Secret Santa Assignment System Documentation

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1. Introduction

The Secret Santa Assignment System automates the process of assigning Secret Santa pairs. The system ensures that employees do not receive themselves and prevents repeating previous assignments. It uses Excel files to manage employee data and assignment results.

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2. Features

- Reads employee details from an Excel file.
- Loads previous Secret Santa assignments.
- Ensures no employee gets assigned to themselves.
- Prevents repeating previous assignments.
- Saves the new assignments in an Excel file.
- Implements loose coupling for flexibility and modularity.

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3. System Requirements

- **Node.js** (version 16+ recommended)
- **npm** (Node Package Manager)
- **Excel (.xlsx) files** containing employee data

4. Installation

Step 1: Clone the Repository

git clone https://github.com/your-repo/secret-santa.git
 cd secret-santa

Step 2: Install Dependencies

npm install

5. Project Structure

```
📦 secret-santa
    ── 📁 data              # Stores employee and result files
    ── 📁 src             # Source code
        ── config.js         # Configuration file (file paths)
        ── FileHandler.js        # Handles reading/writing Excel files
        ── SecretSanta.js         # Core logic for assignment
        ── index.js           # Entry point of the application
    ── 📜 README.md            # Documentation
    ── 📜 package.json           # Project dependencies
```

6. Usage

Running the Secret Santa Assignment

npm start

Expected Output

📁 Loading employee data...
✅ Loaded 15 employees.
📁 Loading previous assignments...
✅ Loaded 15 previous assignments.
🎁 Assigning Secret Santa...
📁 Saving assignments...
✅ Secret Santa assignments saved: ./data/Secret-Santa-Assignments-2024.xlsx

7. Configuration

The file paths for input and output are defined in `config.js`:

```
module.exports = {
  EMPLOYEE_FILE: path.join(__dirname, "../data/Employee-List.xlsx"),
  PREVIOUS_FILE: path.join(__dirname, "../data/Secret-Santa-Game-Result-2023.xlsx"),
  OUTPUT_FILE: path.join(__dirname, "../data/Secret-Santa-Assignments-2024.xlsx"),
};
```

Modify these paths if needed.

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8. Error Handling

The system includes error handling for common issues such as:

- **Missing Files**: If required input files are missing, an error message is displayed.
- **Invalid Data**: Ensures employees are in the correct format.
- **Assignment Failures**: If no valid assignments can be made, an error is thrown.

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9. Testing

Running Unit Tests

npm test

Unit tests verify:

- File reading and writing functions.
- Secret Santa assignment logic.
- Error handling scenarios.

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10. Future Improvements

- **Database Integration**: Store employee data and assignments in a database.
- **Web Interface**: Create a web-based UI for managing assignments.
- **Email Notifications**: Automatically notify employees of their assigned Secret Santa.

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11. Conclusion

The Secret Santa Assignment System provides an efficient and automated solution for managing Secret Santa pairings while ensuring fairness and avoiding duplicate assignments. The system is modular, extensible, and easy to configure for different organizational needs.

For more details, refer to the README.md file or contact the project maintainers.