساعات الدراسة

والدعم العائلي، باستخدام تقنيات تعلم الآلة.

يتيح المشروع للطلاب إدخال معلوماتهم

من خلال واجهة مستخدم سهلة الاستخدام

والحصول على توقعات مخصصة حول أدائهم

الأكاديمي

INSIGHTFUL ED



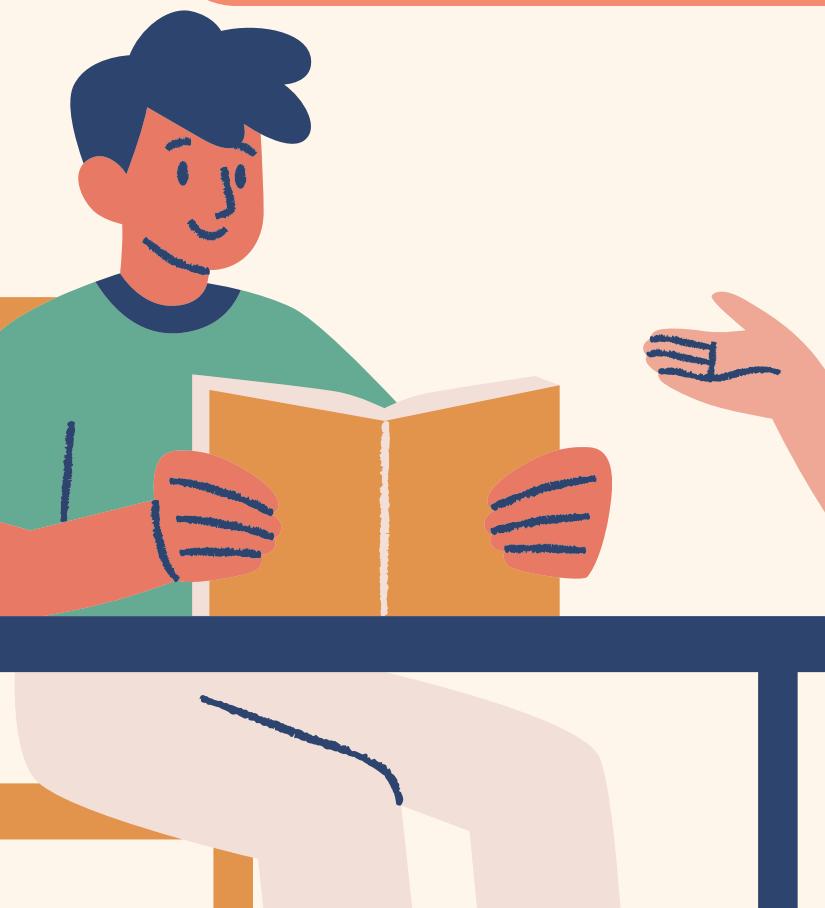
الأهداف:

توقع المعدل
التراتيبي
(GPA)

التنبؤ بالدخل
المستقبلي

توقع تعرض
الطالب للشتم

التنبؤ بالطرد من
الجامعة

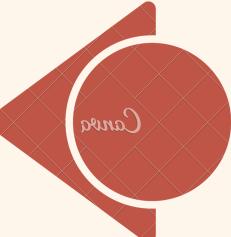


تخطيط المشروع

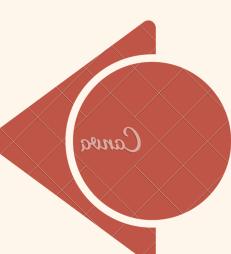


تطوير واجهة المستخدم
باستخدام Streamlit

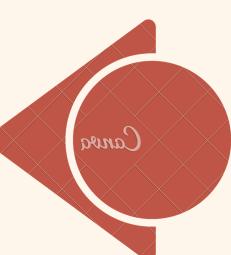
جمع البيانات



إعداد البيانات



بناء وتقدير النماذج



البِيَكُهُ الْجَمِيعَةُ



FEATURE SELECTION

```
# Define preprocessing steps
numeric_features = ['age', 'educational-num']
categorical_features = ['marital-status', 'occupation', 'hours-per-week']

numeric_transformer = SimpleImputer(strategy='mean')
categorical_transformer = Pipeline(steps=[
    ('imputer', SimpleImputer(strategy='most_frequent')),
    ('onehot', OneHotEncoder(handle_unknown='ignore'))
])

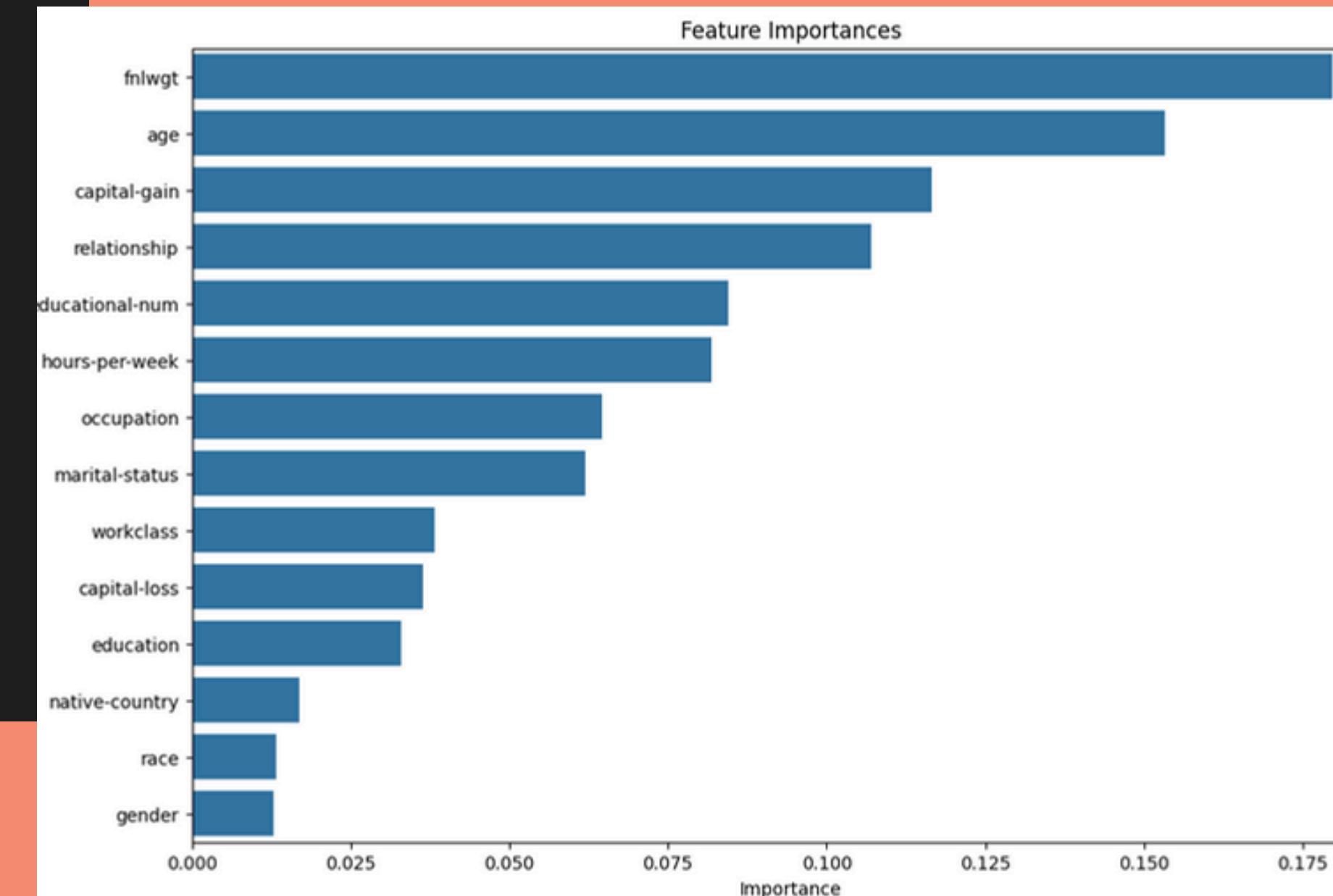
preprocessor = ColumnTransformer(
    transformers=[
        ('num', numeric_transformer, numeric_features),
        ('cat', categorical_transformer, categorical_features)
    ]
)

# Define the pipeline for Random Forest Classifier
pipeline_rf = Pipeline([
    ('preprocessor', preprocessor),
    ('classifier', RandomForestClassifier(random_state=42))
])

# Train the model
pipeline_rf.fit(X_train, y_train)
```

Our methods:

1. Lasso Regression
2. correlation heatmaps



MODEL SELECTION

Reduce error without sacrificing speed and generalizability.

```
# Add any missing columns with default values
for col in required_columns:
    if col not in input_df.columns:
        input_df[col] = 0

# Make prediction
if st.button("Predict GPA", use_container_width=True):
    prediction = model.predict(input_df)[0]
    try:
        prediction = float(prediction)
        st.write(f"Predicted GPA: {prediction:.2f}")
    except ValueError:
        st.write(f"Predicted GPA: {prediction}")

# Run the Streamlit app
if __name__ == '__main__':
    page4()
```

Model: Linear Regression
Mean Squared Error: 17.698672369779704
R-squared: 0.19485846088365

Model: Decision Tree
Mean Squared Error: 31.756302521008404
R-squared: -0.4446461154943331

Model: Random Forest
Mean Squared Error: 14.770373109243701
R-squared: 0.3280715813009173

Model: Support Vector Machine
Mean Squared Error: 20.476179287699185
R-squared: 0.06850513064073083

GITHUP LINK



اللوجيات



STUDENT DROPOUT PREDICTION



InsightfulEd

Main Menu

- Student Dropout Prediction
- Bullying Prediction
- Income Prediction
- Student GPA Prediction

Deploy

Age at enrollment: 25

Debtors: Yes

Marital status: Single

Prediction: Not Dropout

Prediction Probability: 44.46%

Show Feature Importance

Feature	Importance
Age at enrollment	0.2784
Scholarship holder	0.1827
Father's occupation	0.1597
Mother's occupation	0.1537
Debtors	0.1182
Gender	0.0781
Marital status	0.0292

BULLYING PREDICTION



InsightfulEd

Main Menu

- Student Dropout Prediction
- Bullying Prediction
- Income Prediction
- Student GPA Prediction

Victim? Parents? Student advisor?

Predict

This student is likely to have been bullied.



Probability of being bullied: 0.52

Most likely reason for bullying:

- Physical attacks



INCOME PREDICTION



Deploy ☰

Answer the questions to predict your salary

Select age:

Select marital status:

Select occupation:

Select educational number:

Select hours per week:

parttime
 fulltime

Predict Income Class

The predicted income : <50K

Main Menu

- Student Dropout Prediction
- Bullying Prediction
- Income Prediction
- Student GPA Prediction

STUDENT GPA PREDICTION



InsightfullEd

Main Menu

- Student Dropout Prediction
- Bullying Prediction
- Income Prediction
- Student GPA Prediction**

Deploy

Sleeping hours (hours per night)

Weekend alcohol consumption (1-5)

Current health status (1-5)

Number of school absences

Mother's job

Father's job

Predict

Predicted final grade: 10.67 out of 20

This image shows a user interface for a machine learning application called "InsightfullEd". The main title is "STUDENT GPA PREDICTION". On the left, there is a stylized head profile icon with a colorful, abstract pattern. Below it, the brand name "InsightfullEd" is displayed. A sidebar on the left contains a "Main Menu" with options: "Student Dropout Prediction", "Bullying Prediction", "Income Prediction", and "Student GPA Prediction", with the last one being highlighted. The main content area has a dark background with various input fields and sliders. At the top right, there is a "Deploy" button. The input fields include:

- "Sleeping hours (hours per night)" with a slider from 1 to 5.
- "Weekend alcohol consumption (1-5)" with a slider from 1 to 5.
- "Current health status (1-5)" with a slider from 1 to 5.
- "Number of school absences" with a slider from 0 to 93.
- "Mother's job" dropdown menu showing "at_home" (selected).
- "Father's job" dropdown menu showing "at_home" (selected).

A large "Predict" button is located at the bottom. At the very bottom, the text "Predicted final grade: 10.67 out of 20" is displayed. The overall design is modern and minimalist, using a dark color palette with purple and white highlights.

شکرلئام

