PFSD Skilling – 3

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1)

Code to create hospital database and doctor, patient, medicine tables and populate them with appropriate tables:

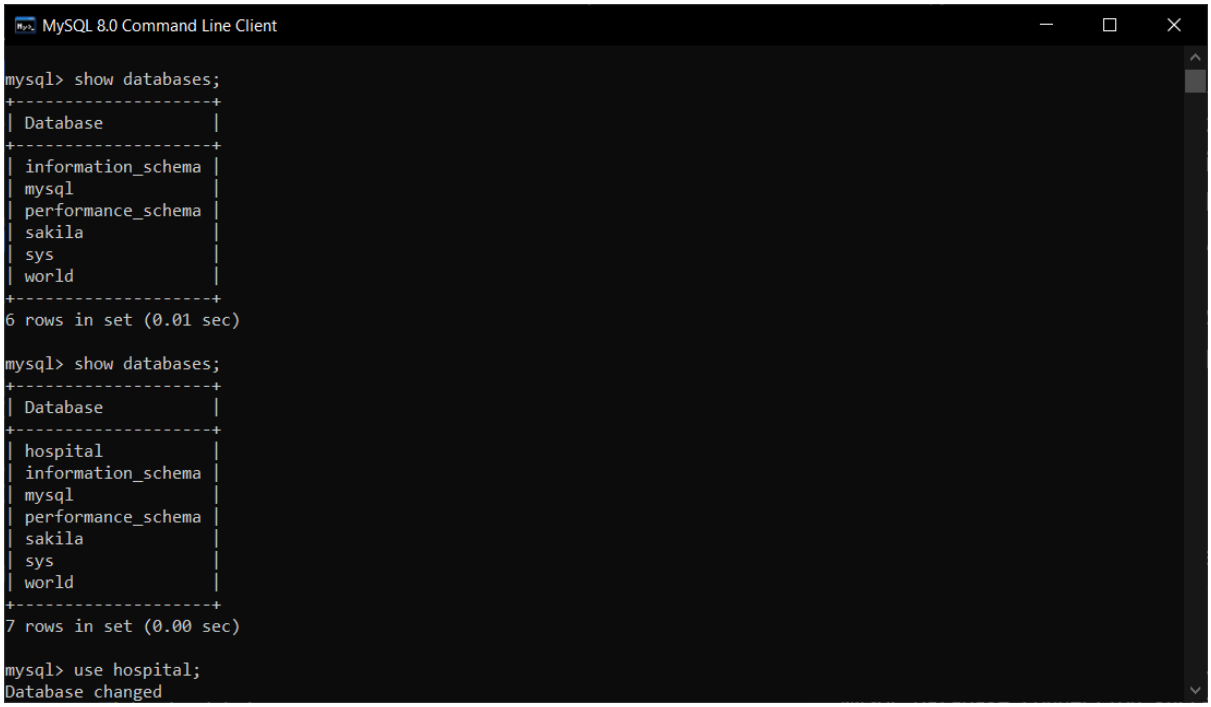
```
import mysql.connector
from mysql.connector import Error


def create_server_connection(host_name, user_name, user_pass
word):
    connection = None
    try:
        connection = mysql.connector.connect(
            host=host_name,
            user=user_name,
            passwd=user_password
        )
        print("MySQL Database connection successful")
    except Error as err:
        print(f"Error: '{err}'")

    return connection


def create_database(connection, query):
    cursor = connection.cursor()
    try:
        cursor.execute(query)
        print("Database created successfully")
    except Error as err:
        print(f"Error: '{err}'")


pw = "nikhil"
db = "hospital"
```

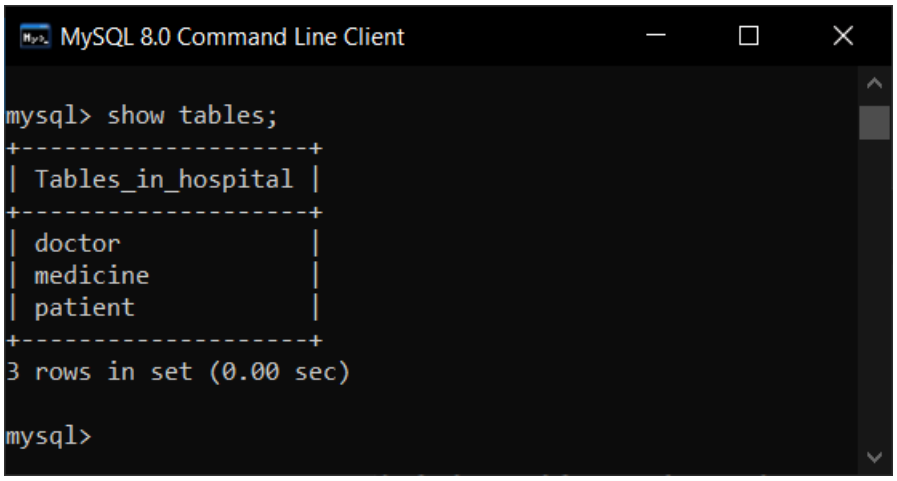
```
connection = create_server_connection("localhost", "root", p
w)

create_database_query = "CREATE DATABASE hospital"
create_database(connection, create_database_query)


def create_db_connection(host_name, user_name, user_password
, db_name):
    connection = None
    try:
        connection = mysql.connector.connect(
            host=host_name,
            user=user_name,
            passwd=user_password,
            database=db_name
        )
        print("MySQL Database connection successful")
    except Error as err:
        print(f"Error: '{err}'")

    return connection


def execute_query(connection, query):
    cursor = connection.cursor()
    try:
        cursor.execute(query)
        connection.commit()
        print("Query successful")
    except Error as err:
        print(f"Error: '{err}'")


create_doctor_table = """
CREATE TABLE doctor (
  doctor_id INT PRIMARY KEY,
  first_name VARCHAR(40) NOT NULL,
  last_name VARCHAR(40) NOT NULL,
```

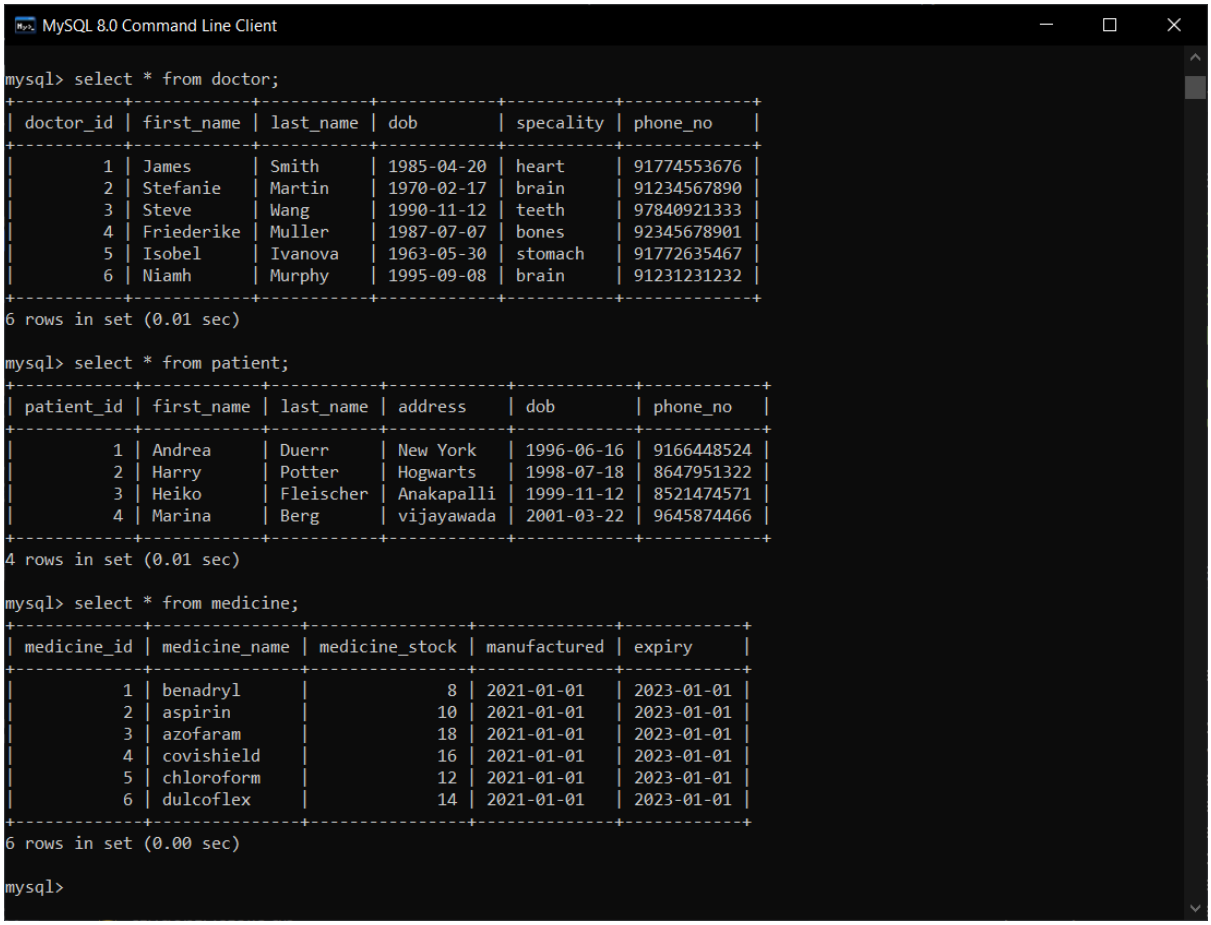
```
  dob DATE,
  specality VARCHAR(40) NOT NULL,
  phone_no VARCHAR(20)
  );
 """

create_patient_table = """
CREATE TABLE patient (
  patient_id INT PRIMARY KEY,
  first_name VARCHAR(40) NOT NULL,
  last_name VARCHAR(40) NOT NULL,
  address VARCHAR(60) NOT NULL,
  dob DATE,
  phone_no VARCHAR(20)
  );
 """

create_medicine_table = """
CREATE TABLE medicine (
  medicine_id INT PRIMARY KEY,
  medicine_name VARCHAR(40) NOT NULL,
  medicine_stock INT NULL DEFAULT 0,
  manufactured DATE NOT NULL,
  expiry DATE NOT NULL
  );
 """


connection = create_db_connection(
    "localhost", "root", pw, db)
execute_query(connection, create_doctor_table)
execute_query(connection, create_patient_table)
execute_query(connection, create_medicine_table)

populate_doctor_table = """
INSERT INTO doctor VALUES
(1,  'James', 'Smith', '1985-04-
20', 'heart', '91774553676'),
```

```
(2, 'Stefanie',  'Martin', '1970-02-
17', 'brain', '91234567890'),
(3, 'Steve', 'Wang', '1990-11-12', 'teeth','97840921333'),
(4, 'Friederike',  'Muller', '1987-07-
07',  'bones', '92345678901'),
(5, 'Isobel', 'Ivanova', '1963-05-
30',  'stomach', '91772635467'),
(6, 'Niamh', 'Murphy', '1995-09-
08',  'brain', '91231231232');
"""

populate_patient_table = """
INSERT INTO patient VALUES
(1, 'Andrea', 'Duerr', 'New York', '1996-06-
16', '9166448524'),
(2, 'Harry', 'Potter', 'Hogwarts', '1998-07-
18', '8647951322'),
(3, 'Heiko', 'Fleischer', 'Anakapalli', '1999-11-
12', '8521474571'),
(4, 'Marina', 'Berg','vijayawada', '2001-03-
22', '9645874466');
"""

populate_medicine_table = """
INSERT INTO medicine VALUES
(1, 'benadryl', 8, '2021-01-01', '2023-01-01'),
(2, 'aspirin', 10, '2021-01-01', '2023-01-01'),
(3, 'azofaram', 18, '2021-01-01', '2023-01-01'),
(4, 'covishield', 16, '2021-01-01', '2023-01-01'),
(5, 'chloroform', 12, '2021-01-01', '2023-01-01'),
(6, 'dulcoflex', 14, '2021-01-01', '2023-01-01');
"""

connection = create_db_connection("localhost", "root", pw, d
b)
execute_query(connection, populate_doctor_table)
execute_query(connection, populate_patient_table)
execute_query(connection, populate_medicine_table)
```

Databases before and after executing our python script







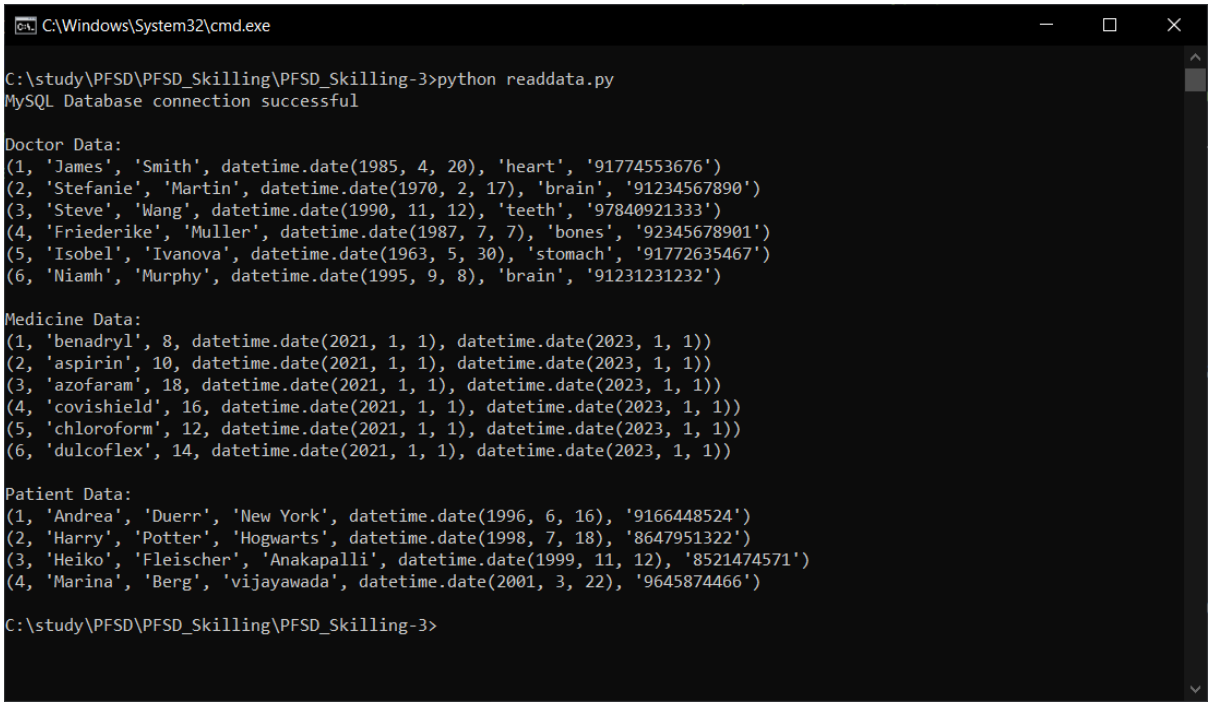
Read operations:

```
import mysql.connector
import pandas as pd
from mysql.connector import Error


def create_db_connection(host_name, user_name, user_password
, db_name):
    connection = None
    try:
        connection = mysql.connector.connect(
            host=host_name,
            user=user_name,
            passwd=user_password,
            database=db_name
        )
        print("MySQL Database connection successful")
```

```
    except Error as err:
        print(f"Error: '{err}'")

    return connection


def read_query(connection, query):
    cursor = connection.cursor()
    result = None
    try:
        cursor.execute(query)
        result = cursor.fetchall()
        return result
    except Error as err:
        print(f"Error: '{err}'")


pw = "nikhil"
db = "hospital"

read_doctor_data = """
SELECT * FROM doctor;
"""

read_patient_data = """
SELECT * FROM patient;
"""

read_medicine_data = """
SELECT * FROM medicine;
"""
connection = create_db_connection("localhost", "root", pw, d
b)
doctor = read_query(connection, read_doctor_data)

print("\nDoctor Data:")
for result in doctor:
    print(result)
```

```
medicine = read_query(connection, read_medicine_data)

print("\nMedicine Data:")
for result in medicine:
    print(result)

patient = read_query(connection, read_patient_data)

print("\nPatient Data:")
for result in patient:
    print(result)
```

Output:



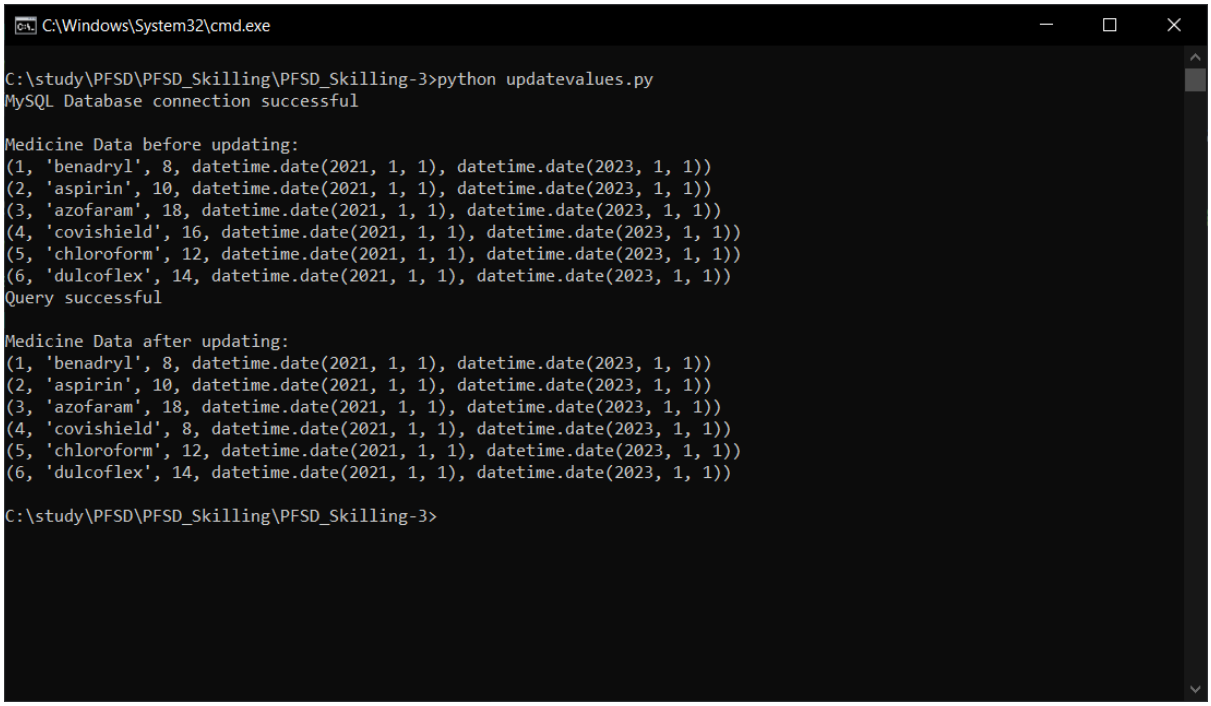
Update Operation:

```
import mysql.connector
import pandas as pd
from mysql.connector import Error


def create_db_connection(host_name, user_name, user_password
, db_name):
    connection = None
    try:
        connection = mysql.connector.connect(
            host=host_name,
            user=user_name,
            passwd=user_password,
            database=db_name
        )
        print("MySQL Database connection successful")
    except Error as err:
        print(f"Error: '{err}'")

    return connection


def execute_query(connection, query):
    cursor = connection.cursor()
    try:
        cursor.execute(query)
        connection.commit()
        print("Query successful")
    except Error as err:
        print(f"Error: '{err}'")


def read_query(connection, query):
    cursor = connection.cursor()
    result = None
    try:
```

```
        cursor.execute(query)
        result = cursor.fetchall()
        return result
    except Error as err:
        print(f"Error: '{err}'")


pw = "nikhil4u"
db = "hospital"

read_medicine_data = """
SELECT * FROM medicine;
"""

connection = create_db_connection("localhost", "root", pw, d
b)
medicine = read_query(connection, read_medicine_data)

print("\nMedicine Data before updating:")
for result in medicine:
    print(result)

update = """
UPDATE medicine
SET medicine_stock = 8
WHERE medicine_id = 4;
"""

execute_query(connection, update)

medicine = read_query(connection, read_medicine_data)

print("\nMedicine Data after updating:")
for result in medicine:
    print(result)
```

Output:

We can see that we have successfully updated the covishield medicine stock value from 16 to 8.

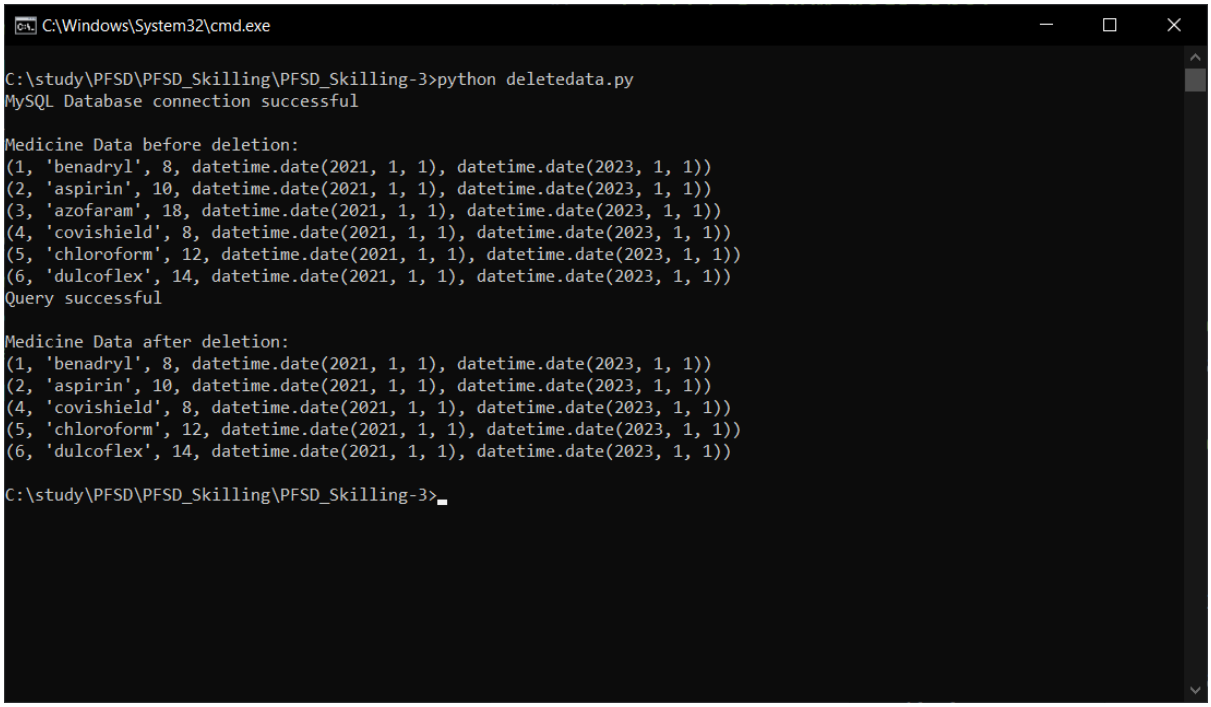


Delete operation:

```
import mysql.connector
from mysql.connector import Error


def create_db_connection(host_name, user_name, user_password
, db_name):
    connection = None
    try:
        connection = mysql.connector.connect(
            host=host_name,
            user=user_name,
            passwd=user_password,
            database=db_name
        )
        print("MySQL Database connection successful")
    except Error as err:
        print(f"Error: '{err}'")
```

```
    return connection


def execute_query(connection, query):
    cursor = connection.cursor()
    try:
        cursor.execute(query)
        connection.commit()
        print("Query successful")
    except Error as err:
        print(f"Error: '{err}'")


def read_query(connection, query):
    cursor = connection.cursor()
    result = None
    try:
        cursor.execute(query)
        result = cursor.fetchall()
        return result
    except Error as err:
        print(f"Error: '{err}'")


pw = "nikhil4u"
db = "hospital"

read_medicine_data = """
SELECT * FROM medicine;
"""

delete_medicine = """
DELETE FROM medicine
WHERE medicine_id = 3;
"""

connection = create_db_connection("localhost", "root", pw, d
b)
```

```
medicine = read_query(connection, read_medicine_data)

print("\nMedicine Data before deletion:")
for result in medicine:
    print(result)

execute_query(connection, delete_medicine)

medicine = read_query(connection, read_medicine_data)
print("\nMedicine Data after deletion:")
for result in medicine:
    print(result)
```



2)

Pytest:

```
import math


def area_of_circle(r):
    return math.pi*r*r
```

```python
def area_of_triangle(h, b):
    return (h*b)/2


def area_of_square(s):
    return s*s


def test_circle():
    assert area_of_circle(4) == 50


def test_triangle():
    assert area_of_triangle(6, 4) == 12


def test_square():
    assert area_of_square(4) == 16
```

Output: