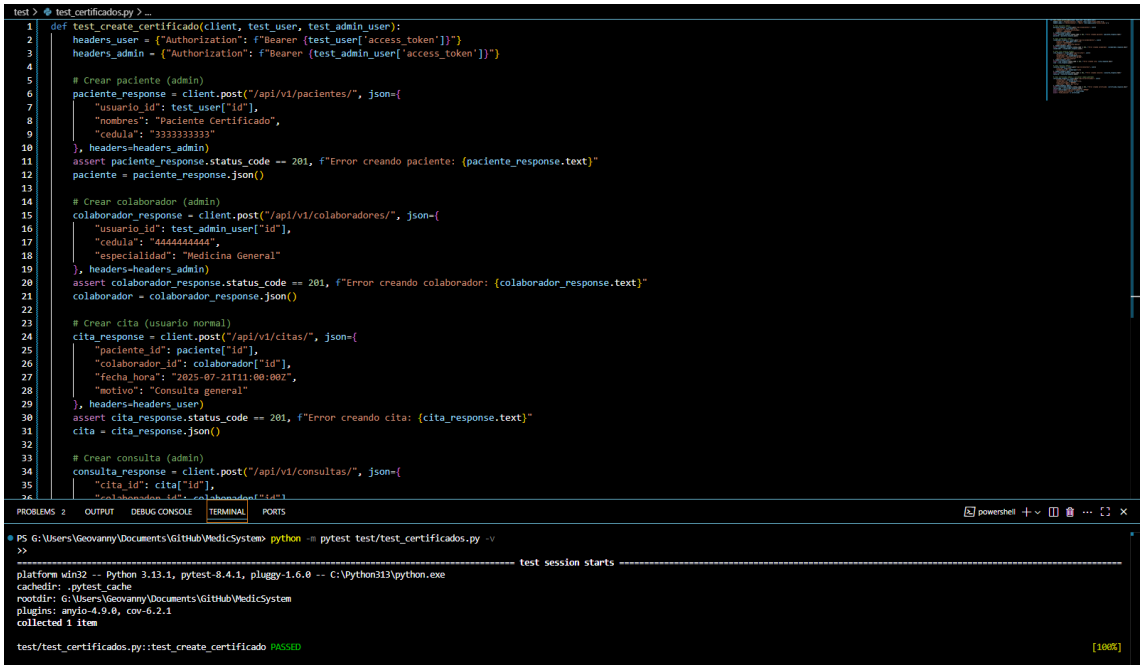
Evidencia de los Test:

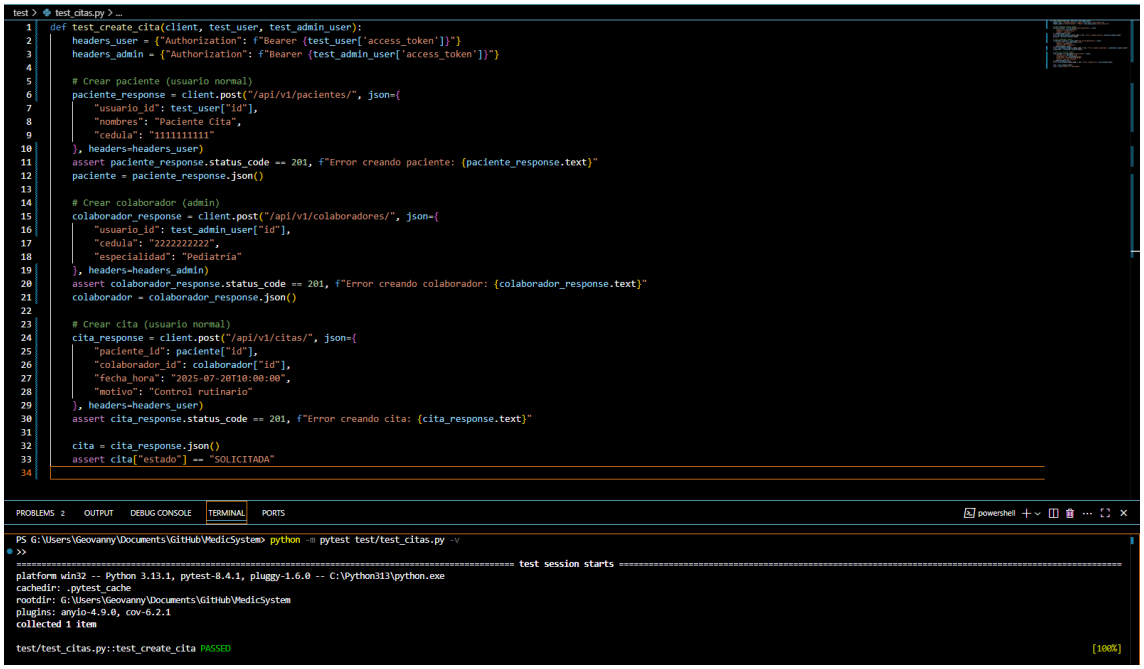
Test_certificados:



```
test > test_certificados.py > ...
def test_create_certificado(client, test_user, test_admin_user):
    headers_user = {"Authorization": f"Bearer {test_user['access_token']}"}
    headers_admin = {"Authorization": f"Bearer {test_admin_user['access_token']}"}

    # Crear paciente (admin)
    paciente_response = client.post("/api/v1/pacientes/", json={
        "usuario_id": test_user["id"],
        "nombres": "Paciente Certificado",
        "cedula": "3333333333"
    }, headers=headers_admin)
    assert paciente_response.status_code == 201, f"Error creando paciente: {paciente_response.text}"
    paciente = paciente_response.json()

    # Crear colaborador (admin)
    colaborador_response = client.post("/api/v1/colaboradores/", json={
        "usuario_id": test_admin_user["id"],
        "cedula": "4444444444",
        "especialidad": "Medicina General"
    }, headers=headers_admin)
    assert colaborador_response.status_code == 201, f"Error creando colaborador: {colaborador_response.text}"
    colaborador = colaborador_response.json()

    # Crear cita (usuario normal)
    cita_response = client.post("/api/v1/citas/", json={
        "paciente_id": paciente["id"],
        "colaborador_id": colaborador["id"],
        "fecha_hora": "2025-07-21T11:00:00Z",
        "motivo": "Consulta general"
    }, headers=headers_user)
    assert cita_response.status_code == 201, f"Error creando cita: {cita_response.text}"
    cita = cita_response.json()

    # Crear consulta (admin)
    consulta_response = client.post("/api/v1/consultas/", json={
        "cita_id": cita["id"],
```

```
PROBLEMS 2  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS                                  powershell

PS G:\Users\Geovanny\Documents\GitHub\MedicSystem> python -m pytest test/test_certificados.py -v
>>
============================= test session starts =============================
platform win32 -- Python 3.13.1, pytest-8.4.1, pluggy-1.6.0 -- C:\Python313\python.exe
cachedir: .pytest_cache
rootdir: G:\Users\Geovanny\Documents\GitHub\MedicSystem
plugins: anyio-4.9.0, cov-6.2.1
collected 1 item

test/test_certificados.py::test_create_certificado PASSED                [100%]
```

Test_citas:



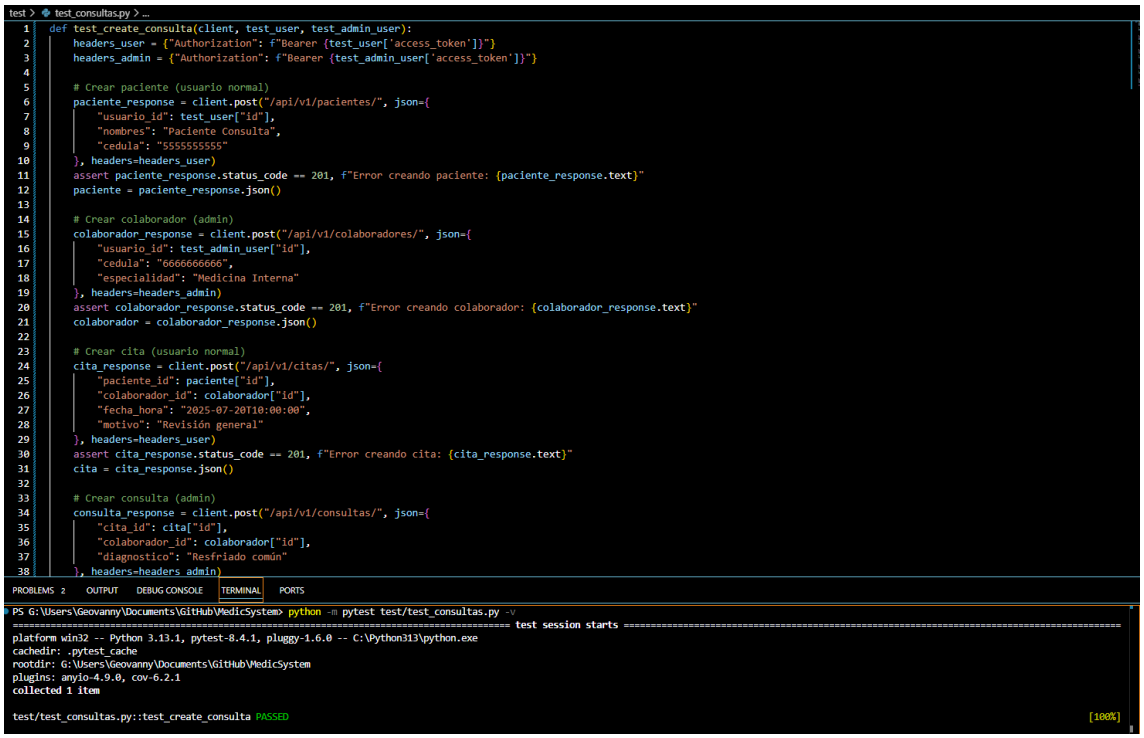
```
test > test_citas.py > ...
def test_create_cita(client, test_user, test_admin_user):
    headers_user = {"Authorization": f"Bearer {test_user['access_token']}"}
    headers_admin = {"Authorization": f"Bearer {test_admin_user['access_token']}"}

    # Crear paciente (usuario normal)
    paciente_response = client.post("/api/v1/pacientes/", json={
        "usuario_id": test_user["id"],
        "nombres": "Paciente Cita",
        "cedula": "1111111111"
    }, headers=headers_user)
    assert paciente_response.status_code == 201, f"Error creando paciente: {paciente_response.text}"
    paciente = paciente_response.json()

    # Crear colaborador (admin)
    colaborador_response = client.post("/api/v1/colaboradores/", json={
        "usuario_id": test_admin_user["id"],
        "cedula": "2222222222",
        "especialidad": "Pediatría"
    }, headers=headers_admin)
    assert colaborador_response.status_code == 201, f"Error creando colaborador: {colaborador_response.text}"
    colaborador = colaborador_response.json()

    # Crear cita (usuario normal)
    cita_response = client.post("/api/v1/citas/", json={
        "paciente_id": paciente["id"],
        "colaborador_id": colaborador["id"],
        "fecha_hora": "2025-07-20T10:00:00",
        "motivo": "Control rutinario"
    }, headers=headers_user)
    assert cita_response.status_code == 201, f"Error creando cita: {cita_response.text}"

    cita = cita_response.json()
    assert cita["estado"] == "SOLICITADA"
```

```
PROBLEMS 2  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS                                  powershell

PS G:\Users\Geovanny\Documents\GitHub\MedicSystem> python -m pytest test/test_citas.py -v
>>
============================= test session starts =============================
platform win32 -- Python 3.13.1, pytest-8.4.1, pluggy-1.6.0 -- C:\Python313\python.exe
cachedir: .pytest_cache
rootdir: G:\Users\Geovanny\Documents\GitHub\MedicSystem
plugins: anyio-4.9.0, cov-6.2.1
collected 1 item

test/test_citas.py::test_create_cita PASSED                               [100%]
```

Test_colaboradores:

```
test > test_colaboradores.py > ...
def test_create_colaborador(client, test_admin_user):
    headers_admin = {"Authorization": f"Bearer {test_admin_user['access_token']}"}
    response = client.post(
        "/api/v1/colaboradores/",
        json={
            "usuario_id": test_admin_user["id"],
            "cedula": "0987654321",
            "especialidad": "Cardiología",
            "contacto": "0988888888"
        },
        headers=headers_admin
    )
    assert response.status_code == 201
    assert "Cardiología" in response.json()["especialidad"]

PROBLEMS 2  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

PS G:\Users\Geovanny\Documents\GitHub\MedicSystem> python -m pytest test/test_colaboradores.py -v
============================= test session starts =============================
platform win32 -- Python 3.13.1, pytest-8.4.1, pluggy-1.6.0 -- C:\Python313\python.exe
cachedir: .pytest_cache
rootdir: G:\Users\Geovanny\Documents\GitHub\MedicSystem
plugins: anyio-4.9.0, cov-6.2.1
collected 1 item

test/test_colaboradores.py::test_create_colaborador PASSED                [100%]
```

Test_consultas:



```
test > test_consultas.py > ...
def test_create_consulta(client, test_user, test_admin_user):
    headers_user = {"Authorization": f"Bearer {test_user['access_token']}"}
    headers_admin = {"Authorization": f"Bearer {test_admin_user['access_token']}"}

    # Crear paciente (usuario normal)
    paciente_response = client.post("/api/v1/pacientes/", json={
        "usuario_id": test_user["id"],
        "nombres": "Paciente Consulta",
        "cedula": "5555555555"
    }, headers=headers_user)
    assert paciente_response.status_code == 201, f"Error creando paciente: {paciente_response.text}"
    paciente = paciente_response.json()

    # Crear colaborador (admin)
    colaborador_response = client.post("/api/v1/colaboradores/", json={
        "usuario_id": test_admin_user["id"],
        "cedula": "6666666666",
        "especialidad": "Medicina Interna"
    }, headers=headers_admin)
    assert colaborador_response.status_code == 201, f"Error creando colaborador: {colaborador_response.text}"
    colaborador = colaborador_response.json()

    # Crear cita (usuario normal)
    cita_response = client.post("/api/v1/citas/", json={
        "paciente_id": paciente["id"],
        "colaborador_id": colaborador["id"],
        "fecha_hora": "2025-07-20T10:00:00",
        "motivo": "Revisión general"
    }, headers=headers_user)
    assert cita_response.status_code == 201, f"Error creando cita: {cita_response.text}"
    cita = cita_response.json()

    # Crear consulta (admin)
    consulta_response = client.post("/api/v1/consultas/", json={
        "cita_id": cita["id"],
        "colaborador_id": colaborador["id"],
        "diagnostico": "Resfriado común"
    }, headers=headers_admin)

PROBLEMS 2  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

PS G:\Users\Geovanny\Documents\GitHub\MedicSystem> python -m pytest test/test_consultas.py -v
============================= test session starts =============================
platform win32 -- Python 3.13.1, pytest-8.4.1, pluggy-1.6.0 -- C:\Python313\python.exe
cachedir: .pytest_cache
rootdir: G:\Users\Geovanny\Documents\GitHub\MedicSystem
plugins: anyio-4.9.0, cov-6.2.1
collected 1 item

test/test_consultas.py::test_create_consulta PASSED                       [100%]
```

Test_pacientes:

```python
def test_create_paciente(client, test_user):
    headers_user = {"Authorization": f"Bearer {test_user['access_token']}"}

    # Ahora permitimos crear paciente si el usuario es admin o es el mismo usuario (es_paciente)
    response = client.post(
        "/api/v1/pacientes/",
        json={
            "usuario_id": test_user["id"],
            "nombres": "Paciente Test",
            "cedula": "1234567890",
            "contacto": "0999999999"
        },
        headers=headers_user
    )
    assert response.status_code == 201, f"Error creando paciente: {response.text}"
```

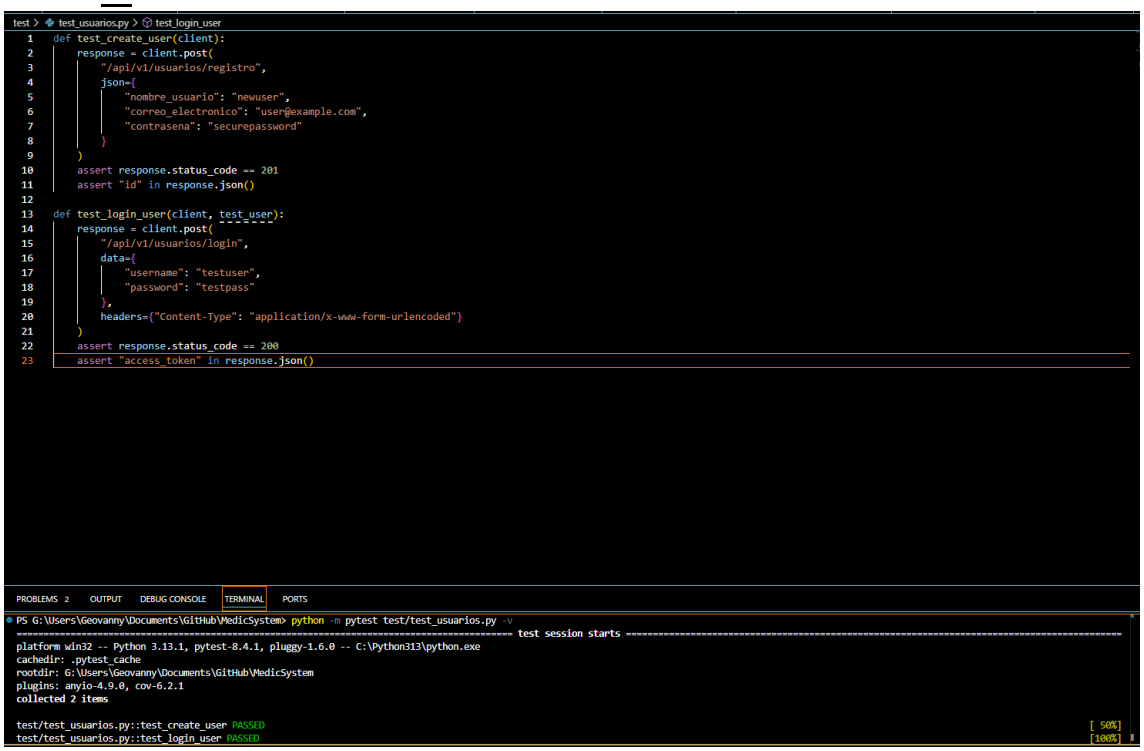
```
PS G:\Users\Geovanny\Documents\GitHub\MedicSystem> python -m pytest test/test_pacientes.py -v
============================= test session starts =============================
platform win32 -- Python 3.13.1, pytest-8.4.1, pluggy-1.6.0 -- C:\Python313\python.exe
cachedir: .pytest_cache
rootdir: G:\Users\Geovanny\Documents\GitHub\MedicSystem
plugins: anyio-4.9.0, cov-6.2.1
collected 1 item

test/test_pacientes.py::test_create_paciente PASSED                      [100%]
```

Test_reportes:

```python
from datetime import datetime, timedelta, timezone

def test_generate_reporte_medico(client, test_admin_user):
    headers_admin = {"Authorization": f"Bearer {test_admin_user['access_token']}"}
    future_date = (datetime.now(timezone.utc) + timedelta(days=1)).strftime("%Y-%m-%d")

    response = client.post(
        "/api/v1/reportes/medicos",
        json={"filtros": {"fecha_inicio": future_date, "especialidad": "Cardiología"}},
        headers=headers_admin
    )
    assert response.status_code == 201, f"Error generando reporte médico: {response.text}"
    reporte = response.json()
    assert reporte["tipo_reporte"] == "MEDICO"
    assert "fecha_creacion" in reporte
```

```
PS G:\Users\Geovanny\Documents\GitHub\MedicSystem> python -m pytest test/test_reportes.py -v
============================= test session starts =============================
platform win32 -- Python 3.13.1, pytest-8.4.1, pluggy-1.6.0 -- C:\Python313\python.exe
cachedir: .pytest_cache
rootdir: G:\Users\Geovanny\Documents\GitHub\MedicSystem
plugins: anyio-4.9.0, cov-6.2.1
collected 1 item

test/test_reportes.py::test_generate_reporte_medico PASSED               [100%]
```

Test_usuarios:



Coverage:

```
PS G:\Users\Geovanny\Documents\GitHub\MedicSystem> python -m pytest --cov=app --cov-report=term-missing test/
>>
============================= test session starts ==============================
platform win32 -- Python 3.13.1, pytest-8.4.1, pluggy-1.6.0
rootdir: G:\Users\Geovanny\Documents\GitHub\MedicSystem
plugins: anyio-4.9.0, cov-6.2.1
collected 8 items

test\test_certificados.py .                                              [ 12%]
test\test_citas.py .                                                     [ 25%]
test\test_colaboradores.py .                                             [ 37%]
test\test_consultas.py .                                                 [ 50%]
test\test_pacientes.py .                                                 [ 62%]
test\test_reportes.py .                                                  [ 75%]
test\test_usuarios.py ..                                                 [100%]
```

```
---------- coverage: platform win32, python 3.13.1-final-0 -----------

Name                                  Stmts   Miss  Cover   Missing
-------------------------------------------------------------------
app\__init__.py                           5      0   100%
app\api\__init__.py                       2      0   100%
app\api\v1\__init__.py                   17      0   100%
app\api\v1\certificados.py               16      2    88%   18, 29
app\api\v1\citas.py                      16      2    88%   19, 32
app\api\v1\colaboradores.py              13      1    92%   18
app\api\v1\consultas.py                  21      7    67%   19, 31-42
app\api\v1\pacientes.py                  21      7    67%   20, 33-44
app\api\v1\reportes.py                   14      1    93%   14
app\api\v1\usuarios.py                   24      3    88%   27, 41, 49
app\core\__init__.py                      4      0   100%
app\core\config.py                       17      0   100%
app\core\database.py                     11      4    64%   11-15
app\core\password.py                      6      0   100%
app\core\security.py                     46      9    80%   16, 19, 30-31, 41, 44, 47, 52, 57
app\main.py                              19      6    68%   10-15
app\models\__init__.py                    9      0   100%
app\models\base.py                        5      0   100%
app\models\certificado.py                13      0   100%
app\models\cita.py                       14      0   100%
app\models\colaborador.py                17      0   100%
app\models\consulta.py                   19      0   100%
app\models\paciente.py                   14      0   100%
app\models\reporte.py                    12      0   100%
app\models\usuario.py                    14      0   100%
app\repositories\__init__.py              9      0   100%
app\repositories\base.py                 38     15    61%   18, 24, 32-43, 46-49
app\repositories\certificado.py          10      1    90%   11
app\repositories\cita.py                 16      3    81%   10, 16, 22
app\repositories\colaborador.py          10      1    90%   11
app\repositories\consulta.py             10      2    80%   8, 11
app\repositories\paciente.py              8      0   100%
app\repositories\reporte.py              10      2    80%   8, 11
app\repositories\usuario.py              24      2    92%   29, 31
app\schemas\__init__.py                   9      0   100%
app\schemas\base.py                       3      0   100%
app\schemas\certificado.py               33      0   100%
app\schemas\cita.py                      26      0   100%
app\schemas\colaborador.py               21      0   100%
app\schemas\consulta.py                  32      0   100%
app\schemas\paciente.py                  23      0   100%
app\schemas\reporte.py                   24      0   100%
app\schemas\usuario.py                   23      0   100%
app\services\__init__.py                  9      0   100%
app\services\base.py                     29     13    55%   15-21, 24, 30-36, 39-45
app\services\certificado.py              28      6    79%   17, 31-37, 40
app\services\cita.py                     31     14    55%   17-18, 26-37, 40-47
app\services\colaborador.py              15      2    87%   13, 20
app\services\consulta.py                 40     18    55%   16, 27-48, 51-54, 57
app\services\paciente.py                 13      1    92%   13
app\services\reporte.py                  25      4    84%   20, 23, 35-41
```

```
app\services\usuario.py                  22      3    86%   16, 25, 30
app\utils\__init__.py                     3      0   100%
app\utils\enums.py                       17      0   100%
app\utils\helpers.py                     13      3    77%   13, 17, 21
-------------------------------------------------------------------
TOTAL                                   943    132    86%
```