



# Project 1 - 25.12.2025

## Student Achievement & Award Analysis Project

### Phase 1 - Cleaning Data

#### Key Project Insights:

- Data Cleaning & Integrity Objective: To convert a "dirty" raw dataset into a structured format ready for high-level analysis.

#### Actions Taken:

- Standardization: Normalized capitalization and removed white spaces to ensure 100% record matching.
- Error Correction: Performed a manual audit and automated substitution to fix spelling errors in award categories.
- Logical Ordering: Developed a chronological sorting system to replace default alphabetical sorting.
- The Result: Reduced data redundancy by approximately 20% and prepared the dataset for accurate visual trending.

### Phase 2 - Intermediate Analysis(Formula & Logic)

#### Task 2.1 - Extract Specific Month

##### • Key Project Insights:

- **Peak Performance: September** was identified as the most successful month for students, accounting for nearly **40% of all awards** in the dataset.

- **Key Driver:** The **I-TECHQUEST** event was a major contributor to the September success, showing high student engagement in technical competitions.
- **Technical Implementation:** I utilized **Pivot Tables** for rapid discovery and **INDEX/MATCH** formulas to create a dynamic "Month of the Year" summary.

## Task 2.2 - Team vs Individual (Categorical Analysis)

- **Key Project Insights**
  - **Balanced Achievement Portfolio:** The Pivot Table analysis confirms a nearly equal split in competition types, with **Team awards (52%)** slightly outpacing **Individual awards (48%)**.
  - **Collaboration Dominance:** With **36 Team wins** versus **33 Individual wins**, the data highlights that students are highly effective in collaborative environments like hackathons and group design challenges.
  - **Efficiency in Analysis:** By using a Pivot Table, I was able to identify that "Team" and "Individual" had multiple naming variations (due to trailing spaces). The Pivot Table grouping feature allowed for a quick visual audit to ensure all categories were merged correctly.

## Task 2.3 - Creating Student Leaderboard

- **Key Project Insights**
  - **Improved Data Accessibility:** By implementing a wildcard-enabled search tool, I reduced the "Time-to-Information" for end-users. Instead of scrolling through 69 rows, users can retrieve specific records in seconds.
  - **Handling Partial Strings:** The integration of the asterisk wildcard ensures the tool is "forgiving" to user input, capturing matches even if the full name or middle initial is missing.
  - **Dynamic Reporting:** I utilized the "Spill" functionality of **XLOOKUP** to return multiple data points (Award, Event, and Institution) from a single formula, showcasing a modern approach to Excel tool-building.

## Phase 3 - Data Visualization

- **Data Visualization & Reporting Objective:** To create a visual narrative of student success patterns for 2024.

### Task 3.1 Monthly Achievement Trend (Line Graph)

- **Goal:** To visualize the chronological flow of awards throughout the year.
- **Insight:** The graph highlights a significant surge in September. This visual helps in resource planning for students during high-competition months.
- **Chart Type:** Line Graph with Markers (linked to chronological helper column).

### Task 3.2 Team vs. Individual Distribution (Pie Chart)

- **Goal:** To represent the ratio of collaboration versus solo achievements.
- **Insight:** The Pie Chart visually emphasizes the balanced academic environment, with Team-based wins slightly leading at 52%.
- **Chart Type:** 2D Pie Chart with Percentage Data Labels.

### Task 3.3 Student Leaderboard (Data Set Sheet)

- **Goal:** To provide a clear, sorted table of the top 5 student achievers.
- **Technical Detail:** This sheet acts as the "Record of Truth," showcasing the top performers identified through the COUNTIF analysis.
- **Format:** Structured Data Table with Conditional Formatting for high values.

### The Result:

- The combination of these visuals transforms the raw CSV data into a comprehensive Student Achievement Dashboard, making the information accessible to both technical and non-technical stakeholders.