Student Satisfaction Survey Analysis Report

Introduction

This analysis leverages **quantitative methods** and **Natural Language Processing (NLP)** to evaluate student feedback and assess the effectiveness of the institution's rating system. The goal is to transform raw survey data into actionable insights to improve academic quality and student experience.

Project Objectives

- **Quantify Satisfaction:** Establish a baseline score for overall student satisfaction (**3.84/5.0**).
- **Benchmark Performance:** Identify top and bottom-performing courses.
- **Validate Survey Design:** Examine rating-scale correlations (Weightage 1–5) to confirm reliability.
- **Thematic Analysis:** Use NLP to uncover core topics and critical factors impacting satisfaction.

Data Preparation and Tools Used

Tools

Category	Tools	Purpose
Data Manipulation	Pandas, NumPy	Data cleaning, feature engineering, satisfaction score extraction, numerical aggregation
Visualization	Matplotlib, Seaborn	Descriptive plots, course performance charts, correlation heatmaps
Text Analysis	TextBlob, WordCloud	NLP to extract key themes from survey questions and analyze open-ended feedback

Data Preparation Process

1. **Data Ingestion & Structure:** Loaded 580 survey records using Pandas; verified data types and completeness.
2. **Cleaning & Standardization:** Removed duplicate rows; addressed missing values in course and question fields.
3. **Feature Engineering:** Calculated the key metric **satisfaction_score (out of 5.0)** from raw averages/percentages; mean = **3.84**.

4. **Text Preprocessing (NLP):** Cleaned survey question text, removed stopwords, and extracted thematic nouns/phrases using TextBlob for analysis.

Key Insights

1. **Satisfaction is Positive but Below Excellence:**
   Overall mean satisfaction is **3.84/5.0**, above average but below the **4.0–4.5** benchmark for excellence.
2. **Critical Failure Points Exist:**
   Minimum scores of **1.0** indicate isolated yet significant dissatisfaction, which could negatively impact reputation.
3. **Significant Course Variation:**
   Major differences exist between top-performing courses (e.g., **TYBSC**) and low-performing courses (e.g., **FY B.VOC FOOD TECHNOLOGY**).
4. **Instructional Quality is the Primary Driver:**
   NLP analysis shows teaching effectiveness, communication, and preparation are the main factors affecting scores.
5. **Curriculum Coverage is Essential:**
   Frequent survey focus on syllabus delivery confirms students prioritize complete curriculum coverage.
6. **Technology Integration Matters:**
   ICT Tools are consistently assessed, showing technology is a standard expectation for teaching quality.
7. **High Rating Consistency:**
   Strong correlation (~**0.81**) between Weightage 4 (Good) and Weightage 5 (Excellent) indicates consistent positive ratings.
8. **Weightage 1 is a Reliable Warning Signal:**
   Strong negative correlation with Weightage 5 confirms “Poor” ratings accurately reflect genuine dissatisfaction.

Strategic Recommendations

1. **Benchmark for Excellence:**
   Target increasing satisfaction from **3.84 → 4.50**, prioritizing courses and questions below **4.0**.
2. **Mandatory Instructional Excellence Training:**
   Implement ongoing professional development covering pedagogy, communication, and ICT integration.

3. **Zero-Tolerance Audit on Critical Failures:**
   Investigate all **1.0** scores to identify and correct underlying causes immediately.
4. **Targeted Course Remediation:**
   Conduct audits and improvement plans for low-performing courses (e.g., **FY B.VOC FOOD TECHNOLOGY**) focusing on specific areas with low scores.
5. **Syllabus Completion Assurance:**
   Implement a Quality Assurance process to ensure **100% of syllabus content** is delivered across all courses.
6. **Technology Integration KPI:**
   Establish KPIs for effective ICT tool usage and integrate them into instructor performance evaluations.
7. **Best Practices Standardization:**
   Document teaching methods and resources from highest-rated courses (e.g., **TYBSC**) and adopt them institution-wide.
8. **Automated Feedback Monitoring:**
   Automate weekly TextBlob and WordCloud analysis to track themes in open-ended feedback and proactively address emerging concerns.

Conclusion

The institution's baseline satisfaction of **3.84/5.0** is positive but indicates a clear need to move from "Good" to "Excellent."
Instructional quality is the main lever for improvement, and addressing **critical failures**, standardizing best practices, and integrating technology effectively can help achieve a satisfaction target of **4.50** in future surveys.

Next Steps

1. **Isolate Root Causes:** Investigate sub-**2.0** scores to identify specific instructors or infrastructure issues.
2. **Link Instructor Performance:** Map survey results to instructors to create personalized development plans.
3. **Track Remediation Impact:** Monitor satisfaction improvements in low-performing courses in the next survey cycle.