Scenario

We want to see whether the churned customers spent higher than the existing customers based on the average purchase amount.

Hypothesis

H0: There is no significant difference in average purchase amount between churned and existing customers.

Ha: There is a significant difference in average purchase amount between churned and existing customers.

Sig. Level

0.05 or 5%

Appropriate Test

Independent sample t-test

(If normality assumed)

Performing Test

```
from scipy import stats


churned = preprocessed_data.query('Churn_Status == "Yes"')['Average_Purchase_Amount']
existing = preprocessed_data.query('Churn_Status == "No"')['Average_Purchase_Amount']


t_statistic, p_value = stats.ttest_ind(churned, existing)
print("P-value:", p_value)
```

Decision & Conclusion

```
alpha = 0.05

if p_value < alpha:

    print("Reject the null hypothesis. There is a significant difference in average purchase amount between churned and existing customers.")

else:

    print("Fail to reject the null hypothesis. There is no significant difference in average purchase amount between churned and existing customers.")
```