```
import numpy as np
import pandas as pd

np.random.seed(42)

n = 5000

data = pd.DataFrame({
    "user_id": range(n),
    "group": np.random.choice(["A","B"], n),
})

data["converted"] = data["group"].apply(
    lambda x: np.random.binomial(1, 0.12 if x=="A" else 0.15)
)

data.to_csv("ab_test_data.csv", index=False)

data.head()
```

	user_id	group	converted
0	0	A	0
1	1	B	0
2	2	A	0
3	3	A	1
4	4	A	0

开始借助 AI 编写或生成代码。

```
summary = data.groupby("group")["converted"].agg(["mean","sum","count"])
summary
```

group	mean	sum	count
A	0.122204	306	2504
B	0.138221	345	2496

```
from statsmodels.stats.proportion import proportions_ztest

success = [306, 345]
nobs = [2504, 2496]

z_stat, p_value = proportions_ztest(success, nobs)

z_stat, p_value
```

```
(np.float64(-1.682719714283711), np.float64(0.09242936348122259))
```

Results

The model achieved strong performance on the test set.

Cross-validation confirms the robustness of the model.

This project demonstrates:

- Data preprocessing
- Feature encoding
- Model training
- Model evaluation (Accuracy, Confusion Matrix, Classification Report)
- Cross-validation

双击（或按回车键）即可修改

Results The model achieved strong performance...

A/B Test Statistical Result

A two-proportion z-test was conducted to compare conversion rates between Group A and Group B.

z-statistic = -1.68
p-value = 0.092

Conclusion: The difference is not statistically significant at the 0.05 level. Although Group B shows a slightly higher conversion rate, we cannot confidently conclude it performs better.

Business Insight: More data should be collected before making a final decision.