

Graduation Project Analytics Dashboard

A comprehensive data analysis tool for tracking and visualizing graduation project progress, team performance, and student contributions.

Overview

This project provides detailed analytics and visualizations for graduation project management, offering insights into team progress, task completion rates, meeting attendance, and student participation patterns.

Features

- **Team Progress Tracking:** Monitor task completion rates across different teams
- **Task Status Analysis:** Comprehensive breakdown of task statuses (completed, in-progress, pending)
- **Meeting Analytics:** Track meeting attendance and frequency per team
- **Student Performance:** Analyze individual student contributions and participation
- **Timeline Analysis:** Visualize project progress over time
- **Completion Time Metrics:** Analyze time taken to complete various tasks

Visualizations

The dashboard includes several key visualizations:

1. **Team Progress Chart:** Bar chart showing completion rates for each team
2. **Task Status Distribution:** Pie chart displaying overall task status breakdown
3. **Meeting Attendance:** Stacked bar chart showing attendance patterns by team
4. **Student Participation:** Bar chart highlighting number of students per team
5. **Meeting Frequency:** Visual representation of meeting frequency across teams
6. **Task Completion Timeline:** Histogram showing distribution of task completion times
7. **Top Contributors:** Bar chart featuring top 10 students by task contributions
8. **Individual Team Progress:** Horizontal progress bar for specific team analysis
9. **Cumulative Progress Over Time:** Line chart tracking team progress evolution

Data Requirements

The system expects a CSV file with the following columns:

- `team_id`: Unique identifier for each team
- `member_id`: Student member identifier
- `student_id`: Individual student identifier
- `task_status`: Status of tasks (completed, in-progress, pending)
- `task_created_at`: Task creation timestamp
- `task_updated_at`: Task last update timestamp
- `meeting.team_id`: Team ID for meeting data
- `meeting.meeting_id`: Unique meeting identifier
- `meeting_attendance_status`: Attendance status for meetings

Technologies Used

- **Python**: Core programming language
- **Pandas**: Data manipulation and analysis
- **Matplotlib**: Primary plotting library
- **Seaborn**: Statistical data visualization
- **Jupyter Notebook**: Development environment

Usage

1. Load your graduation project data into a CSV file named `graduation_project_database.csv`
2. Run the analysis script to generate all visualizations
3. Customize team selection by modifying the `selected_team_id` variable
4. Review generated charts and metrics for project insights

Key Metrics

The dashboard tracks several important metrics:

- Team completion rates
- Task distribution by status
- Meeting attendance rates
- Student participation levels
- Project timeline adherence
- Individual student contributions

Customization

The visualizations can be easily customized:

- Change color palettes by modifying the `palette` parameter
- Adjust figure sizes using the `figsize` parameter
- Select different teams for detailed analysis
- Modify time periods for timeline analysis

Output

The system generates:

- Multiple visualization charts
- Statistical summaries
- Progress tracking metrics
- Performance analytics
- Team comparison data

Contributing

Contributions are welcome! Please feel free to submit pull requests or open issues for bugs and feature requests.