澳門大學
UNIVERSIDADE DE MACAU
UNIVERSITY OF MACAU

Changes in Dietary Habits of Chinese Students in Russia

Group AP

Motivation & Objectives

01

Topic

Dietary Adaptation Analysis of Chinese Students in Russia.

02

Motivation

Drastic difference between Chinese and Russian cuisine (Veg-based vs. Meat/Dairy-based).

03

Goal

Quantify dietary changes and predict student adaptation using Self-Collected Data.

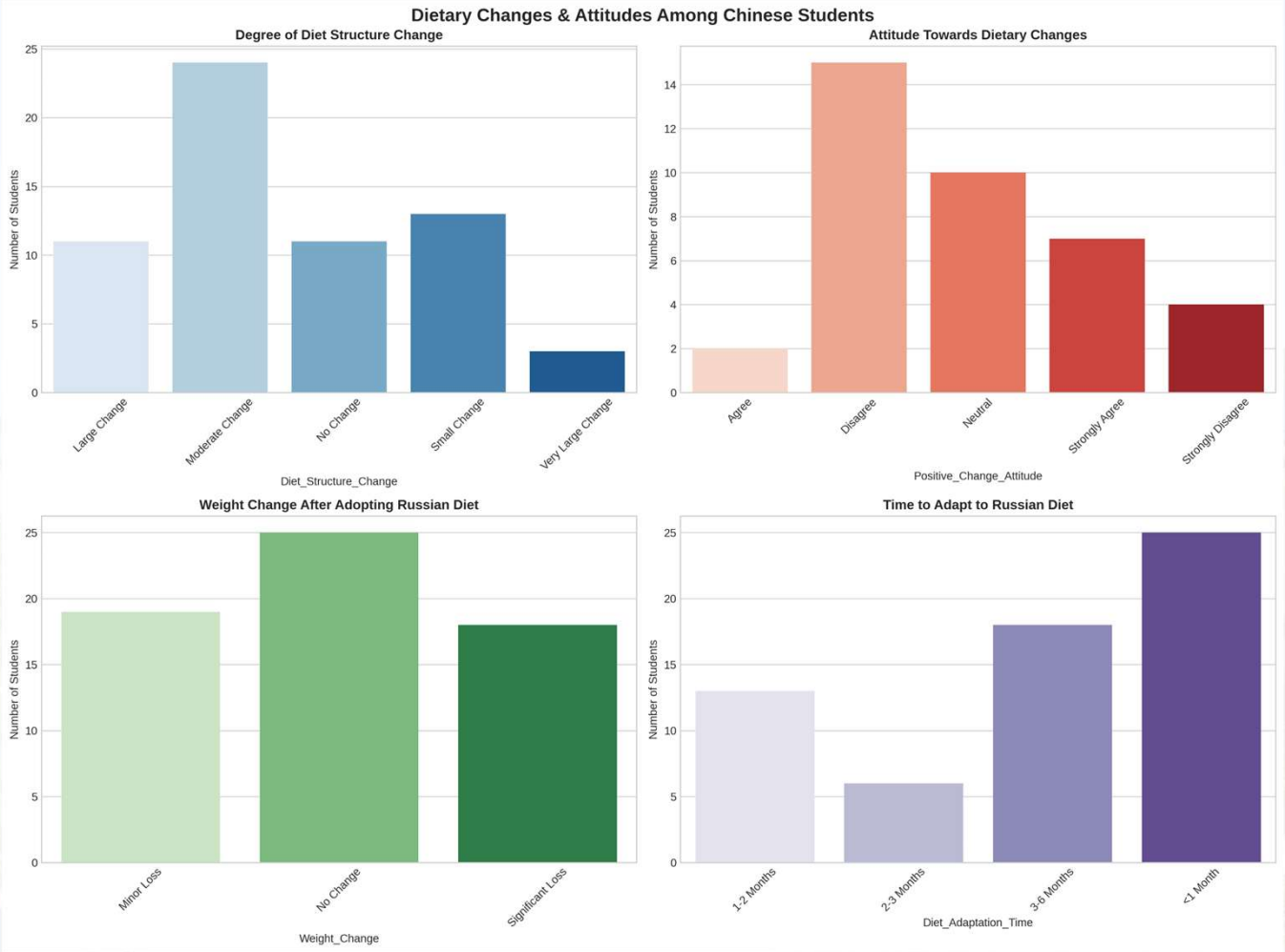
04

Approach

End-to-end workflow (Data Collection → Cleaning → EDA → Modeling).

Demographics

- Insight: A mature group of students, mostly in the early adaptation phase.



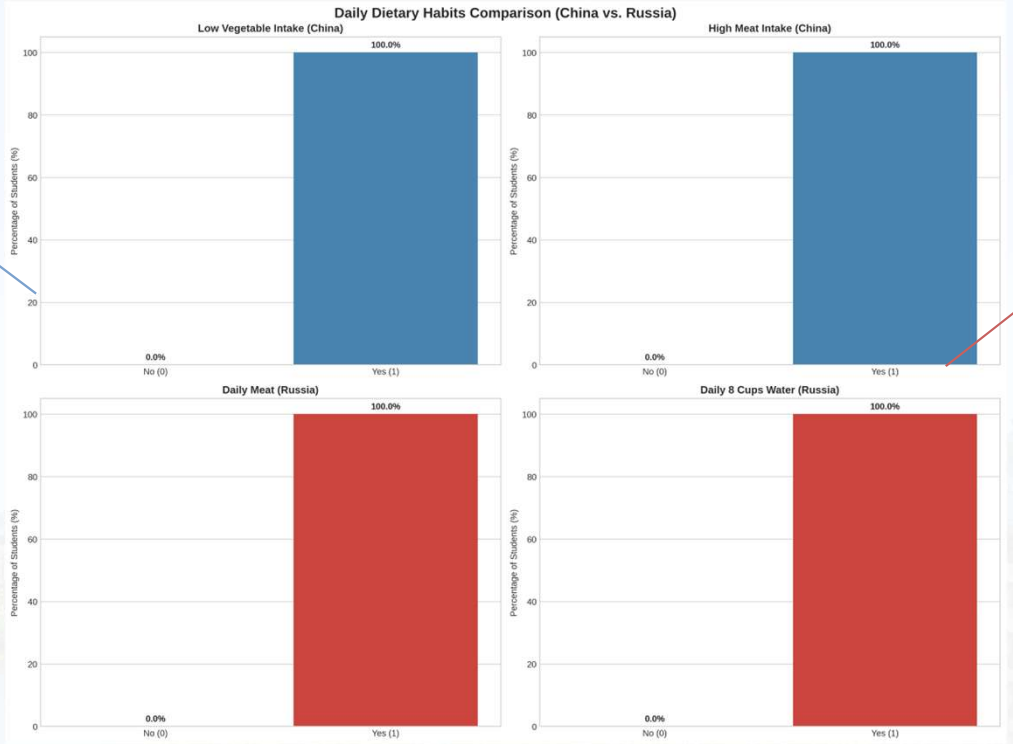
Sample Profile:

- Gender: Balanced distribution (Male/Female).
- Academic Grade: Majority are PhD students (Green bar) and Masters.
- Duration: Most have stayed for 1-2 Years or <1 Year.

Data Engineering

Feature Engineering:

Converted dietary frequencies into binary features (0/1).



Data Cleaning Decision

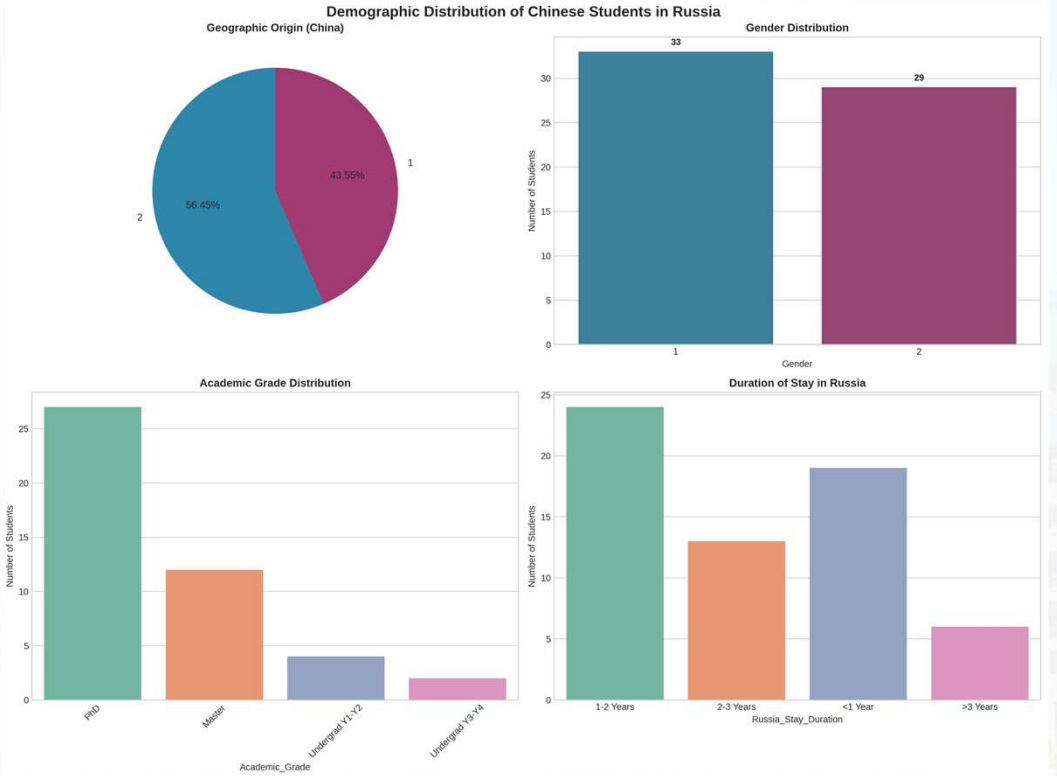
- Issue: Some features showed Zero Variance (e.g., 'Daily Meat (Russia)' = 100% Yes).
- Action: Removed non-informative features to prevent model bias.

Focus

Ensuring data quality before modeling.

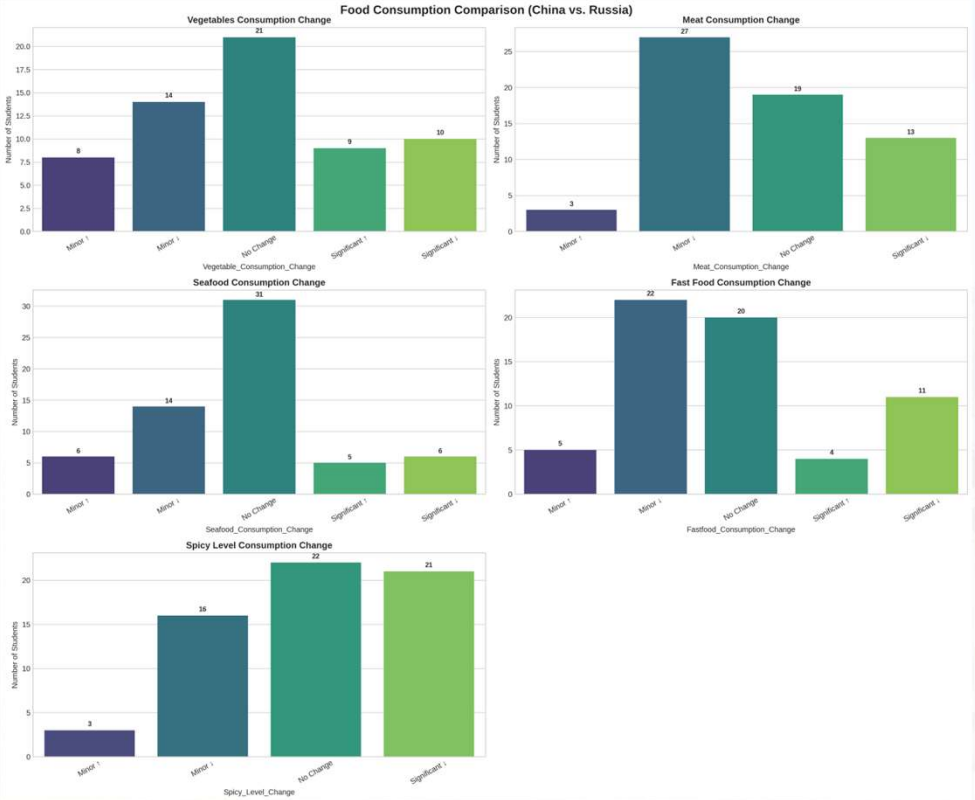
Dietary Comparison

- **Vegetables:** Significant Trend → Minor Decrease & No Change.
- **Meat:** Clear Trend → Minor Increase.
- **Fast Food:** Notable Increase (Convenience factor).
- **Conclusion:** The "Meat-heavy, Vegetable-light" stereotype is statistically confirmed.



Adaptation & Weight

- **Diet Structure:** Most students experienced Moderate to Large Changes.
- **Adaptation Time:** Fast adaptation (<1 Month or 3-6 Months).
- **Weight Impact:**
- Unexpected result: Majority reported No Change or Weight Loss.
- Contradicts the "High Calorie" assumption.
- **Attitude:** Generally positive or neutral towards changes.



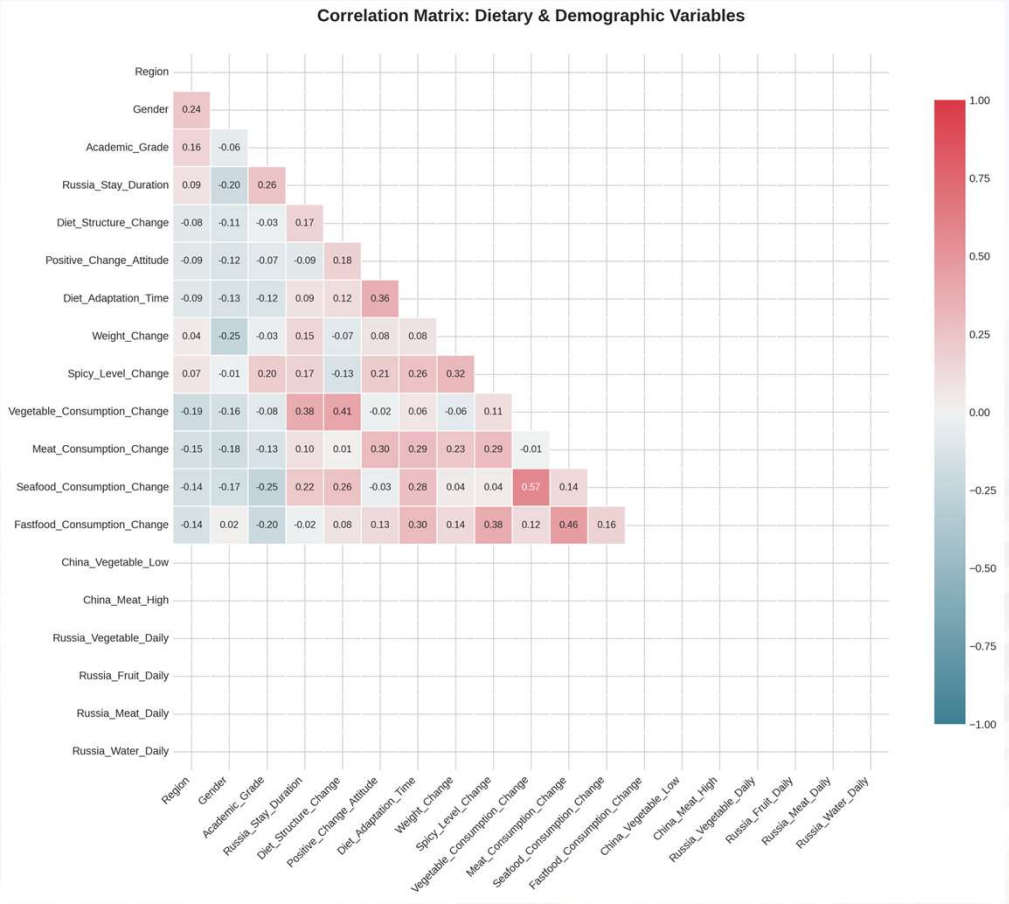
Correlation Analysis

Correlation Matrix:
- Analyzed relationships between demographics and dietary habits.

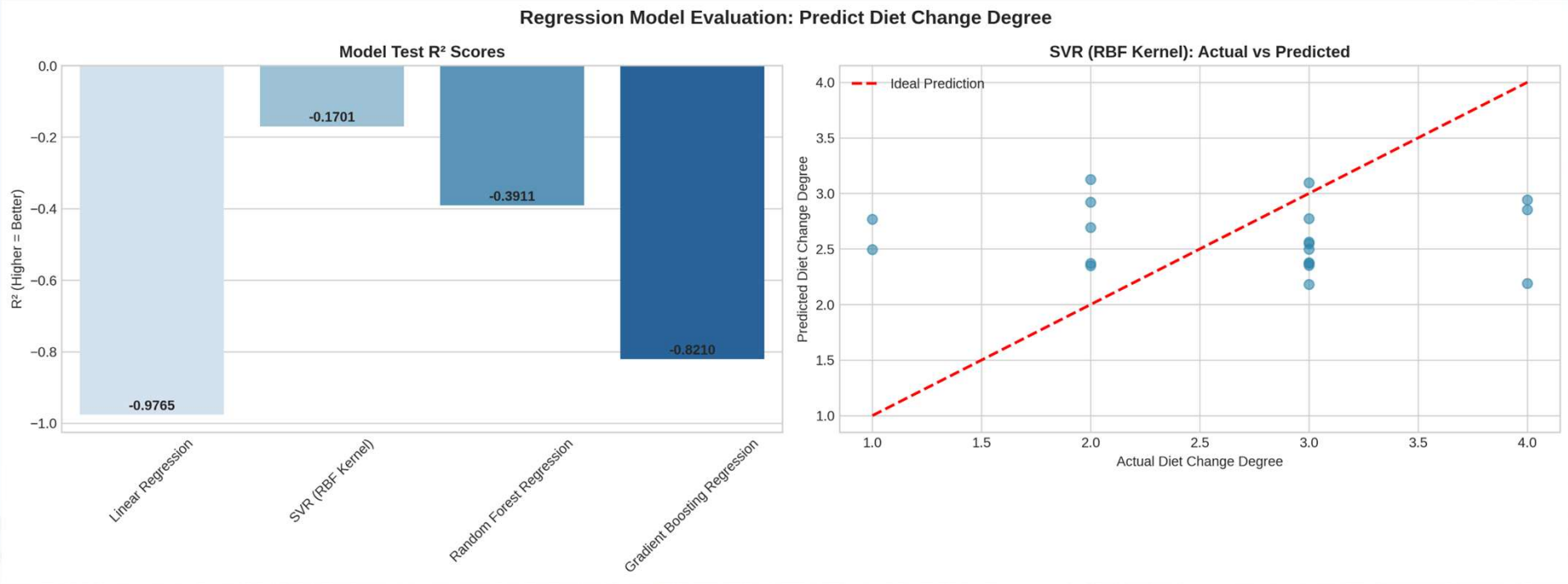
Preparation: Signals potential challenges for linear regression models.

Insight: Dietary behavior is complex and subjective; not easily explained by single linear factors.

Key Finding: Weak Linear Correlations (Light colors).



Regression Modeling

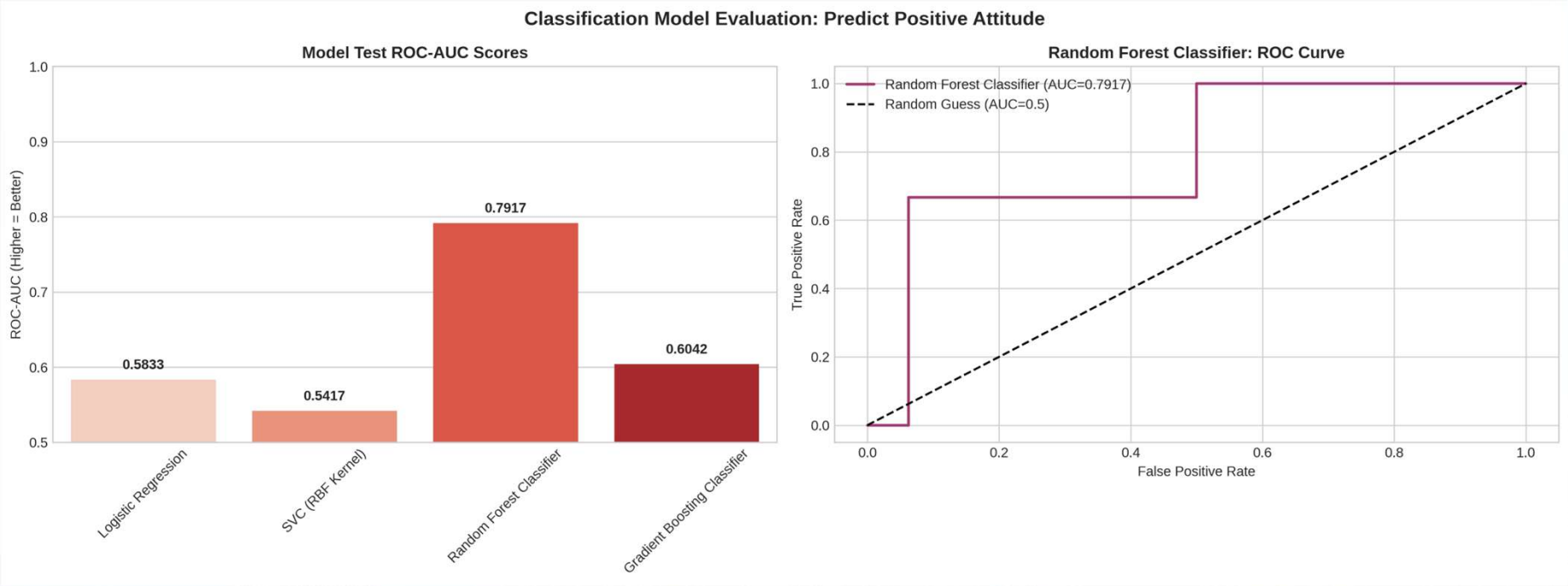


- **Task:** Predict the specific **"Degree of Diet Change"** (Numerical).
- **Models:** Linear Regression, SVR, Random Forest, Gradient Boosting.
- **Result: Negative R^2 Scores** (Model failed to generalize).

Analysis:

- Sample size constraints.
- Subjective nature of the target variable (1-5 scale).
- Decision: Pivot to Classification.

Conclusion & Limitations



- **New Task:** Predict "**Positive Attitude towards Diet**" (Binary: Yes/No).
- **Best Model:** Random Forest Classifier.
- **Performance:**

a) **AUC Score: 0.7917** (Strong predictive power).

b) Outperformed Logistic Regression & SVC.

Conclusion:
Non-linear tree models successfully captured the behavioral patterns.

Conclusion & Reflection

01

Key Findings:

- Confirmed shift to High-Meat / Low-Veg diet.
- Weight loss/maintenance is more common than weight gain.

02

Model Insight:

- Classification (Attitude) worked better than Regression (Degree).

03

Limitations:

- Small dataset size & self-reported subjectivity.

04

Future Work:

- Expand sample size & include nutritional macro-analysis.

Team member & contribution statement

Group AP

Presentation：Guo BoChen

Collect the data：Dang YingZhe / Hu BoYuan

Data visualizations：Dang YingZhe / Zhang Chi

Prepare the PPT slides：Peng Jianbin

Thank You!