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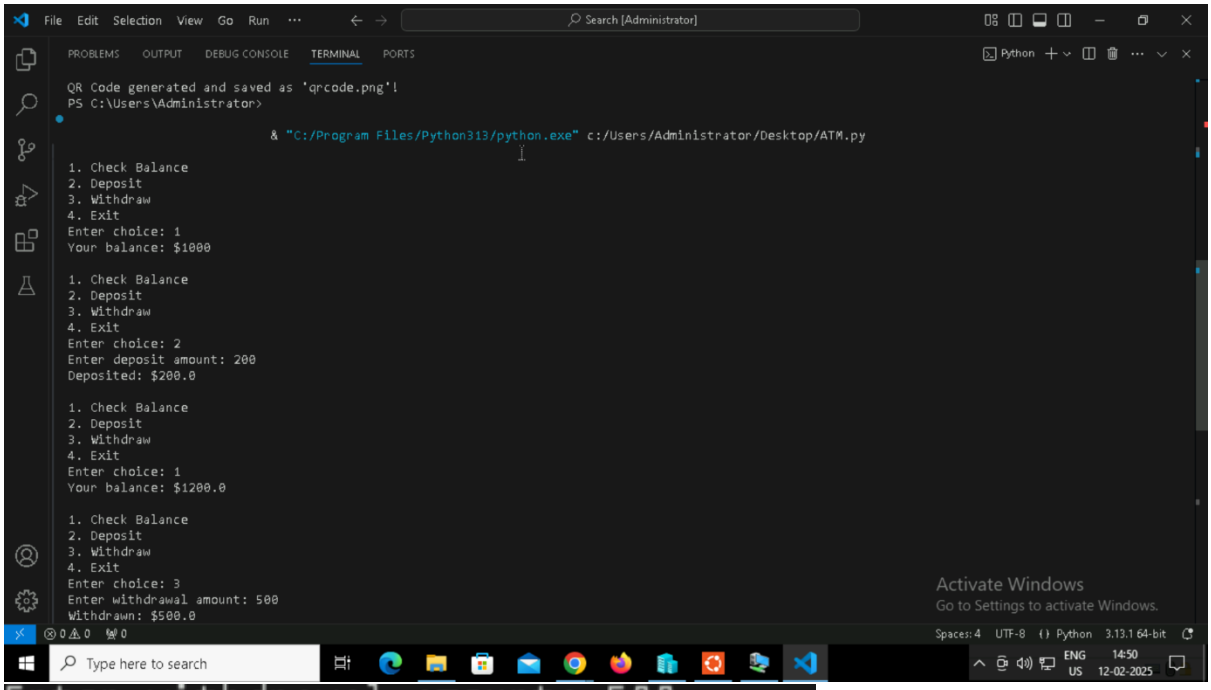
PYTHON CASE STUDIES

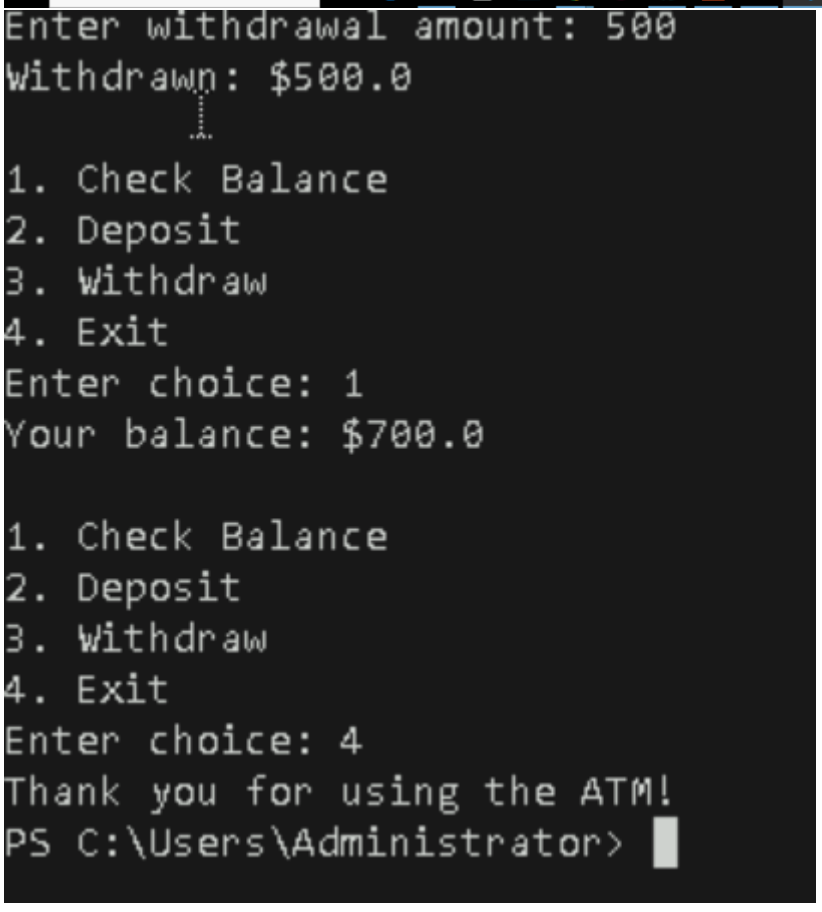
1) ATM Simulation syatem

Welcome ATM.py

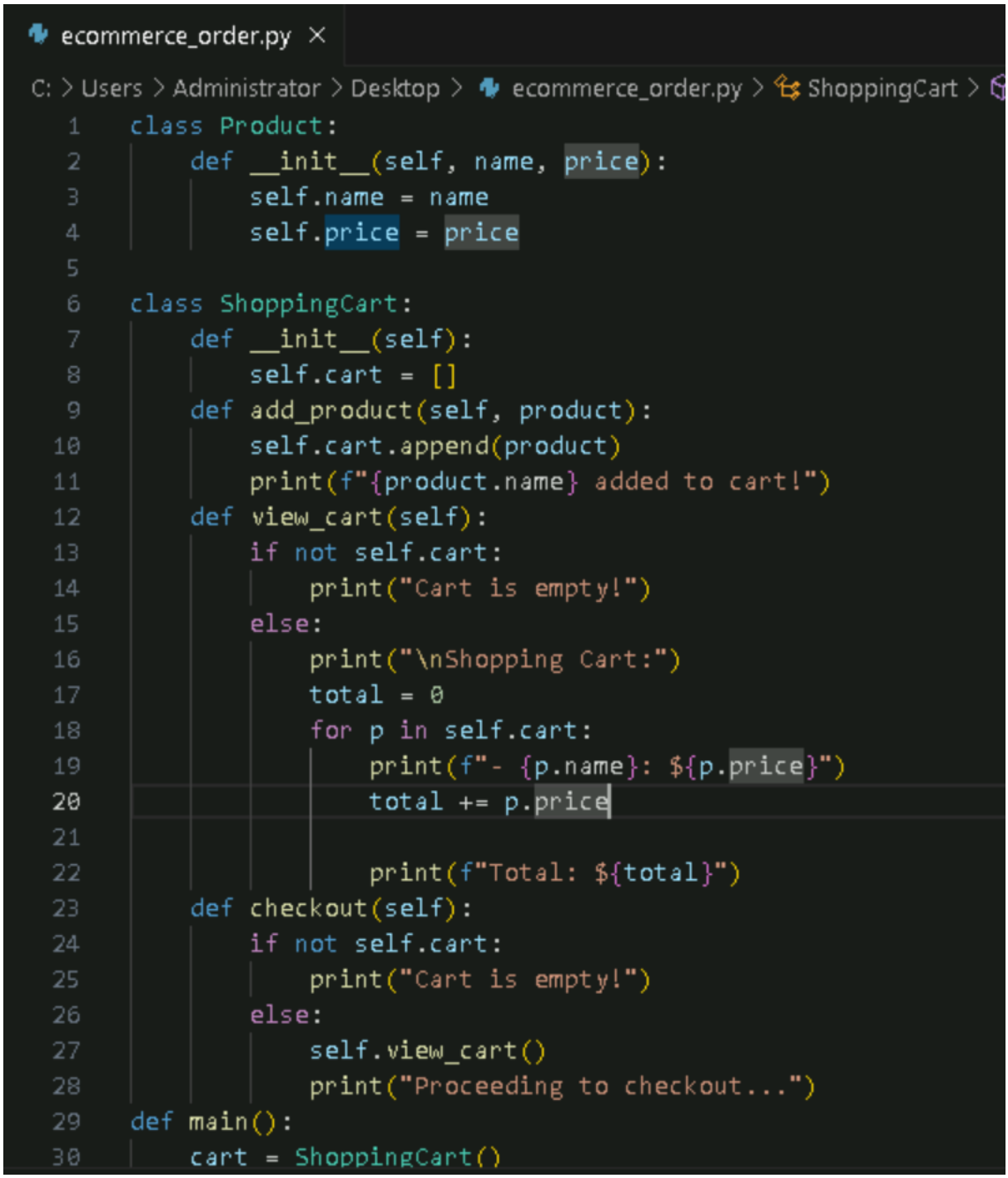
C: > Users > Administrator > Desktop > ATM.py > main

```python
class ATM:
    def __init__(self, balance=1000):
        self.balance = balance

    def check_balance(self):
        print(f"Your balance: ${self.balance}")

    def deposit(self, amount):
        self.balance += amount
        print(f"Deposited: ${amount}")

    def withdraw(self, amount):
        if amount > self.balance:
            print("Insufficient funds!")
        else:
            self.balance -= amount
            print(f"Withdrawn: ${amount}")

def main():
    atm = ATM()
    while True:
        print("\n1. Check Balance\n2. Deposit\n3. Withdraw\n4. Exit")
        choice = input("Enter choice: ")
        if choice == "1":
            atm.check_balance()
        elif choice == "2":
            amt = float(input("Enter deposit amount: "))
            atm.deposit(amt)
        elif choice == "3":
            amt = float(input("Enter withdrawal amount: "))
            atm.withdraw(amt)
        elif choice == "4":
            print("Thank you for using the ATM!")
            break
        else:
            print("Invalid choice! Try again.")
main()
```


File Edit Selection View Go Run
Search [Administrator]
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Python
QR Code generated and saved as 'qrcode.png'!
PS C:\Users\Administrator>
& "C:/Program Files/Python313/python.exe" c:/Users/Administrator/Desktop/ATM.py
1. Check Balance
2. Deposit
3. Withdraw
4. Exit
Enter choice: 1
Your balance: $1000
1. Check Balance
2. Deposit
3. Withdraw
4. Exit
Enter choice: 2
Enter deposit amount: 200
Deposited: $200.0
1. Check Balance
2. Deposit
3. Withdraw
4. Exit
Enter choice: 1
Your balance: $1200.0
1. Check Balance
2. Deposit
3. Withdraw
4. Exit
Enter choice: 3
Enter withdrawal amount: 500
Withdrawn: $500.0
Activate Windows
Go to Settings to activate Windows.
Spaces: 4 UTF-8 Python 3.13.1 64-bit
Type here to search
ENG US
14:50
12-02-2025


Enter withdrawal amount: 500
Withdrawn: $500.0
1. Check Balance
2. Deposit
3. Withdraw
4. Exit
Enter choice: 1
Your balance: $700.0
1. Check Balance
2. Deposit
3. Withdraw
4. Exit
Enter choice: 4
Thank you for using the ATM!
PS C:\Users\Administrator>

E coomerce order management



```python
def main():
    cart = ShoppingCart()
    products = {
    "1": Product("Laptop", 1000),
    "2": Product("Headphones", 150),
    "3": Product("Mouse", 50),
    }
    while True:
        print("\n1. Add Laptop ($1000)\n2. Add Headphones ($150)\n3. AddMouse ($50)\n4. View Cart\n5. Checkout\n6. Exit")
        choice = input("Enter choice: ")
        if choice in products:
            cart.add_product(products[choice])
        elif choice == "4":
            cart.view_cart()
        elif choice == "5":
            cart.checkout()
            break
        elif choice == "6":
            print("Thank you for shopping!")
            break
        else:
            print("Invalid choice!")
main()
```

```
1. Add Laptop ($1000)
2. Add Headphones ($150)
3. AddMouse ($50)
4. View Cart
5. Checkout
6. Exit
Enter choice: 4
Cart is empty!

1. Add Laptop ($1000)
2. Add Headphones ($150)
3. AddMouse ($50)
4. View Cart
5. Checkout
6. Exit
Enter choice: 1
Laptop added to cart!

1. Add Laptop ($1000)
2. Add Headphones ($150)
3. AddMouse ($50)
4. View Cart
5. Checkout
6. Exit
Enter choice: 2
Headphones added to cart!

1. Add Laptop ($1000)
2. Add Headphones ($150)
3. AddMouse ($50)
4. View Cart
5. Checkout
6. Exit
```

```
5. Checkout
6. Exit
Enter choice: 3
Mouse added to cart!

1. Add Laptop ($1000)
2. Add Headphones ($150)
3. AddMouse ($50)
5. Checkout
6. Exit
Enter choice: 4

Shopping Cart:
- Laptop: $1000
Total: $1000
- Headphones: $150
Total: $1150
- Mouse: $50
Total: $1200

1. Add Laptop ($1000)
2. Add Headphones ($150)
3. AddMouse ($50)
4. View Cart
5. Checkout
6. Exit
Enter choice: 5

Shopping Cart:
- Laptop: $1000
Total: $1000
- Headphones: $150
Total: $1150
- Mouse: $50
```

Student Grade Management System

gradesystem.py × class Hospital: Untitled-2 ●

C: > Users > Administrator > Desktop > gradesystem.py > main

```
class GradeSystem:
    def __init__(self):
        self.grades = {}
    def add_grade(self, name, grade):
        self.grades[name] = grade
        print(f"Added: {name} - {grade}")
    def view_grades(self):
        if not self.grades:
            print("No grades available!")
        else:
            print("\nStudent Grades:")
            for name, grade in self.grades.items():
                print(f"{name}: {grade}")
    def calculate_average(self):
        if not self.grades:
            print("No grades available!")
        else:
            avg = sum(self.grades.values()) / len(self.grades)
            print(f"Class Average: {avg:.2f}")

def main():
    system = GradeSystem()
    while True:
        print("\n1. Add Grade\n2. View Grades\n3. Calculate Average\n4.Exit")
        choice = input("Enter choice: ")
        if choice == "1":
            name = input("Enter student name: ")
            grade = float(input("Enter grade: "))
            system.add_grade(name, grade)
        elif choice == "2":
```

```
            elif choice == "2":
                system.view_grades()
            elif choice == "3":
                system.calculate_average()
            elif choice == "4":
                print("Exiting Grade System.")
                break
            else:
                print("Invalid choice!")
main()
```

```
^C
PS C:\Users\Administrator> & "C:/Program Files/Python313/python.exe" c:/Users/Administrator/Desktop/gradesystem.py

1. Add Grade
2. View Grades
3. Calculate Average
4.Exit
Enter choice: 2
No grades available!

1. Add Grade
2. View Grades
3. Calculate Average
4.Exit
Enter choice: 1
Enter student name: ram
Enter grade: 10
Added: ram - 10.0

1. Add Grade
2. View Grades
3. Calculate Average
4.Exit
Enter choice: 1
Enter student name: bheem
Enter grade: 9
Added: bheem - 9.0

1. Add Grade
2. View Grades
3. Calculate Average
4.Exit
```

```
1. Add Grade
2. View Grades
3. Calculate Average
4.Exit
Enter choice: 3
Class Average: 9.50

1. Add Grade
2. View Grades
3. Calculate Average
4.Exit
Enter choice: 4
Exiting Grade System.
PS C:\Users\Administrator>
```

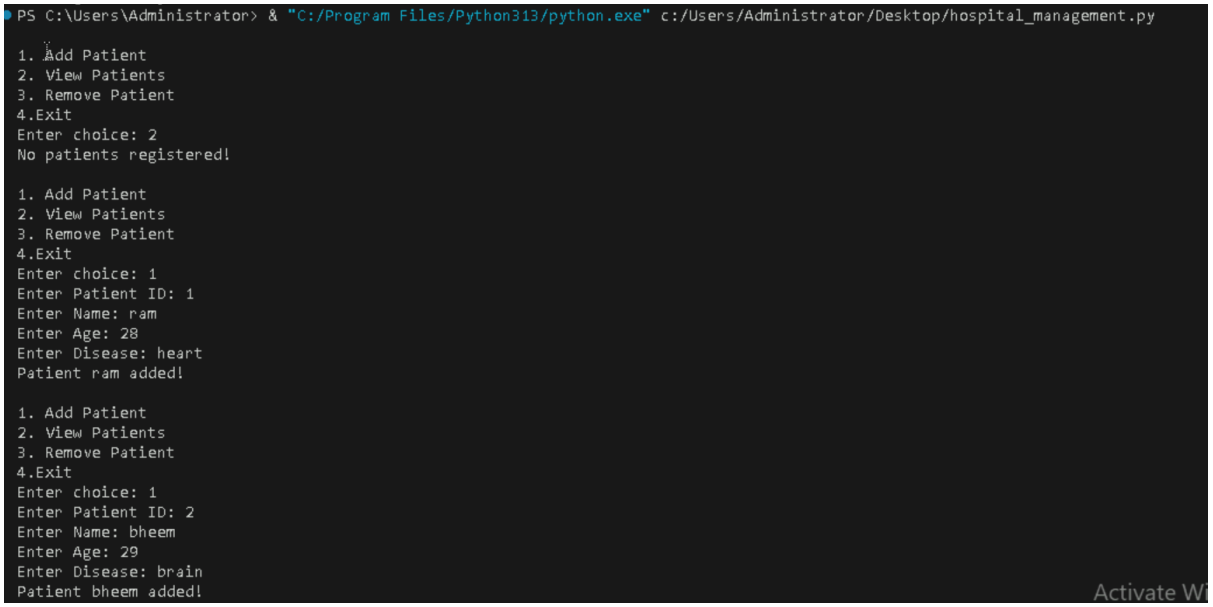
Hospital Patient management

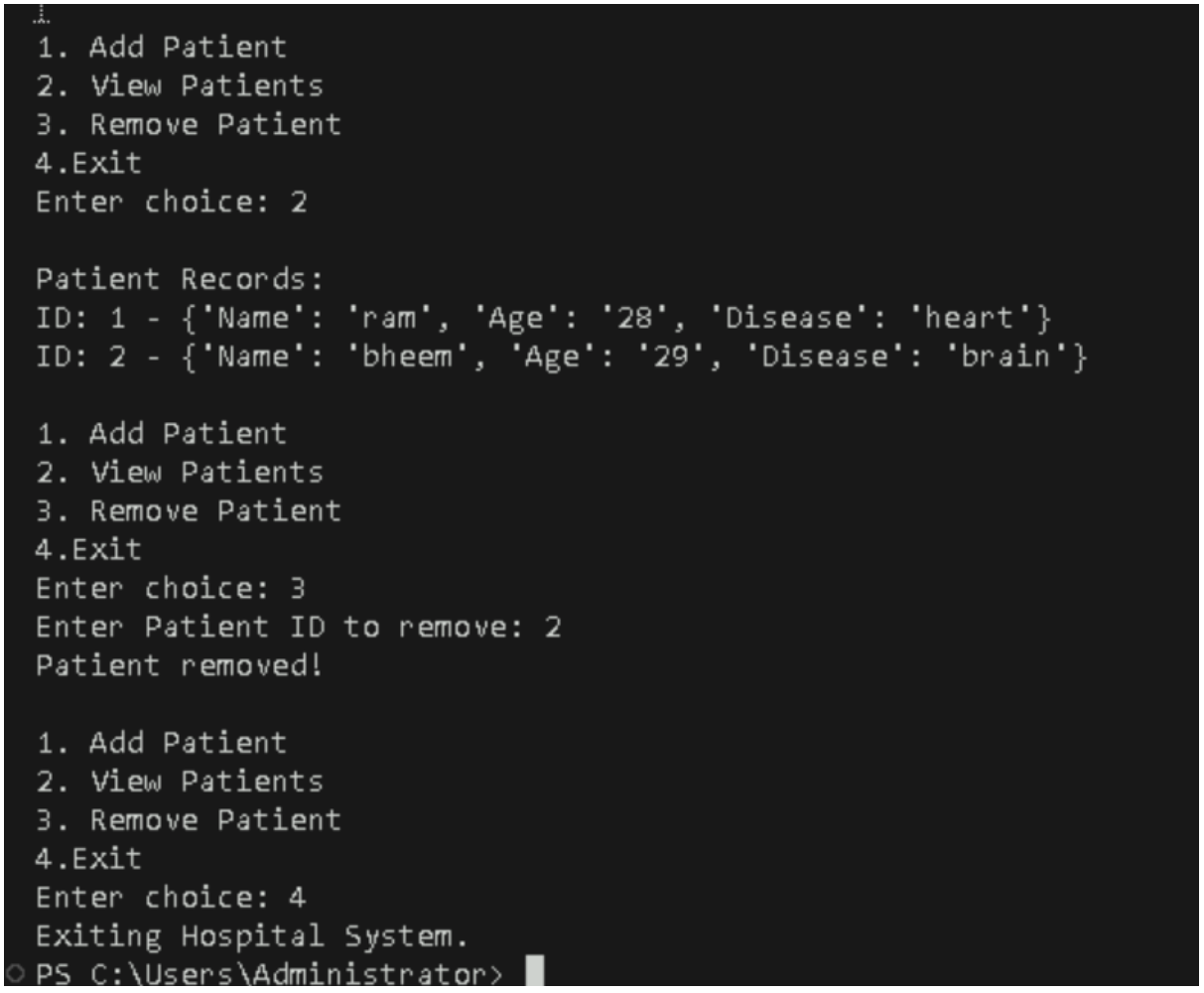
hospital_management.py

C: > Users > Administrator > Desktop > hospital_management.py > main

```python
class Hospital:
    def __init__(self):
        self.patients = {}
    def add_patient(self, id, name, age, disease):
        self.patients[id] = {"Name": name, "Age": age, "Disease": disease}
        print(f"Patient {name} added!")
    def view_patients(self):
        if not self.patients:
            print("No patients registered!")
        else:
            print("\nPatient Records:")
            for id, details in self.patients.items():
                print(f"ID: {id} - {details}")
    def remove_patient(self, id):
        if id in self.patients:
            del self.patients[id]
            print("Patient removed!")
        else:
            print("Patient not found!")

def main():
    hospital = Hospital()
    while True:
        print("\n1. Add Patient\n2. View Patients\n3. Remove Patient\n4.Exit")
        choice = input("Enter choice: ")
        if choice == "1":
            id = input("Enter Patient ID: ")
            name = input("Enter Name: ")
            age = input("Enter Age: ")
            disease = input("Enter Disease: ")
```

```python
            disease = input("Enter Disease: ")
            hospital.add_patient(id, name, age, disease)
        elif choice == "2":
            hospital.view_patients()
        elif choice == "3":

            id = input("Enter Patient ID to remove: ")
            hospital.remove_patient(id)
        elif choice == "4":
            print("Exiting Hospital System.")
            break
        else:
            print("Invalid choice!")
main()
```


PS C:\Users\Administrator> & "C:/Program Files/Python313/python.exe" c:/Users/Administrator/Desktop/hospital_management.py
1. Add Patient
2. View Patients
3. Remove Patient
4.Exit
Enter choice: 2
No patients registered!
1. Add Patient
2. View Patients
3. Remove Patient
4.Exit
Enter choice: 1
Enter Patient ID: 1
Enter Name: ram
Enter Age: 28
Enter Disease: heart
Patient ram added!
1. Add Patient
2. View Patients
3. Remove Patient
4.Exit
Enter choice: 1
Enter Patient ID: 2
Enter Name: bheem
Enter Age: 29
Enter Disease: brain
Patient bheem added!


1. Add Patient
2. View Patients
3. Remove Patient
4.Exit
Enter choice: 2
Patient Records:
ID: 1 - {'Name': 'ram', 'Age': '28', 'Disease': 'heart'}
ID: 2 - {'Name': 'bheem', 'Age': '29', 'Disease': 'brain'}
1. Add Patient
2. View Patients
3. Remove Patient
4.Exit
Enter choice: 3
Enter Patient ID to remove: 2
Patient removed!
1. Add Patient
2. View Patients
3. Remove Patient
4.Exit
Enter choice: 4
Exiting Hospital System.
PS C:\Users\Administrator>