

Reminder: the clients must always specify the server IP, because it is not static (the server can be run in any computer but the IP changes).

1.1. Patient

Purpose of the Patient Application

The patient application allows individuals with cardiac arrhythmias to remotely send relevant clinical information to the hospital. This includes:

- Self-reported symptoms (palpitations, dizziness, chest pain, fatigue).
- ECG and EDA measurements recorded through a BITalino device.
- Messages and appointment requests to their assigned doctor.

Starting the Application

The patient opens the program and is presented with an initial menu that allows:

- Registering as a new user.

```
--- Patient Registration ---  
Email: patienttest@gmail.com  
Password: Patient  
Name: Jane  
Surname: Hopper  
Phone Number: 74398745  
Sex (M/F/O): F
```

Figure 1. Patient registration

- Logging in with email and password.
- Exiting the application.

Both registration and login are required to access the full functionality.

Main Functions Available (after login)

Once logged in, the patient accesses the main menu containing the following actions:

```
0. Log out  
1. Send symptoms report  
2. View messages with assigned doctor  
3. Send message to assigned doctor  
4. Request appointment  
5. Record ECG/EDA (Bitalino)  
6. View my personal information  
7. View appointments
```

Figure 2. Patient Menu

1. Send Symptoms Report

The patient can submit a brief description of current symptoms.

This report is automatically sent to the server and stored in their clinical profile.

```
--- Send Symptoms Report ---  
Describe your current symptoms (e.g., chest pain, dizziness): I had chest pain during exercise
```

Figure 1. Patient sends symptoms to doctor

2. View Messages

Displays all the messages previously exchanged with the assigned doctor.

```
=== Conversation with Dr. Duncan ===  
[2025-11-29T14:01:42.130210100] PATIENT: Hello  
=== End of conversation ===  
Logged as: patienttest@gmail.com (ID: 21)
```

Figure 3. View patient's messages

3. Send Message to the Doctor

Allows the patient to write and send a new message directly to the doctor.

```
--- Send Message to Dr. Duncan ---  
Message: Hello
```

Figure 4. Patient sends a message to the doctor

4. Request an Appointment

The patient can request a date and time for a future medical appointment.

The server registers the request so the doctor can review it.

```
--- Request Appointment with Dr. Duncan ---  
Appointment Date (yyyy-MM-dd): 2026-03-12  
Appointment Time (HH:mm): 12:30  
Reason for the appointment: Monthly check-up
```

Figure 5. Patient requests an appointment

5. Record ECG/EDA (BITalino)

The patient can start a BITalino recording session to capture:

- ECG (cardiac rhythm): port A2.
- EDA (stress-related skin conductance): port A3.

The application connects to the device via Bluetooth, add the MAC address, records a short measurement, and sends the data to the hospital server automatically.

```
Choose an option: 5  
Select 1 for ECG or 2 for EDA  
1  
Recording ECG  
BlueCove version 2.1.1-SNAPSHOT on winsock  
javax.bluetooth.LocalDevice@26f67b76  
[ ]  
Enter MAC address for Bitalino: 
```

Figure 6. ECG recording action

Since we are not recording, it should send a message that the ECG won't be sent.

```
No ECG data recorded. Measurement will not be sent.  
Logged as: patienttest@gmail.com (ID: 21)
```

Figure 7. No data recorded message

And if we are recording properly the signal it should send this message:

```
Enter MAC address for Bitalino: 20:17:11:20:52:32
[Patient] Enviado: {"type":"REQUEST","action":"SEND_MEASUREMENT"}
[Patient] Recibido: {"type":"RESPONSE","action":"SEND_MEASUREMENT"}
ECG sent successfully.
```

Figure 8. ECG send message

6. View Personal Information

Shows the patient's stored personal detail.

```
PATIENTS INFORMATION:
Name: Jane
Surname: Hopper
Email: patienttest@gmail.com
Date of Birth: 1987-08-11
Sex: FEMALE
Phone Number: 74398745
Logged as: patienttest@gmail.com (ID: 21)
```

Figure 9. Personal information

7. View Appointments

Displays upcoming or previously scheduled appointments registered on the server.

```
=== Appointments ===
Date/Time: 2026-03-12T12:30
Patient ID: 21
Message: Monthly check-up
```

Figure 10. View patient's appointments

8. Log Out

Ends the current session and returns to the initial login menu.