

Contact Management System

Project Description

The **Contact Management System** is a Python-based application designed to efficiently store, manage, and organize contact information. The system uses **dictionaries and functions** to implement full **CRUD operations** (Create, Read, Update, Delete), along with search functionality and data persistence.

This project provides a user-friendly, menu-driven interface that allows users to manage contacts easily while ensuring data accuracy through validation and error handling. Contacts are automatically saved to a file, ensuring data is preserved between program runs.

What I Learned

Through this project, I gained practical experience with:

1. **Functions** – Writing reusable and well-organized code
2. **Dictionaries** – Storing and managing structured data using key-value pairs
3. **String Methods** – Formatting and validating user input
4. **File Operations** – Saving and loading data using JSON files
5. **Input Validation** – Preventing incorrect or invalid data entry
6. **Error Handling** – Handling unexpected user input and runtime errors gracefully

Features

- Add new contacts with input validation
- Search contacts by name (partial matching supported)
- Update existing contact details
- Delete contacts with confirmation
- View all contacts in a formatted layout
- Automatic saving of contacts to a JSON file
- Load contacts automatically on program startup
- Export contacts to CSV format
- Contact statistics and analytics
- Phone number and email validation
- User-friendly, menu-driven interface
- Robust error handling for all operations

How to Run

Navigate to project folder

```
cd week3-contact-manager
```

Install any requirements (if needed)

```
pip install -r requirements.txt
```

Run the program

```
python contacts_manager.py
```

Run tests

```
python test_contacts.py
```

Data Structure

```
contacts = {  
    "John Doe": {  
        "phone": "+1234567890",  
        "email": "john@example.com",  
        "address": "123 Main St",  
        "group": "Friends"  
    },  
    "Jane Smith": {  
        "phone": "+0987654321",  
        "email": "jane@example.com",  
        "address": "456 Oak Ave",  
        "group": "Work"  
    }  
}
```

Sample Menu

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CONTACT MANAGEMENT SYSTEM

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1. Add New Contact
2. Search Contact
3. Update Contact
4. Delete Contact
5. View All Contacts
6. Export to CSV
7. View Statistics
8. Exit

If you want, I can also help you with:

- **Final project report**
- **Viva / oral exam questions**
- **Flowchart or UML diagram**
- **Web-based version**
- **Improved test cases**