**Karadeniz Technical University**

**Software Engineering Department**

**Programming II**

**Term Project Report**

# Project Title: Turkiye Neighborhood Information Management and Analysis System

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**Team Members:**

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# 1. Objective

The main objective of this project is to develop a Python-based system that enables management, search, analysis, and visualization of neighborhood data in Turkey. The system reads data from a text file and provides users with a variety of functions, including search operations, listing neighborhoods, adding, deleting, updating and moving neighborhood records, and visualizing data through bar and pie charts using Matplotlib.

# 2. Methodology

The system is developed by applying modular programming principles in Python. Each functionality is implemented in separate functions within an imported module. The program adheres to PEP 8 standards and includes error handling for file operations and user inputs. Lists are used as the main data structure to manipulate and manage the neighborhood data.

# 3. Implemented Features

* Exact and partial neighborhood search
* Listing neighborhoods in a province or district in sorted order
* Adding, deleting, updating, and moving neighborhoods
* Visualizing data (bar and pie charts)
* Statistical analysis of the dataset including average, most/least common names

# 4. Sample Execution and Outputs

Various operations were tested, including searching for the neighborhood 'KABASAKAL', listing neighborhoods in 'Giresun -> Bulancak', and generating visual charts for a selected province. The system successfully performed these tasks and handled invalid inputs gracefully.

# 5. Challenges Encountered

Some of the challenges included parsing inconsistent data formats, managing data with similar names, and designing an intuitive user interface for console interaction. Additionally, managing display within a modular design posed integration challenges.

# 6. Conclusion

The project successfully demonstrated the use of Python programming for solving real-world data management problems. Through this assignment, we gained experience in modular programming, data handling, and basic visualization techniques.

Good luck to everyone. I am sure I will see very nice programs.