HOSPITAL PATIENT RECORD & BILLING SYSTEM - USER GUIDE

System Overview

This is a comprehensive Python-based Hospital Management System designed for hospital front desks, administrators, and medical office staff. It handles patient records, appointments, and billing operations through a MySQL database.

Prerequisites

- Python 3.7 or higher
- MySQL Server
- Required Python packages:
    - tabulate
    - pandas
    - mysql-connector-python (version 8.0 or higher)

Main Components

1. Patient Management (`patient.py`)

- Add new patients
- Update patient information
- View patient records
- Search for patients by ID or name

2. Doctor Management (`doctor.py`)

- Manage doctor records
- View doctor schedules
- Update doctor information

3. Appointment System (`appointment.py`)

- Schedule new appointments
- Update existing appointments
- View appointment history
- Cancel appointments
- Filter appointments by date range

4. Billing System (`billing.py`)

- Generate new bills
- Calculate charges for services
- Create itemized invoices
- Track payment status
- View billing history

5. Services Management (`service.py`)

- Track hospital services
- Manage service pricing
- Associate services with appointments

How to Use the System

1. Initial Setup

Install the required dependencies:

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

2. Configure your database connection in `db_config.py`

3. Run the main application:

```bash
python hospital_main.py
```

2. Daily Operations

Creating New Appointments

- Use the appointment module
- Enter patient and doctor IDs
- Select appointment date and time
- Add diagnosis and consulting charges

Managing Patient Records

- Register new patients
- Update existing patient information
- Search for patient records

For Billing Staff

Generating Bills

- Select patient and appointment
- Add services provided
- Generate itemized invoice
- Print or save invoice

Payment Processing

- Update payment status
- Generate payment receipts

Administrative Tasks

Reporting

- Export appointment data to CSV using `appt_per_doc.py`
- Generate service usage reports
- View doctor-wise appointment statistics

Data Management

- Backup important records
- Monitor system usage
- Manage user access

File Structure

- `hospital_main.py`: Main application entry point
- `patient.py`: Patient management module
- `doctor.py`: Doctor management module
- `appointment.py`: Appointment handling
- `billing.py`: Billing operations
- `service.py`: Service management
- `db_config.py`: Database configuration
- `person.py`: Base person class
- `import_csv.py`: Data import utilities

Output Directories

- `output/`: Contains generated reports and invoices
- `CSVreports/`: Stores exported CSV reports

Best Practices

- Always verify patient and doctor IDs before creating appointments
- Double-check billing information before generating invoices
- Regularly export and backup important data
- Use the search functions to avoid duplicate entries
- Keep patient information up to date

Troubleshooting

- If database connection fails, check `db_config.py` settings
- For export issues, ensure proper write permissions in output directories
- Verify all required fields are filled when creating new records
- Check MySQL server status if experiencing connection issues

Support

For technical support or bug reports:

- Check the existing documentation
- Review error messages carefully
- Contact system administrator for database-related issues

This system is designed to be user-friendly while maintaining robust functionality for hospital management needs. Each module is integrated to provide a seamless experience for managing patient records, appointments, and billing operations.

Cli workflow images

Main Menu of each record

```
=== Hospital Management System ===
1. Patient Records
2. Doctor Records
3. Service Records
4. Appointment Records
5. Billing Records
6. Export Records
7. Exit System
Select an option: ▮
```

```
=== Patient Records ===
1. Find Patient Details
2. Register New Patient
3. Display all Patients
4. Modify Patient Record
5. Delete Patient Record
6. View Patient Services
7. Check Patient Admission Days
8. Return to Main Menu
Choose an option: _
```

```
=== Doctor Records ===
1. Find Doctor Details
2. Register New Doctor
3. Display All Doctors
4. Modify Doctor Record
5. Delete Doctor Record
6. Return to Main Menu
Choose an option:
```

```
=== Service Records ===
1. Register New Service
2. Display All Services
3. Modify Service
4. Remove Service
5. Return to Main Menu
Select an option: _
```

```
=== Appointment Records ===
1. Schedule New Appointment
2. View All Appointments
3. Modify Appointment Details
4. Cancel Appointment
5. Search/Filter Appointments
6. Calculate Days Between Patient Appointments
7. Return to Main Menu
Select an option:
```

```
=== Billing Records ===
1. Create New Bill
2. View All Billing Records
3. Modify Bill Details
4. Delete Bill Entry
5. Calculate Total Charges
6. Print/Generate Invoice
7. Return to Main Menu
Select an option: _
```

Patient Records

```
=== Patient Records ===
1. Find Patient Details
2. Register New Patient
3. Display all Patients
4. Modify Patient Record
5. Delete Patient Record
6. View Patient Services
7. Check Patient Admission Days
8. Return to Main Menu
Choose an option: 1
Enter part or full patient name: Austin
Patient_ID | Name | Age | Gender | Admission Date | Contact Number
1122 | Austin Middleton | 36 | M | 2024-03-05 | 9127838883
```

```
=== Patient Records ===
1. Find Patient Details
2. Register New Patient
3. Display all Patients
4. Modify Patient Record
5. Delete Patient Record
6. View Patient Services
7. Check Patient Admission Days
8. Return to Main Menu
Choose an option: 2
Patient ID: 1301
Enter Name: Dolly
Enter Age: 25
Enter Gender: F
Enter Admission Date (YYYY-MM-DD): 2025-05-22
Enter Contact Number: 6578492341
Patient added successfully.
```

```
=== Patient Records ===
1. Find Patient Details
2. Register New Patient
3. Display all Patients
4. Modify Patient Record
5. Delete Patient Record
6. View Patient Services
7. Check Patient Admission Days
8. Return to Main Menu
Choose an option: 3
```

Patient ID	Name	Age	Gender	Admission Date	Contact Number
1001	Brandon Russell	67	F	2024-06-17	9418042203
1002	Steven Johnson	93	Other	2024-08-08	9466434766
1003	Evelyn Christian	99	F	2024-11-27	9236699555
1004	George Cook	18	Other	2024-08-02	9543445177
1005	Aaron Graham	84	Other	2025-04-29	9342506144
1006	Kyle Jones	58	F	2025-05-02	9326031811
1007	Jerome Whitehead	87	F	2024-01-29	9321327758
1008	Charles Tyler	98	F	2025-03-08	9965987142
1009	Thomas Berry	97	F	2025-04-15	9074878906

```
=== Patient Records ===
1. Find Patient Details
2. Register New Patient
3. Display all Patients
4. Modify Patient Record
5. Delete Patient Record
6. View Patient Services
7. Check Patient Admission Days
8. Return to Main Menu
Choose an option: 4
Enter Patient ID to update: 1301
Leave field blank to keep existing value.

Enter Name [Dolly]: Kevin
Enter Age [25]: 26
Enter Gender (M/F/Other) [F]: M
Enter Admission Date (YYYY-MM-DD) [2025-05-22]:
Enter Contact Number [6578492341]:
Sucessfully updated the patient details.
```

```
=== Patient Records ===
1. Find Patient Details
2. Register New Patient
3. Display all Patients
4. Modify Patient Record
5. Delete Patient Record
6. View Patient Services
7. Check Patient Admission Days
8. Return to Main Menu
Choose an option: 5
Enter Patient ID to delete: 1301
Successfully deleted the patient
```

```
=== Patient Records ===
1. Find Patient Details
2. Register New Patient
3. Display all Patients
4. Modify Patient Record
5. Delete Patient Record
6. View Patient Services
7. Check Patient Admission Days
8. Return to Main Menu
Choose an option: 6
Enter Patient ID: 1300

Service Usage of Patient: 1300
1. Add Service Usage
2. View Services Used
3. Clear Services
4. Back to Patient Management
Select an option: 2
No services recorded.

Service Usage of Patient: 1300
1. Add Service Usage
2. View Services Used
3. Clear Services
4. Back to Patient Management
Select an option: 1
Enter Service ID: S02
Added X-Ray (ID: S02, Cost: 2874.8) for patient 1300
```

```
Service Usage of Patient: 1300
1. Add Service Usage
2. View Services Used
3. Clear Services
4. Back to Patient Management
Select an option: 3
Cleared services for patient 1300
```

```
=== Patient Records ===
1. Find Patient Details
2. Register New Patient
3. Display all Patients
4. Modify Patient Record
5. Delete Patient Record
6. View Patient Services
7. Check Patient Admission Days
8. Return to Main Menu
Choose an option: 7
Enter Patient ID: 1005
Patient 1005 has been admitted for 23 days.
```

Doctor Records

```
=== Doctor Records ===
1. Find Doctor Details
2. Register New Doctor
3. Display All Doctors
4. Modify Doctor Record
5. Delete Doctor Record
6. Return to Main Menu
Choose an option: 2
Doctor ID: D301
Enter Name: Teresa Thomas
Enter Specialization: Cardiology
Enter contact number: 6789665543
Doctor added successfully.
```

```
=== Doctor Records ===
1. Find Doctor Details
2. Register New Doctor
3. Display All Doctors
4. Modify Doctor Record
5. Delete Doctor Record
6. Return to Main Menu
Choose an option: 1
Enter Doctor name to find: Austin
+------------+--------------------+--------------------+------------------+
| Doctor ID  | Name               | Specialization     |  Contact Number  |
+============+====================+====================+==================+
| D175       | Dr. Roberto Austin | Dermatology        |      8844480986  |
+------------+--------------------+--------------------+------------------+
| D259       | Dr. Austin Walker  | Surgery            |      9800514351  |
+------------+--------------------+--------------------+------------------+
| D99        | Dr. Austin Garcia  | Radiology          |      8790836099  |
+------------+--------------------+--------------------+------------------+
```

```
=== Doctor Records ===
1. Find Doctor Details
2. Register New Doctor
3. Display All Doctors
4. Modify Doctor Record
5. Delete Doctor Record
6. Return to Main Menu
Choose an option: 3
+------------+--------------------+--------------------+------------------+
| Doctor ID  | Name               | Specialization     |  Contact Number  |
+============+====================+====================+==================+
| D01        | Dr. Chloe Sanford  | Gastroenterology   |      9263967057  |
+------------+--------------------+--------------------+------------------+
| D02        | Dr. Julie Alvarado | Urology            |      8982073057  |
+------------+--------------------+--------------------+------------------+
| D03        | Dr. Daniel Roberts | Neurology          |      8000705564  |
+------------+--------------------+--------------------+------------------+
| D04        | Dr. Christy Maddox | Surgery            |      9240785296  |
+------------+--------------------+--------------------+------------------+
| D05        | Dr. Corey Davis    | Oncology           |      8013472628  |
+------------+--------------------+--------------------+------------------+
| D06        | Dr. Holly Ruiz     | Surgery            |      8481568559  |
+------------+--------------------+--------------------+------------------+
| D07        | Dr. Mark Powell    | Pediatrics         |      7645287331  |
+------------+--------------------+--------------------+------------------+
| D08        | Dr. Jeffrey Torres | Radiology          |      9335826577  |
+------------+--------------------+--------------------+------------------+
| D09        | Dr. Rodney Frazier | Cardiology         |      7839399334  |
+------------+--------------------+--------------------+------------------+
| D10        | Dr. Sonya Foster   | Nephrology         |      8301185466  |
+------------+--------------------+--------------------+------------------+
```

```
=== Doctor Records ===
1. Find Doctor Details
2. Register New Doctor
3. Display All Doctors
4. Modify Doctor Record
5. Delete Doctor Record
6. Return to Main Menu
Choose an option: 5
Enter Doctor ID to delete: D99
Doctor deleted successfully.
```

```
Enter Name: Teresa Thomas
Enter Specialization: Cardiology
Enter contact number: 6789665543
Doctor added successfully.

=== Doctor Records ===
1. Find Doctor Details
2. Register New Doctor
3. Display All Doctors
4. Modify Doctor Record
5. Delete Doctor Record
6. Return to Main Menu
Choose an option: 4
Enter Doctor ID to update: D99
Leave blank to keep existing value.

Enter Name [Dr. Austin Garcia]: Austin
Enter Specialization [Radiology]:
Enter Contact No [8790836099]:
Doctor updated successfully.
```

```
=== Doctor Records ===
1. Find Doctor Details
2. Register New Doctor
3. Display All Doctors
4. Modify Doctor Record
5. Delete Doctor Record
6. Return to Main Menu
Choose an option: 5
Enter Doctor ID to delete: D99
Doctor deleted successfully.
```

Service Records

```
=== Service Records ===
1. Register New Service
2. Display All Services
3. Modify Service
4. Remove Service
5. Return to Main Menu
Select an option: 1
Auto-generated Service ID: S301
Enter Service Name: Acute Lasering
Enter Cost: 5000
Service added successfully.
```

```
=== Service Records ===
1. Register New Service
2. Display All Services
3. Modify Service
4. Remove Service
5. Return to Main Menu
Select an option: 2
+--------------+--------------------------+----------+
| Service ID   | Service Name             |     Cost |
+==============+==========================+==========+
| S01          | X-Ray                    | 2606.17  |
+--------------+--------------------------+----------+
| S02          | X-Ray                    | 2874.8   |
+--------------+--------------------------+----------+
| S03          | Dialysis                 | 190.95   |
+--------------+--------------------------+----------+
| S04          | Obstetric Ultrasound     | 899.03   |
+--------------+--------------------------+----------+
| S05          | Blood Test               | 3442.12  |
+--------------+--------------------------+----------+
```

```
=== Service Records ===
1. Register New Service
2. Display All Services
3. Modify Service
4. Remove Service
5. Return to Main Menu
Select an option: 3
Enter Service ID to update: S301
Leave input blank to keep current value.
Enter Service Name [Acute Lasering]: Acute
Enter Cost [5000.00]:
Service updated successfully.
```

```
=== Service Records ===
1. Register New Service
2. Display All Services
3. Modify Service
4. Remove Service
5. Return to Main Menu
Select an option: 4
Enter Service ID to delete: S301
Service deleted successfully.
```

Appointment Records

```
=== Appointment Records ===
1. Schedule New Appointment
2. View All Appointments
3. Modify Appointment Details
4. Cancel Appointment
5. Search/Filter Appointments
6. Calculate Days Between Patient Appointments
7. Return to Main Menu
Select an option: 1
Registered Appointment ID: A301
Enter Patient ID: 1034
Enter Doctor ID: D89
Enter Appointment Date (YYYY-MM-DD): 2025-05-22
Enter Diagnosis: aCUTE
Enter Consulting Charge: 200
Appointment added successfully.
```

```
=== Appointment Records ===
1. Schedule New Appointment
2. View All Appointments
3. Modify Appointment Details
4. Cancel Appointment
5. Search/Filter Appointments
6. Calculate Days Between Patient Appointments
7. Return to Main Menu
Select an option: 2
+----------------+------------+-----------+------------+-------------------------------------+------------------+
| Appointment ID | Patient ID | Doctor ID | Date       | Diagnosis                           | Consulting Charge |
+================+============+===========+============+=====================================+==================+
| A001           |       1016 | D202      | 2026-02-22 | Urinary Tract Infection (UTI)       |           363.41 |
+----------------+------------+-----------+------------+-------------------------------------+------------------+
| A002           |       1027 | D247      | 2024-06-05 | Cholecystitis, Acute                |           178.76 |
+----------------+------------+-----------+------------+-------------------------------------+------------------+
| A003           |       1123 | D64       | 2025-08-04 | Gastroenteritis                     |           152.08 |
+----------------+------------+-----------+------------+-------------------------------------+------------------+
| A004           |       1033 | D08       | 2024-05-18 | Deep Vein Thrombosis (DVT)          |           298.09 |
+----------------+------------+-----------+------------+-------------------------------------+------------------+
| A005           |       1271 | D109      | 2025-05-28 | Sepsis                              |           373.76 |
+----------------+------------+-----------+------------+-------------------------------------+------------------+
| A006           |       1012 | D46       | 2025-02-20 | Appendicitis, Acute                 |            240.4 |
+----------------+------------+-----------+------------+-------------------------------------+------------------+
| A007           |       1161 | D68       | 2025-05-20 | Pneumonia, Bacterial                |           491.34 |
+----------------+------------+-----------+------------+-------------------------------------+------------------+
| A008           |       1100 | D67       | 2025-11-14 | Asthma Exacerbation                 |           358.17 |
```

```
=== Appointment Records ===
1. Schedule New Appointment
2. View All Appointments
3. Modify Appointment Details
4. Cancel Appointment
5. Search/Filter Appointments
6. Calculate Days Between Patient Appointments
7. Return to Main Menu
Select an option: 3
Enter Appointment ID to update: A301
Leave input blank to keep current value.
Enter Patient ID [1034]:
Enter Doctor ID [D89]:
Enter Appointment Date (YYYY-MM-DD) [2025-05-22]:
Enter Diagnosis [aCUTE]: HyperTension
Enter Consulting Charge [200.00]: 500
Appointment updated successfully.
```

```
=== Appointment Records ===
1. Schedule New Appointment
2. View All Appointments
3. Modify Appointment Details
4. Cancel Appointment
5. Search/Filter Appointments
6. Calculate Days Between Patient Appointments
7. Return to Main Menu
Select an option: 4
Enter Appointment ID to delete: A301
Appointment cancelled successfully.
```

```
=== Appointment Records ===
1. Schedule New Appointment
2. View All Appointments
3. Modify Appointment Details
4. Cancel Appointment
5. Search/Filter Appointments
6. Calculate Days Between Patient Appointments
7. Return to Main Menu
Select an option: 5
Enter start date(YYYY-MM-DD): 2025-06-07
Enter end date(YYYY-MM-DD):2025-06-10

Appointments from 2025-06-07 to 2025-06-10
```

Appointment ID	Patient ID	Doctor ID	Date	Diagnosis	Consulting Charge
A066	1069	D18	2025-06-07	Kidney Stone (Nephrolithiasis)	87.44
A112	1024	D202	2025-06-09	Cellulitis	209.42
A198	1294	D94	2025-06-07	Stroke, Ischemic	385.15
A226	1083	D159	2025-06-10	Appendicitis, Acute	91.08
A295	1220	D75	2025-06-09	Pneumonia, Bacterial	116.95

```
=== Appointment Records ===
1. Schedule New Appointment
2. View All Appointments
3. Modify Appointment Details
4. Cancel Appointment
5. Search/Filter Appointments
6. Calculate Days Between Patient Appointments
7. Return to Main Menu
Select an option: 6
Enter Patient ID: 1034
Days between appointment 1 and 2: 43
```

Billing Records

```
=== Billing Records ===
1. Create New Bill
2. View All Billing Records
3. Modify Bill Details
4. Delete Bill Entry
5. Calculate Total Charges
6. Print/Generate Invoice
7. Return to Main Menu
Select an option: 1
Bill ID: B300
Enter Patient ID: 1034
Enter Billing Date (YYYY-MM-DD) [leave blank for today]:
DEBUG: Services fetched from temp_service_usage: [('S45', 'ECG', Decimal('839.82'))]
Bill added successfully. Total amount: 839.82
Billed services recorded.
Invoice generated and saved as output\invoices\bill_1034.txt
```

```
=== Billing Records ===
1. Create New Bill
2. View All Billing Records
3. Modify Bill Details
4. Delete Bill Entry
5. Calculate Total Charges
6. Print/Generate Invoice
7. Return to Main Menu
Select an option: 2
+-----------+--------------+-----------------+----------------+
| Bill ID   | Patient ID   | Total Amount    | Billing Date   |
+===========+==============+=================+================+
| B001      |         1192 |         4263.94 | 2025-02-02     |
+-----------+--------------+-----------------+----------------+
| B002      |         1008 |         9507.14 | 2025-12-12     |
+-----------+--------------+-----------------+----------------+
| B003      |         1083 |         7411.02 | 2024-12-22     |
+-----------+--------------+-----------------+----------------+
| B004      |         1067 |         6477.84 | 2025-07-01     |
+-----------+--------------+-----------------+----------------+
| B005      |         1221 |         1718.95 | 2025-05-19     |
+-----------+--------------+-----------------+----------------+
| B006      |         1204 |         1994.45 | 2026-01-01     |
+-----------+--------------+-----------------+----------------+
| B007      |         1268 |         1452.93 | 2025-04-14     |
+-----------+--------------+-----------------+----------------+
| B008      |         1027 |         9903.52 | 2024-12-30     |
+-----------+--------------+-----------------+----------------+
| B009      |         1127 |         6364.72 | 2024-11-09     |
+-----------+--------------+-----------------+----------------+
| B010      |         1009 |         7222.77 | 2025-05-06     |
+-----------+--------------+-----------------+----------------+
```

```
=== Billing Records ===
1. Create New Bill
2. View All Billing Records
3. Modify Bill Details
4. Delete Bill Entry
5. Calculate Total Charges
6. Print/Generate Invoice
7. Return to Main Menu
Select an option: 4
Enter Bill ID to delete: B300
Bill deleted successfully.
```

```
=== Billing Records ===
1. Create New Bill
2. View All Billing Records
3. Modify Bill Details
4. Delete Bill Entry
5. Calculate Total Charges
6. Print/Generate Invoice
7. Return to Main Menu
Select an option: 5
Enter Patient ID to compute total billing: 1034
Service Total: 839.82
Consulting Total: 637.26
Total Billing: 1477.08
Total bill for patient 1034: 1477.08
```

```
=== Billing Records ===
1. Create New Bill
2. View All Billing Records
3. Modify Bill Details
4. Delete Bill Entry
5. Calculate Total Charges
6. Print/Generate Invoice
7. Return to Main Menu
Select an option: 6
Generate Invoice Using:
1. By Bill ID
2. By Patient ID
Select an option: 2
Enter Patient ID to generate invoice: 1034
Invoice generated and saved as output\invoices\bill_1034.txt
```

Export Records

```
=== Export ===
1. Export Billing Summary
2. Export Appointment Summary
3. Return to Main Menu
Select an option: 1
Enter filename for billing summary (default: billing_summary.csv): Billing1
Billing summary exported to Billing1.csv
```

```
=== Export ===
1. Export Billing Summary
2. Export Appointment Summary
3. Return to Main Menu
Select an option: 2
Enter filename for appointment summary (default: appointment_summary.csv): Appt1
Appointment summary exported to Appt1.csv
```