

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
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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

CONTACT MANAGEMENT SYSTEM

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**