College Students & Depression

Project 4 | Group 3

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More Common Than You Think...

1 in 5 youth and young adults experiences a mental health concern

Suicide is the **third leading cause of death** for college students

Studies show that more students are dealing with depression now than those of previous generations.

According to the Mayo Clinic, 44% of college students reported having symptoms of depression and anxiety.

Despite the rise in depression among college students, many do not seek help because they are not aware of the signs and symptoms.

Project Goal: Detecting Depression

1. Create a supervised classification model that can recognize signs of depression to identify at-risk individuals.

2. Develop an interactive platform that provides information and support resources to those in need.

Data Source:

The Healthy Minds Network

The Healthy Minds Network is one of the nation's premier research organizations contributing to adolescent and young adult mental health.

WorkFlow:

Extract

Data Type: CSV File
Our group is analyzing data from The Healthy Minds Network 2016 -2017 survey of more than 50,000 students across 54 universities.

## Transform

Data was cleaned using python.

Process and ML

PyCaret was used to process data. The most relevant features were selected and multicolinearity was minimized. Models were compared/evaluated and predictions were made via web app.

Data Processing

```python
from pycaret.classification import *
regr = setup(data = data, target = 'dx_dep1', session_id=123,
                normalize = True,
                silent = True,
                data_split_stratify = True,
                fix_imbalance = True,
                transformation = True,
                ignore_low_variance = True,
                feature_selection = True,
                feature_selection_threshold = 0.005,
                bin_numeric_features = ["hours_work_paid", "age", "bmi"],
                high_cardinality_features = ["residenc", "timeclass", "BRS_1", "BRS_3", "BRS_5", "belong8", "educ_par2"],
                remove_multicollinearity = True, multicollinearity_threshold = 0.65)
```
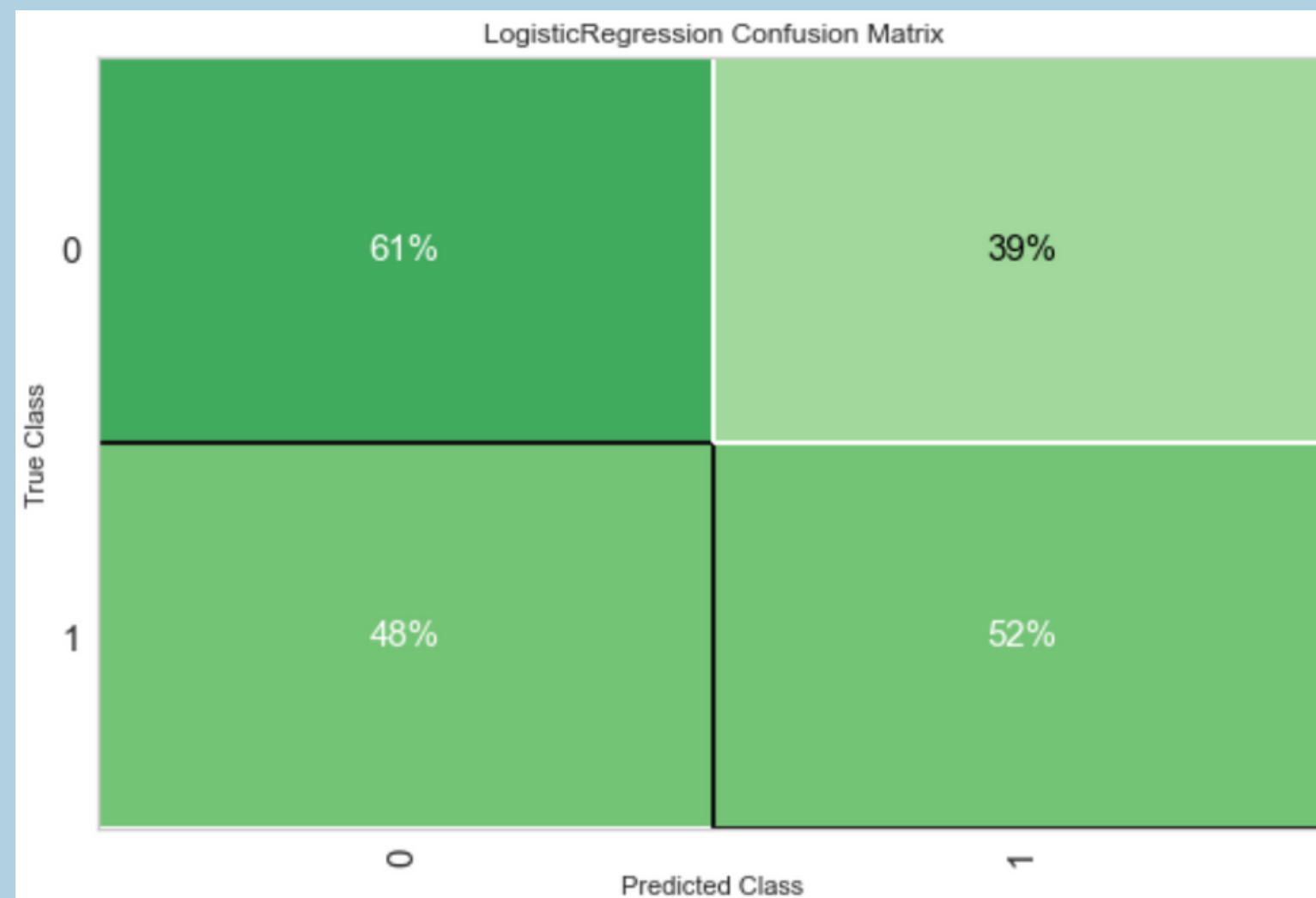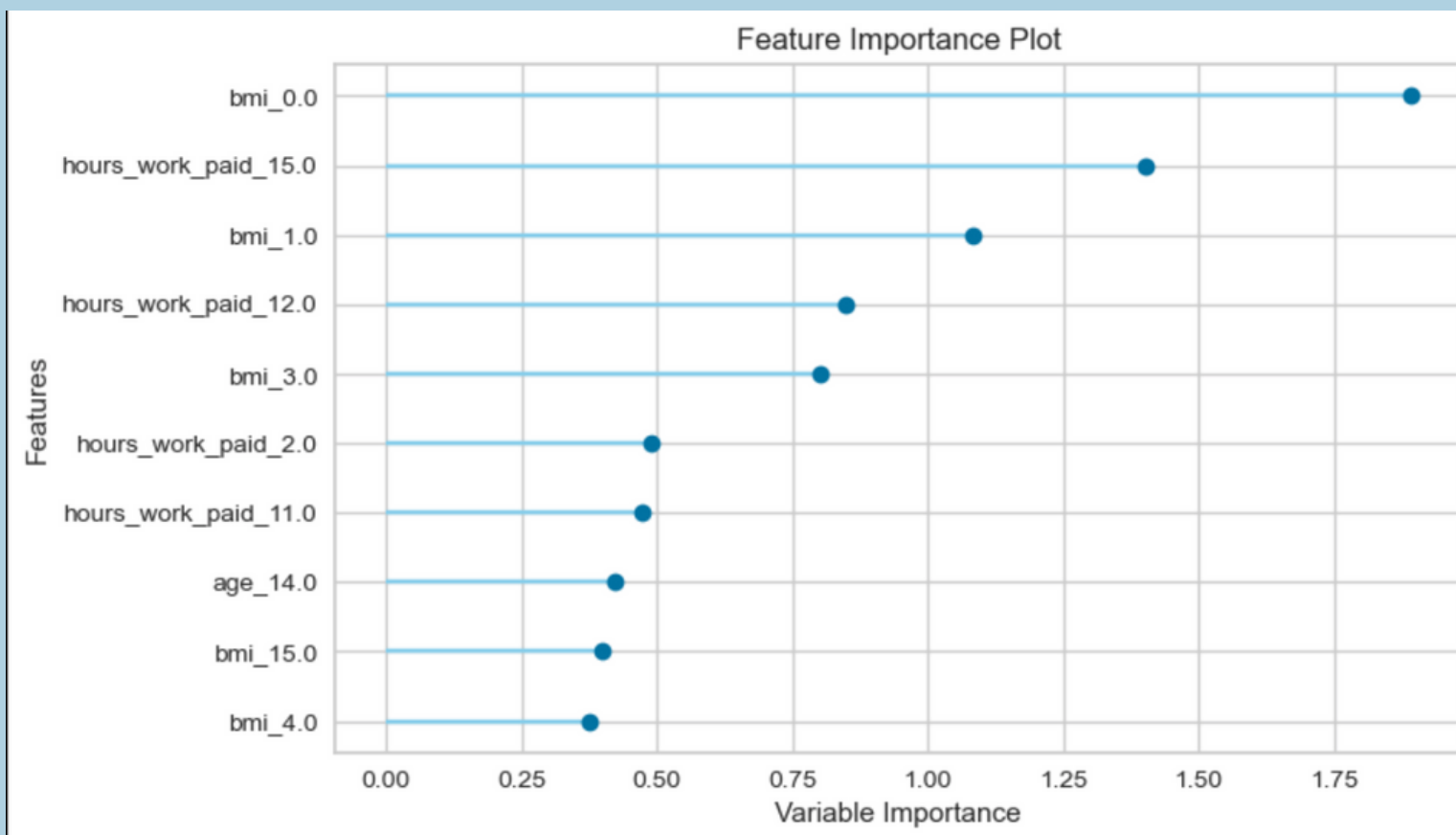
Confusion Matrix Comparison 1

Variable Definitions:

bmi: Body mass index

hours_work_paid: "What is the average number of hours you work per week during the school year?"

age: "How old are you?"

Confusion Matrix Comparison 2

Variable Definitions:

ther_helped_me: "How helpful, overall, do you think therapy or counseling was or has been for your mental or emotional health?"

dx_anx: "Have you ever been diagnosed with anxiety?"

meds_time: "During the past year I have taken Mood Stabilizers for 2 months or more."
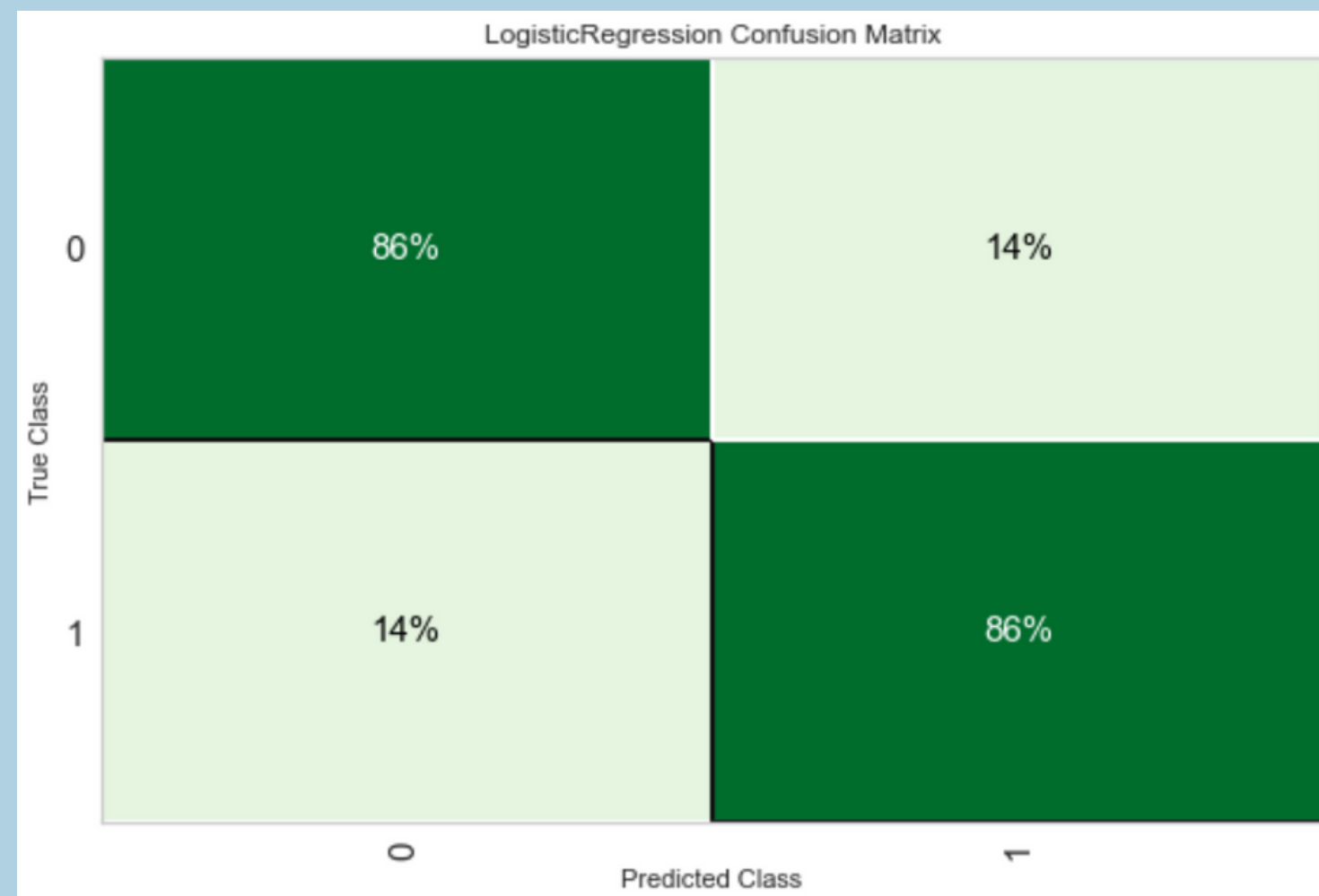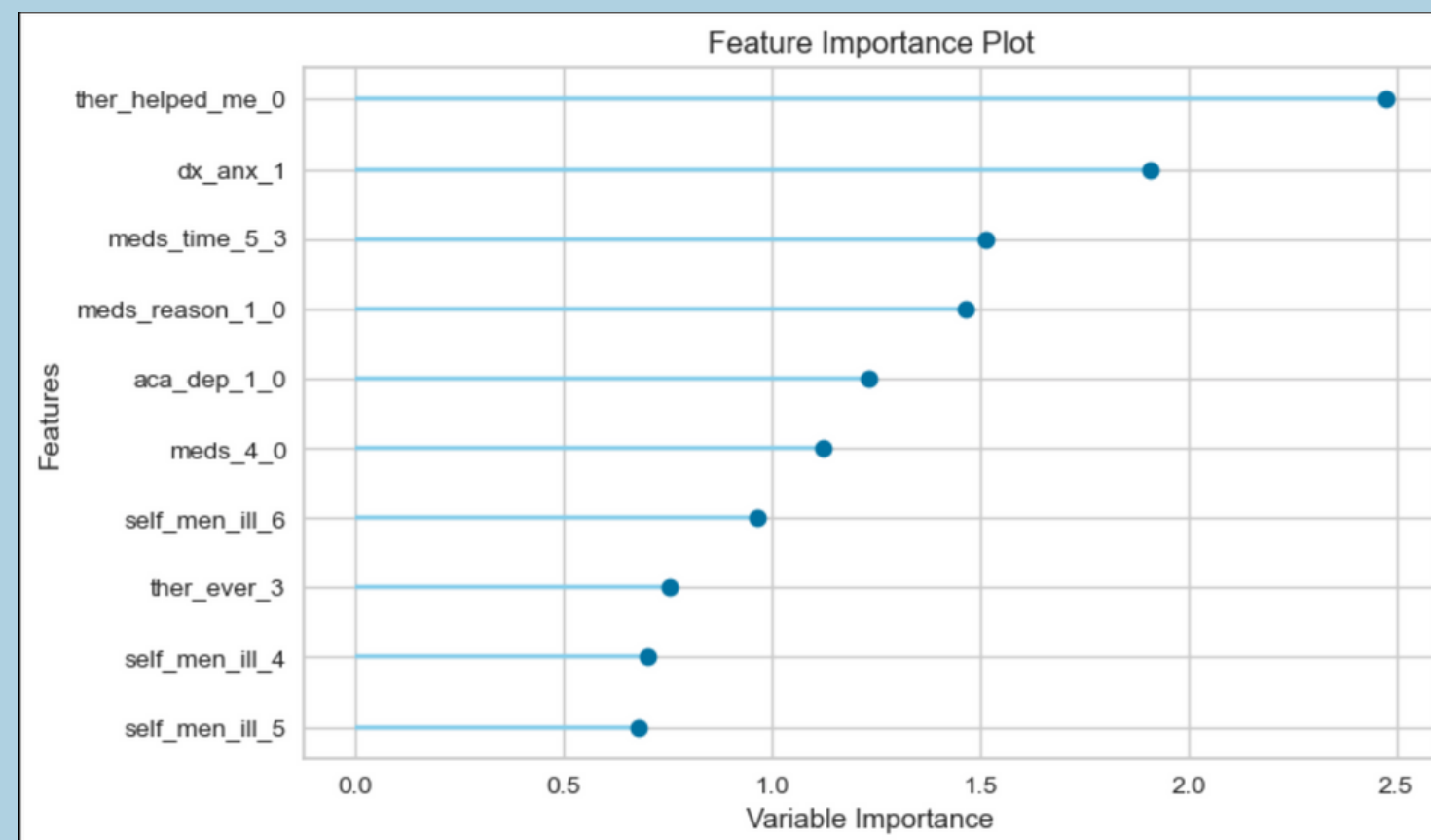
meds_reason: "I take medication(s) for mental or emotional health."

aca_dep: "In the past year, I did not experience depression or suicidality."

meds: "In the past 12 months, I have taken anti-anxiety medication."

self_men_ill: "I see myself as a person with mental illness."

ther_ever: "Have you ever received counseling or therapy for mental health concerns?"

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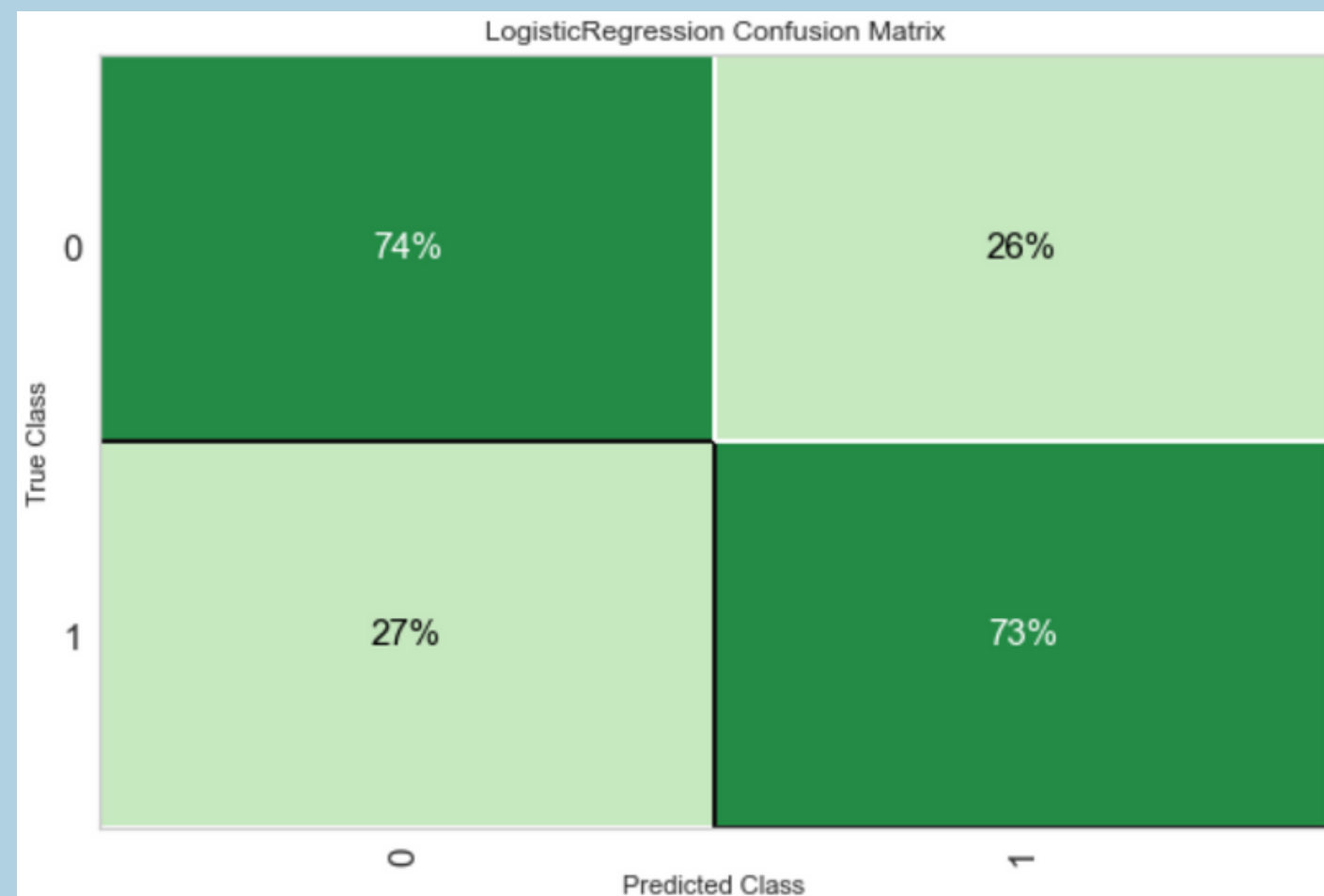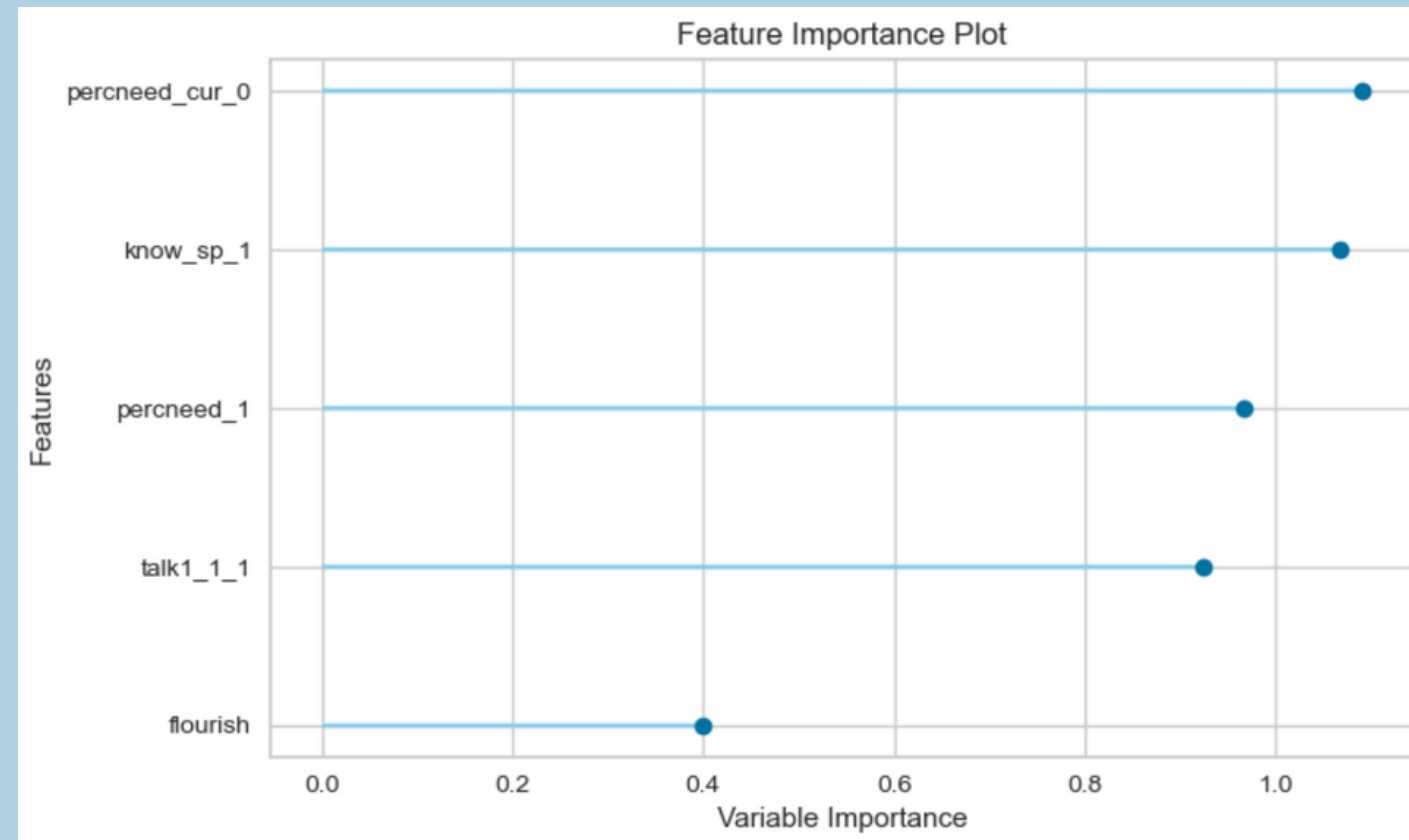
Confusion Matrix Comparison 3

Variable Definitions:

percneed: "In the past 12 months, I needed help for emotional or mental health problems such as feeling sad, blue, anxious or nervous."

know_sp: "Relative to the average person, how knowledgeable are you about mental illnesses (such as depression and anxiety disorders) and their treatments?"

talk_1_1_1: "If I were experiencing serious emotional distress, I would talk to a Professional clinician."

flourish: Measurement of the respondent's self-perceived success in important areas such as relationships, self-esteem, purpose, and optimism.

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