Heuristic Evaluation

Structure of the individual report

Part I: Your Name

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Part II: Project Description

The evaluated application is the desktop web interface of ***Fascicolo Sanitario Elettronico*** (FSE). This portal enables citizens to track their medical history, consult reports and prescriptions, and access appointment booking services (CUPWeb).

Part III: Evaluation Execution

The evaluation was conducted by simulating the experience of a standard user ("Immediate User" without advanced medical expertise) on a desktop computer (Google Chrome browser). To explore critical functionalities and identify usability issues, the following three tasks were defined and executed:

1. **Historical Retrieval**: Search and download a medical report from several years ago.
2. **Appointment Booking**: Booking a specialist appointment.
3. **Comparative Analysis**: Compare two reports of the same type (e.g., two complete blood counts from one year apart) to verify the variation of a specific value.

During the evaluation, I kept Nielsen's ten heuristics visible as a reference and took detailed notes on each usability problem identified. The provided template and heuristics list were sufficient to conduct a comprehensive evaluation.

Part IV: List of Violations

1. **H7 Flexibility and efficiency of use**
   Where: "My Documents" section, Task 1.
   What: To locate a document from 3 years ago, the user is forced to manually scroll through numerous pagination pages (e.g., "Page 1 of 20") or set rigid date filters ("From... To...") using a calendar that requires many clicks to change the year.
   Why: The system does not offer "accelerators" such as quick filters (e.g., text-based search) or efficient infinite scrolling. The interaction requires an excessive physical cost (number of clicks) for a common retrieval task.
   Severity: 3

2. **H2 Match between system and the real world**
   Where: Results list in the "Reports" section, Task 1.
   What: File names or document titles in the list are often technical, administrative acronyms, or generic labels ("Laboratory Tests").
   Why: The system uses database/administrative language instead of user language. This forces users to open files to understand their content, slowing down recognition.
   Severity: 2

3. **H3 User control and freedom**
   Where: Multi-year document search, Task 1.
   What: After applying multiple filters to search for an old document (date range, document type), there is no "Clear all filters" button, requiring users to manually reset each filter individually.
   Why: Users cannot quickly start a new search and must tediously remove each filter one by one, which is particularly frustrating when searching for historical documents with complex filter combinations.
   Severity: 1

4. **H5 Error prevention**
   Where: Document search, date selection, Task 1.
   What: The system allows selecting a future date (after today) in the "From" field and a date in the "To" field that precedes the "From" date, without any warning or prevention mechanism.
   Why: Users can enter incorrect values in document search filters, generating empty or inconsistent results without understanding why.
   Severity: 1

5. **H6 Recognition rather than recall**
   Where: Document search, "Search" section, Task 1.
   What: After executing a search by entering the "From," "To," and document type parameters and clicking the "Search" button, the page refreshes showing the results but the fields in the "Search" section are cleared, losing the previously set search criteria.
   Why: Users must memorize the search parameters if they want to modify or reuse them, increasing cognitive load especially during iterative searches for historical documents.
   Severity: 2

6. **H4 Consistency and standards**
   Where: Document list - download action, Task 1.
   What: Each document displays an explicit "Download document" label, but clicking on the document title (which shows a pointer cursor on hover) also downloads the document instead of displaying a preview as standard web convention would suggest.
   Why: The visual indicator of the pointer cursor suggests a navigation/viewing action, while the actual action is a download, creating an inconsistency with standard web conventions where the pointer cursor typically indicates a link that opens a new page or

view.
Severity: 2

7. **H1 Visibility of system status**
   Where: Document download from list, Task 1.
   What: When downloading a document by clicking "Download document," the only visual feedback is provided by the browser itself (animation toward the download icon), without any confirmation or direct indication within the FSE interface itself.
   Why: Users might not notice the browser feedback, especially if the window is resized or if they are not looking at the upper right corner, leaving them uncertain whether the download was initiated correctly.
   Severity: 2

8. **H7 Flexibility and efficiency of use**
   Where: Tree filter system in the left sidebar, Task 1.
   What: The filter menu for document type is displayed as an expandable tree structure, but does not offer the ability to collapse sub-elements to hide unnecessary categories and reduce visual clutter.
   Why: Users who frequently navigate between different categories cannot effectively organize the visual space by collapsing irrelevant sections, making navigation less efficient for users.
   Severity: 1

9. **H8 Aesthetic and minimalist design**
   Where: Tree structure of filters in the sidebar, Task 1.
   What: The visual hierarchy in the tree structure of document type filters is not clearly evident, with only a slight right indentation to indicate sub-elements, making it difficult to quickly distinguish hierarchical levels.
   Why: The lack of clear visual distinction between parent and child elements makes the hierarchical structure less immediately comprehensible, requiring more attention to identify relationships between categories.
   Severity: 1

10. **H4 Consistency and standards**
    Where: Transition from FSE dashboard to "Booking / CUPWeb" section, Task 2.
    What: When clicking on "Book" label, the user is redirected or a form is opens (often CUPWeb or external regional portal) that presents completely different navigation, color palette, and menu structure from previouse view.
    Why: The user perceives a break in the experience (disorientation), having to learn a new interaction model precisely at the critical moment of booking. There is no visual continuity between consultation and action.
    Severity: 2

11. **H2 Match between system and the real world**
    Where: Medical specialty categories in appointment booking, Task 2.
    What: Medical specialties are listed using technical medical terminology (e.g., "Otorhinolaryngology") without alternatives in common language or explanations.
    Why: Average users might not recognize the formal names of medical specialties and would benefit from descriptions in simple language (e.g., "Ear, nose, and throat").
    Severity: 2

12. **H5 Error prevention**
    Where: Appointment booking - date selection, Task 2.
    What: The system allows selecting past dates when booking a specialist appointment, without any warning or prevention mechanism.
    Why: The system does not ensure selection of only dates equal to or after today, but also previous dates, allowing users to make easily preventable errors.
    Severity: 3

13. **H3 User control and freedom**
    Where: Booking search criteria, Task 2.
    What: When a starting date for the appointment is selected, a 2-month search period is displayed. A button is provided to view the next period.
    Why: Users cannot select a time frame of their preference, for example by reducing or expanding the period, limiting their autonomy in appointment planning.
    Severity: 2

14. **H6 Recognition rather than recall**
    Where: Process of comparing values between two reports, Task 3.
    What: Since there is no internal preview, the user must download Report A, open it, memorize the value, return to the FSE, download Report B, open it, and compare from memory or by arranging external windows side by side.
    Why: The system entirely delegates to the user (and their memory or ability to manage operating system windows) the task of keeping previous information visible. The user cannot "recognize" the difference; they must "recall" the first data point.
    Severity: 3

15. **H6 Recognition rather than recall**
    Where: Multiple document downloads for comparison, Task 3.
    What: When downloading multiple reports to compare, the PDF files have generic names or alphanumeric codes (e.g., "sole_10219320129...pdf") that do not allow easy identification of which document corresponds to which date or type of examination without reopening them.
    Why: Users must remember or reopen each file to identify which report they downloaded, increasing cognitive load during comparison operations that already require concentration.
    Severity: 2

16. **H7 Flexibility and efficiency of use**
    Where: Report viewing for comparison, Task 3.
    What: The system lacks an integrated document viewer (embedded viewer). Each consultation requires forced file download, opening with external software (e.g., Adobe Reader), and subsequent local file management.
    Why: This introduces a high "interaction cost." For a simple quick check (consultation), the user is forced to perform a download action, making the comparison process extremely inefficient and slow compared to modern standards that offer immediate previews.
    Severity: 2

Part V: Summary and Recommendations

Heuristic	**# violations**
H1: Visibility of system status	1
H2: Match between system and the real world	2
H3: User control and freedom	2
H4: Consistency and standards	2
H5: Error prevention	2
H6: Recognition rather than recall	3
H7: Flexibility and efficiency of use	3
H8: Aesthetic and minimalist design	1
H9: Help users recognize, diagnose, and recover from errors	0
H10: Help and documentation	0
HN: Non-heuristic issue	0

The heuristic analysis revealed that the current Fascicolo Sanitario Elettronico (FSE) effectively satisfies the function of an "administrative repository," but presents significant critical issues when users attempt to use it as an active tool for health monitoring. The most frequent and severe violations (H6, H7, H2) suggest that the system was designed based on the underlying database structure rather than on the patient's mental model. The interface forces users to bear a high cognitive load, requiring them to memorize values across different screens, decipher technical codes in file names, and rigidly navigate between disconnected pages.

To improve the user experience, it is primarily recommended to **evolve the clinical data visualization**. Instead of limiting itself to a list of static PDFs (which force downloading and prevent immediate comparison), the system should extract key data. This would resolve the critical issues related to historical comparison and make consultation more efficient, allowing users to "recognize" their health trends without having to "recall" previous values.

Furthermore, it is essential to work on consistency and language. It is necessary to unify the navigation experience between the FSE and the booking system (CUPWeb) to avoid disorientation and adopt terminology closer to citizen’s natural language ("Blood tests" instead of technical codes), thus improving the match with the real world. Finally, implementing more robust error prevention mechanisms in search filters and dates would drastically reduce frustration during historical retrieval and booking operations.