Heuristic evaluation report for the app: BP Monitor in iOS platform

Pournami Krishnan Krishnakumari

Blood Pressure Monitor – Pro

This application is available only on App Store for iOS devices. It is a personal blood pressure and weight health monitoring app, which comes with a lifetime data visualization, statistics reporting, medication correlation, email import/export, built-in reminders and much more. This is an app with a lot of features. This application is like a tool for comprehensive data collection - a single app to track all of your health and medical readings!

Some of the cool features of the app are:

- Comprehensive reading input fields collection (upgrade may be necessary)
- Customizable input data form
- Simplified user interface
- Optimized keyboard input
- Graphical data visualization, graphical charts not only give you a visual trend of the vital signs, but also show warning signs (BP only):
    - All vital signs are graphically presented
    - No time limitation
    - Swipe to scroll chart to reveal more data history
    - Optimized chart drawing performance
- Data Sync with your cloud
- Email Import/Export

But this app does not drive any medical measurement device. All inputs have to be entered manually.

Target users: 12+ age rating, usable for 35+

Stakeholder Map

	OLDER ADULT	CAREGIVER	CLINICIAN	HEALTHCARE AUTHORITY
Level of influence	Medium	Low	High	High
Required support	Desirable	Not necessary	Necessary	Necessary
NEEDS	Better care	Reduced burden	Better efficiency	Savings
	Preventive care	Independent patient	Reduced overload	Provide better service
	Continuous care		Information out of the clinical setting	Political credit
	Quality of life		Personalised Prescription	
	Remote access		Better Knowledge	
	Personalised Prescription			
BARRIERS	Lack of motivation	Extra work	Resistance to change	Liability issues
	Extra effort	Accesibility	Potential overload	Integration with other systems
	Extra time	Usability	Lack of IT culture	
			Motivation	
			Extra effort	

Heuristic Evaluation report

1. **Visibility of system status:** Pass
   - **(1) System status feedback**: Pass (all the items were already sorted and categorized properly)
     - i. All the items on a list should go on the same page: if the items are text-only and if they are sorted in an order that matches the needs of the task: Pass
     - ii. If a list of items can be sorted according to different criteria, provide the option to sort that list according to all those criteria: Pass
     - iii. If a list contains items that belong to different categories, provide filters for users to narrow down the number of elements that they need to inspect: Pass
     - iv. If the list contains only one item, take the user directly to that item: Pass
     - v. If the list contains items that download slowly (e.g., images), split the list into multiple pages and show just one page at a time: Pass
     - vi. If an article spans several pages, use pagination at the bottom. Have a link to each individual page, rather than just to the previous and the next ones: Pass
   - **(2) Location information:** Pass
     - i. Whenever you have physical location information on your website, link it to a map and include a way of getting directions: Pass (there are no feature that require physical location information)
   - **(3) Response time:** Pass
     - i. Splash screens too long: Pass
     - ii. Download time: "Progress bar is preferable" and "Alternative entertainment if download time is greater than 20 seconds": Pass
   - **(4) Selection/input of data:** Pass
     - i. Low discoverability (active areas that do not look touchable): users do not know that something is touchable unless it looks as if it is: Pass (all the buttons and clickable elements are specified and marked distinguishably)
     - ii. Swiping: swiping is still less discoverable than most other ways of manipulating mobile content, so we recommended including a visible cue when people can swipe. And swipe ambiguity should be avoided: the same swipe gesture should not be used to mean different things on different areas of the same screen: Pass (swiping option is there for few elements, but everything follows the same style and its clearly visible that its meant for swiping)
     - iii. Expandable menus should be used sparingly. Menu labels should clearly indicate that they expand to a set of options: Pass (used standard style for expandable menu icon)
   - **(5) Presentation adaptation:** Pass
     - i. Detect if users are coming to your site on a mobile phone and direct them to your mobile site: Unknown (not very clear about this criteria)

ii. Include a link to your mobile site on your full site. It can direct mobile users who were not re-directed to your mobile site: Pass
iii. Include a link to the full site on the mobile page: Fail (this app doesn't have a proper web page or site, in the web app store, you can download the app to your mobile)

2. **Match between system and the real world: Pass**
   - **(1) Metaphors/Mental models:** Pass
     - i. Use of metaphors: Pass
     - ii. Are icons concrete and familiar: Pass
     - iii. If shape is used as a visual cue, does it match cultural conventions: Pass
     - iv. Do the selected colors correspond to common expectations about color codes: Pass
   - **(2) Navigational structure:** Pass
     - i. Too much navigation (TMN): Pass
     - ii. If the site uses hierarchical structure, are depth and height balanced: Unknown (not very clear about this criteria)
     - iii. Navigation map, also known as site map or table of contents: Pass
   - **(3) Menus:** Pass
     - i. Are menu choices ordered in the most logical way, given the user, the item names, and the task variables: Pass
     - ii. Do menu choices fit logically into categories that have readily understood meanings: Pass
     - iii. Are menu titles parallel grammatically: Unknown (not very clear about this criteria)
     - iv. In navigation menus, are the number of items and terms by item controlled to avoid memory overload: Unknown (not very clear about this criteria)
   - **(4) Simplicity:** Pass
     - i. Do related and interdependent fields appear on the same screen: Pass
     - ii. For question and answer interfaces, are questions stated in clear, simple language: Pass
     - iii. Is the language used the same target users speak: Pass (had the option of choosing preferred language when setting up the app for the first time)
     - iv. We will merge this statement with the following: "Is the menu-naming terminology consistent with the user's task domain?": Pass
     - v. Is the language clear and concise? We will merge this statement with the following: "Does the command language employ user jargon and avoid computer jargon?": Pass
     - vi. Does the site follow the rule "1 paragraph = 1 idea"? Pass
   - **(5) Output of numeric information:** Pass
     - i. Does the system automatically enter leading or trailing spaces to align decimal points? Fail
     - ii. Does the system automatically enter a dollar sign and decimal for monetary entries? Pass
     - iii. Does the system automatically enter commas in numeric values greater than 9999? Fail (no commas are entered)
     - iv. Are integers right-justified and real numbers decimal-aligned? Fail

3. **User control and freedom: Pass**
   - **(1) Explorable interfaces:** Pass
     - i. Accidental activation (lack of back button): Pass
     - ii. Include navigation on the homepage of your mobile website: Pass
     - iii. Can users move forward and backward between fields or dialog box options: Pass
     - iv. If the system has multipage data entry screens, can users move backward and forward among all the pages in the set: Pass (set of buttons at the bottom of the home page helps navigating through all the data entry screens easily)
     - v. If the system uses a question and answer interface, can users go back to previous questions or skip forward to later questions? Pass
     - vi. Clearly marked exits: Pass
     - vii. Is the general website structure user-oriented? Pass
     - viii. Is there any way to inform user about where they are and how to undo their navigation? Pass (highlighted button to show where they are and also visible button options to navigate to other pages as well as exit)

(2) **Some level of personalization:** Pass
   i. Can users set their own system, session, file, and screen defaults? Pass

(3) **Process confirmation:** Pass
   i. When a user's task is complete, does the system wait for a signal from the user before processing? Pass
   ii. Are users prompted to confirm commands that have drastic, destructive consequences? Pass

(4) **Undo/cancellation:** Pass
   i. Can users easily reverse their actions? Also found as "Do function keys that can cause serious consequences have an undo feature?" and "Is there an "undo" function at the level of a single action, a data entry, and a complete group of actions?": Pass
   ii. Can users cancel out of operations in progress? Pass

(5) **Menus control:** Pass
   i. If the system has multiple menu levels, is there a mechanism that allows users to go back to previous menus? Pass
   ii. Are menus broad (many items on a menu) rather than deep (many menu levels)? Pass
   iii. If users can go back to a previous menu, can they change their earlier menu choice? Pass

4. **Consistency and standards: Pass**

(1) **Design consistency:** Fail
   i. Are attention-getting techniques used with care? Pass
   ii. Intensity: two levels only: Fail
   iii. Color: up to four (additional colors for occasional use only): Fail
   iv. Are there no more than four to seven colors, and are they far apart along the visible spectrum? Fail
   v. Sound: soft tones for regular positive feedback, harsh for rare critical conditions.: Fail (no sounds available in the system for feedbacks or alerts)
   vi. If the system has multipage data entry screens, do all pages have the same title? Pass (the system is well structured)
   vii. Do online instructions appear in a consistent location across screens Pass (ads have a specific location at the extreme bottom of the page)
   viii. Have industry or company standards been established for menu design, and are they applied consistently on all menu screens in the system? Pass
   ix. Are there no more than twelve to twenty icon types? Pass
   x. Has a heavy use of all uppercase letters on a screen been avoided? Pass (everything is in sentence case, looks neat and simple)
   xi. Is there a consistent icon design scheme and stylistic treatment across the system? Pass (all the icons are styled consistently)

(2) **Naming convention consistency:** Pass
   i. Is the structure of a data entry value consistent from screen to screen? Unknown (not very clear about this criteria)
   ii. Are system objects named consistently across all prompts in the system? Pass
   iii. Are user actions named consistently across all prompts in the system? Pass

(3) **Menus/Tasks consistency:** Pass
   i. Are menu choice lists presented vertically? Pass
   ii. If "exit" is a menu choice, does it always appear at the bottom of the list? Pass (no exit menu)
   iii. Are menu titles either centered or left-justified? Pass (left-justified)
   iv. Are menu choice names consistent, both within each menu and across the system, in grammatical style and terminology? Pass
   v. Does the structure of menu choice names match their corresponding menu titles? Pass
   vi. Does the menu structure match the task structure? Unknown (not very clear about this criteria)
   vii. When prompts imply a necessary action, are the words in the message consistent with that action? Pass

(4) **Functional goals consistency:** Pass
   i. Where are the website goals? Are they well defined? Do content and services delivered match these goals? Pass

ii. Does the look & feel correspond with goals, characteristics, contents and services of the website? Pass
iii. Is the website being updated frequently? Pass

(5) System response: Pass

i. Is system response after clicking links predictable? Pass
ii. Are nowhere links avoided? Pass
iii. Are orphan pages avoided? Pass

(6) Orientation: Fail

i. About constraining orientation: users tend to switch orientation when an impasse occurs and, if the application does not support them, their flow is going to be disrupted, and they are going to wonder why it is not working.: Fail (Orientation is constrained. Even after changing the orientation, it stayed the same, it did not get adapted to the change in orientation)
ii. Navigation (horizontal and vertical) must be consistent across orientations. Some applications use a different navigation direction in the two orientations; for instance, they use horizontal navigation in landscape and use vertical navigation in portrait.: Fail
iii. Inconsistent content across orientations: "Same content," "Keep location," and "If a feature is only available in one orientation, inform users".: Fail

5. Error prevention: Pass/Fail

i. Accidental activation (lack of back button): Pass
ii. Are menu choices logical, distinctive, and mutually exclusive? Pass
iii. Are data inputs case-blind whenever possible? Pass
iv. Does the system warn users if they are about to make a potentially serious error? Pass
v. Do data entry screens and dialog boxes indicate the number of character spaces available in a field? Fail
vi. Do fields in data entry screens and dialog boxes contain default values when appropriate? Pass (clearly mention what to be filled in)

(2) Fat-finger syndrome: Fail

i. Touchable areas are too small. Research has shown that the best target size for widgets is 1 cm × 1 cm for touch devices.: Fail
ii. Crowding targets: another fat-finger issue that we encountered frequently is placing targets too close to each other. When targets are placed too close to each other, users can easily hit the wrong one.: Fail
iii. When several items are listed in columns, one on top of another (see the time example below), users expect to be able to hit anywhere in the row to select the target corresponding to that row. Whenever a design does not fulfil that expectation, it is disconcerting for users.: Pass
iv. Do not make users download software that is inappropriate for their phone.: Pass

6. Recognition rather than recall: Pass

(1) Memory load reduction: Pass

i. The task flow should start with actions that are essential to the main task. Users should be able to start the task as soon as possible.: Pass
ii. The controls that are related to a task should be grouped together and reflect the sequence of actions in the task.: Pass
iii. High levels of concentration are not necessary and remembering information is not required: two to fifteen seconds.: Pass
iv. Are all data a user needs on display at each step in a transaction sequence? Pass
v. If users have to navigate between multiple screens, does the system use context labels, menu maps, and place markers as navigational aids? Pass
vi. After the user completes an action (or group of actions), does the feedback indicate that the next group of actions can be started? Fail
vii. Do data entry screens and dialog boxes indicate when fields are optional? Fail
viii. Is page length controlled? Pass

(2) General visual cues: Pass

i. For question and answer interfaces, are visual cues and white space used to distinguish questions, prompts, instructions, and user input? Pass
ii. Does the data display start in the upper-left corner of the screen? Pass

iii. Have prompts been formatted using white space, justification, and visual cues for easy scanning? Pass
iv. Do text areas have "breathing space" around them? Pass
v. Are there "white" areas between informational objects for visual relaxation? Pass
vi. Does the system provide visibility; that is, by looking, can the user tell the state of the system and the alternatives for action? Pass
vii. Is size, boldface, underlining, color, shading, or typography used to show relative quantity or importance of different screen items? Pass (follow the standard iPhone app styling with a bit of a subtle basic look rather than a modern look)
viii. Is color used in conjunction with some other redundant cue? Unknown (not very clear about this criteria)
ix. Is there good color and brightness contrast between image and background colors? Pass
x. Have light, bright, saturated colors been used to emphasize data and have darker, duller, and desaturated colors been used to deemphasize data? Pass
xi. Is the visual page space well used? Fail (looks very standard and could be a little overcrowded with data)

(3) Input/output data: Pass

i. On data entry screens and dialog boxes, are dependent fields displayed only when necessary? Pass (As there are no dependent fields)
ii. Are field labels close to fields, but separated by at least one space? Pass

(4) Menus: Pass

i. Is the first word of each menu choice the most important? Pass
ii. Are inactive menu items grayed out or omitted? Pass
iii. Are there menu selection defaults? Unknown (not very clear about this criteria)
iv. Is there an obvious visual distinction made between "choose one" menu and "choose many" menus? Pass

(5) Navigation:

i. Use breadcrumbs on sites with a deep navigation structure (many navigation branches). Do not use breadcrumbs on sites with shallow navigation structures. Unknown (not very clear about this criteria)

7. Flexibility and efficiency of use: Fail

(1) Search: Fail

i. A search box and navigation should be present on the homepage if your website is designed for smartphones and touch phones. Fail (there was no search box available)
ii. The length of the search box should be at least the size of the average search string. We recommend going for the largest possible size that will fit on the screen. Fail
iii. Preserve search strings between searches. Use autocompletion and suggestions. Fail
iv. Do not use several search boxes with different functionalities on the same page. Fail
v. If the search returns zero results, offer some alternative searches or a link to the search results on the full page. Fail

(2) Navigation:

i. Use links with good information scent (i.e., links which clearly indicate where they take the users) on your mobile pages. Fail
ii. Use links to related content to help the user navigate more quickly between similar topics. Fail

8. Aesthetic and minimalist design: Pass

i. Recognizable application icons to be found in the crowded list of applications.: Pass
ii. Is only (and all) information essential to decision making displayed on the screen? Pass
iii. Are field labels brief, familiar, and descriptive? Pass
iv. Are prompts expressed in the affirmative, and do they use the active voice? Pass
v. Is layout clearly designed avoiding visual noise? Fail

(2) Multimedia content: Pass (There are no images or videos in the app, except for 3 interactive graphs)

i. Getting rid of Flash content.: (Not applicable for this app)
ii. Carousels: avoid using animated carousels, but if they must be used, users should be able to control them.: (Not applicable for this app)

iii. Do not use image sizes that are bigger than the screen. The entire image should be viewable with no scrolling.: (Not applicable for this app)
iv. For cases where customers are likely to need access to a higher resolution picture, initially display a screen-size picture and add a separate link to a higher resolution variant.: (Not applicable for this app)
v. When you use thumbnails, make sure the user can distinguish what the picture is about.: (Not applicable for this app)
vi. Use captions for images that are part of an article if their meaning is not clear from the context of the article.: (Not applicable for this app)
vii. Do not use moving animation.: (Not applicable for this app)
viii. If you have videos on your site, offer a textual description of what the video is about.: (Not applicable for this app)
ix. Clicking on the thumbnail and clicking on the video title should both play the video.: (Not applicable for this app)
x. Indicate video length.: (Not applicable for this app)
xi. Specify if the video cannot be played on the user's device.: (Not applicable for this app)
xii. Use the whole screen surface to place information efficiently: "Popovers for displaying information restricts size of frame where information will be shown" and "Small modal views present the same size constraints".: (Not applicable for this app)

(3) Icons: Pass
i. Has excessive detail in icon design been avoided? Pass
ii. Is each individual icon a harmonious member of a family of icons? Pass
iii. Does each icon stand out from its background? Pass
iv. Are all icons in a set visually and conceptually distinct? Pass

(4) Menus: Pass
i. Is each lower-level menu choice associated with only one higher level menu? Pass
ii. Are menu titles brief, yet long enough to communicate? Pass

(5) Orientation: Fail
i. Desktop websites have a strong guideline to avoid horizontal scrolling. But for touch screens, horizontal swipes are often fine. Fail

(6) Navigation:
i. Do not replicate a large number of persistent navigation options across all pages of a mobile site. Pass

9. Help users recognize, diagnose, and recover from errors: Pass
i. To signal an input error in a form, mark the textbox that needs to be changed. Pass

10. Help and documentation: Fail (system doesn't have a help section, only FAQ section is available)
i. Focus on one single feature at a time. Present only those instructions that are necessary for the user to get started. Fail
ii. Are online instructions visually distinct? Fail
iii. Do the instructions follow the sequence of user actions? Fail
iv. If menu choices are ambiguous, does the system provide additional explanatory information when an item is selected? Fail
v. Is the help function visible, for example, a key labeled HELP or a special menu? Fail
vi. Is the help system interface (navigation, presentation, and conversation) consistent with the navigation, presentation, and conversation interfaces of the application it supports? Fail
vii. Navigation: is information easy to find? Fail
viii. Presentation: is the visual layout well designed? Fail
ix. Conversation: is the information accurate, complete, and understandable? Fail
x. Is the information relevant? It should be relevant in the following aspects: goal-oriented (what can I do with this program?), descriptive (what is this thing for?), procedural (how do I do this task?), interpretive (why did that happen?), and navigational (where am I?) Fail
xi. Is there context-sensitive help? Fail
xii. Can the user change the level of detail available? Fail
xiii. Can users easily switch between help and their work? Fail
xiv. Is it easy to access and return from the help system? Fail

xv. Can users resume work where they left off after accessing help? Fail
xvi. If a FAQs section exists, are the selection and redaction of questions and answers correct? Pass

11. Skills: Fail

i. Do not use the word "default" in an application or service; replace it with "Standard," "Use Customary Settings," "Restore Initial Settings," or some other more specific terms describing what will actually happen.: Fail
ii. If the system supports both novice and expert users, are multiple levels of error message detail available? Fail
iii. If the system supports both novice and expert users, are multiple levels of detail available? Fail
iv. Are users the initiators of actions rather than the responders? Pass (yes, the initiators of the actions are the users)
v. Do the selected input device(s) match user capabilities? Unknown (not very clear about this criteria)
vi. Does the system correctly anticipate and prompt for the user's probable next activity? Fail

12. Pleasurable and respectful interaction: Fail

(1) Input data: Fail

i. Users dislike typing. Compute information for the users. For instance, ask only for the zip code and calculate state and town; possibly offer a list of towns if there are more under the same zip code.: Pass
ii. Be tolerant of typos and offer corrections. Do not make users type in complete information. For example, accept "123 Main" instead of "123 Main St.": Fail
iii. Save history and allow users to select previously typed information.: Fail
iv. Use defaults that make sense to the user.: Fail
v. If the application does not store any information that is sensitive (e.g., credit card), then the user should definitely be kept logged in (log out clearly presented). Fail (log in and log out is not very clearly mentioned, only deleting a user option is mentioned)
vi. Minimize the number of submissions (and clicks) that the user needs to go through in order to input information on your site.: Pass
vii. When logging in must be done, use graphical passwords at least some of the time, to get around typing.: Pass
viii. Do not ask people to register on a mobile phone; skipping registration should be the default option.: Pass
ix. When logging in must be done, have an option that allows the user to see the password clearly.: Fail

(2) Shopping: Pass (Not applicable for this app)

i. When you present a list of products, use image thumbnails that are big enough for the user to get some information out of them. (Not applicable for this app)
ii. On a product page, use an image size that fits the screen. Add a Link to a higher resolution image when the product requires closer inspection. (Not applicable for this app)
iii. Offer the option to email a product to a friend. (Not applicable for this app)
iv. Offer the option to save the product in a wish list. (Not applicable for this app)
v. On an e-commerce site, include salient links on the homepage to the following information: locations and opening hours (if applicable), shipping cost, phone number, order status, and occasion-based promotions or products. (Not applicable for this app)

(3) Banking and transactions: Pass (Not applicable for this app)

i. Whenever users conduct transactions on the phone, allow them to save confirmation numbers for that transaction by emailing themselves. If the phone has an embedded screen-capture feature, show them how to take a picture of their screen. (Not applicable for this app)

13. Privacy: Fail

i. For multiuser devices, avoid being permanently signed in on an application. Fail (all users in a single account)
ii. If the application does store credit card information, it should allow users to decide if they want to remain logged in. Ideally, when the user opts to be kept logged in, he/she should get a message informing of the possible risks. (Not applicable for this app)
iii. Are protected areas completely inaccessible? Fail
iv. Can protected or confidential areas be accessed with certain passwords: Fail
v. Is there information about how personal data is protected and about contents copyright? Pass

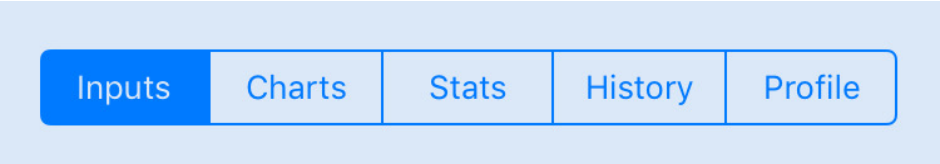
Heuristic criteria	Pass/Fail	Pass %	Fail %	Unknown%
Visibility of system status	Pass	86.67	6.66	6.66
Match between system and the real world	Pass	71.43	14.29	14.29
User control and freedom	Pass	100	0	0
Consistency and standards	Pass	70	23.33	6.667
Error prevention	Pass/Fail	70	30	0
Recognition rather than recall	Pass	76.92	11.54	11.54
Flexibility and efficiency of use	Fail	0	100	0
Aesthetic and minimalist design	Pass	84.62	15.38	0
Help users recognize, diagnose, and recover from errors	Pass	100	0	0
Help and documentation	Fail	93.75	6.25	0
Skills	Fail	66.67	16.67	16.67
Pleasurable and respectful interaction	Fail	44.44	55.56	0
Privacy	Fail	25	75	0

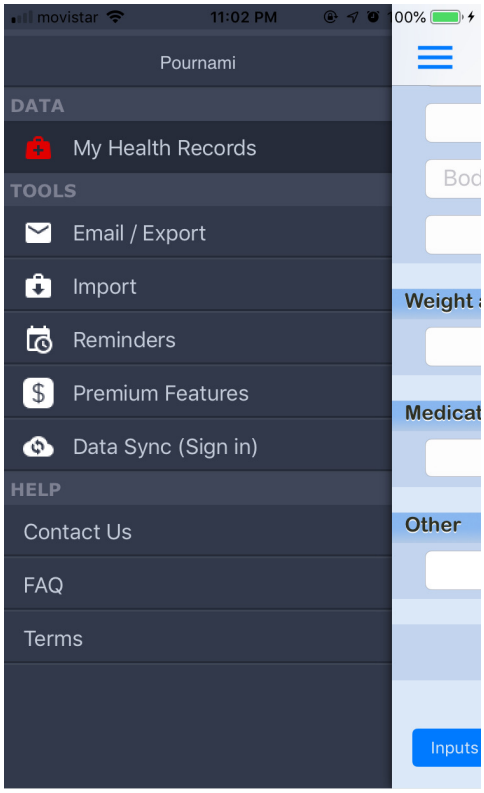
This is the overall evaluation based on Nielsen's Heuristic evaluation guidelines

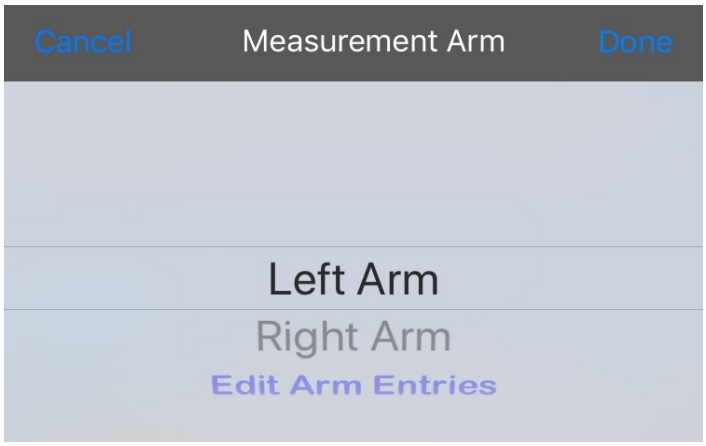
The application BP Monitor have some specific potential problems that needs to be fixed so as to make the app more accessible to many more users.

Appendix

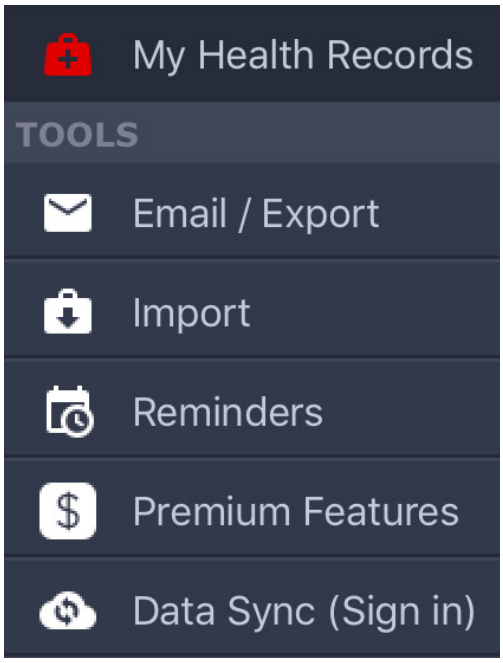
Heuristic Criteria 1:

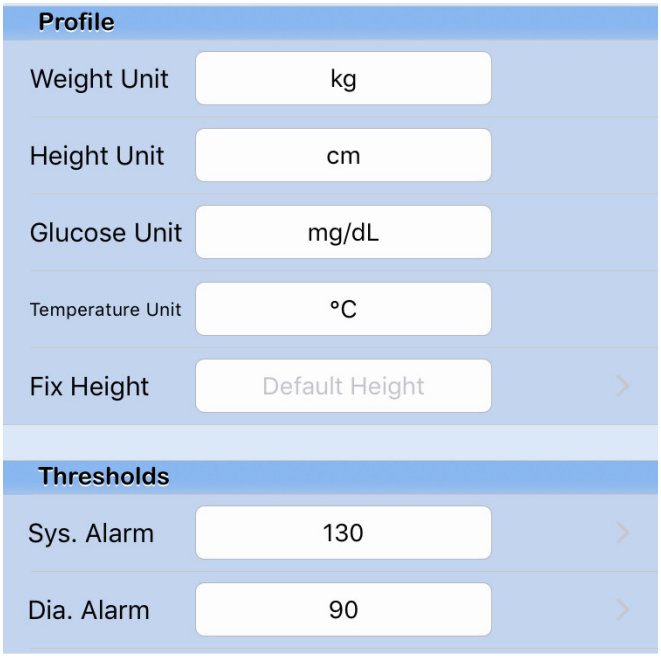




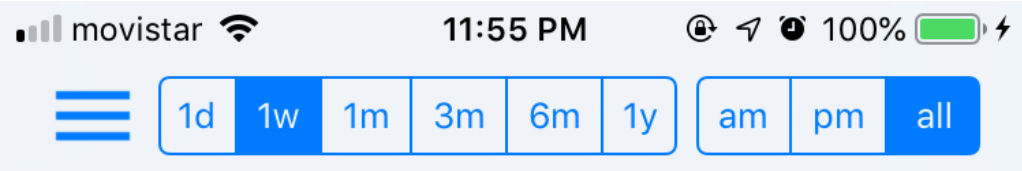


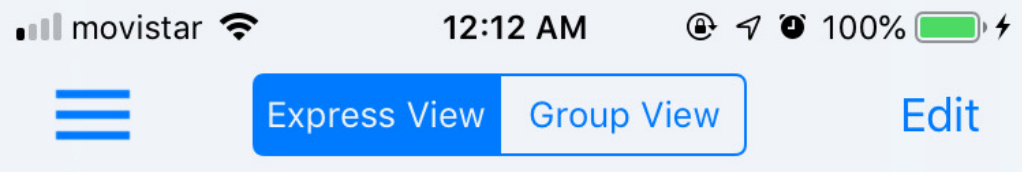
Heuristic Criteria 2:

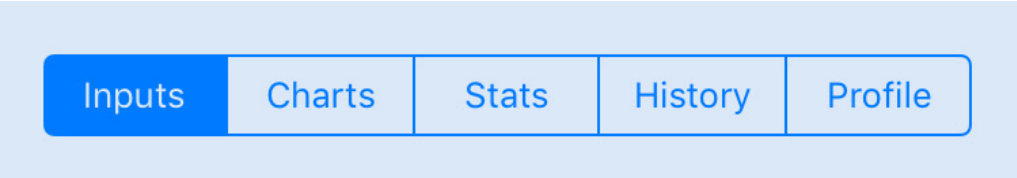


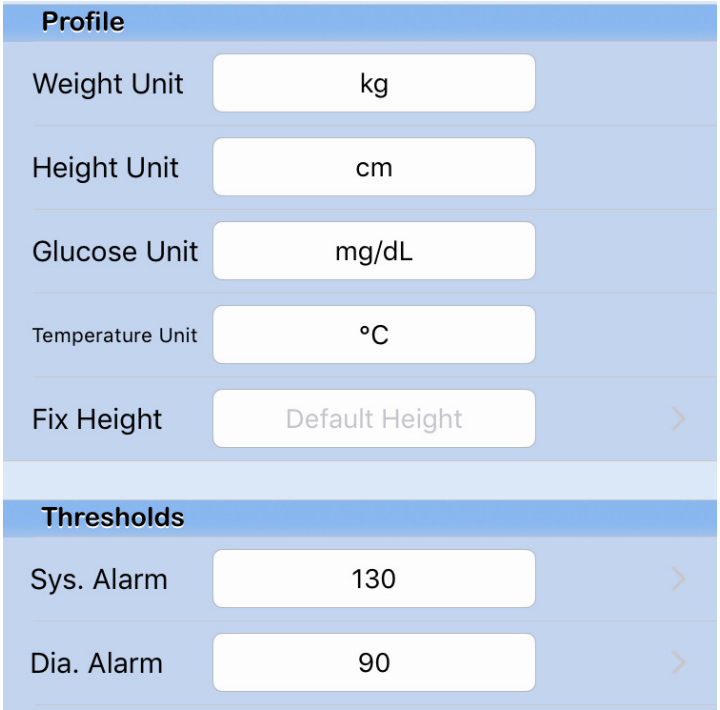


Heuristic Criteria 3:

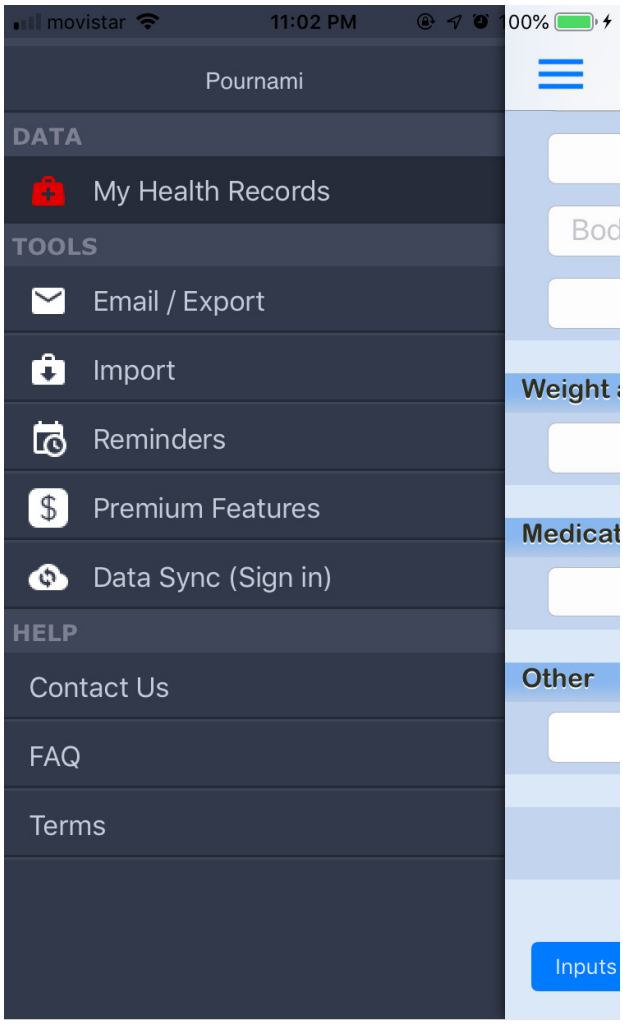


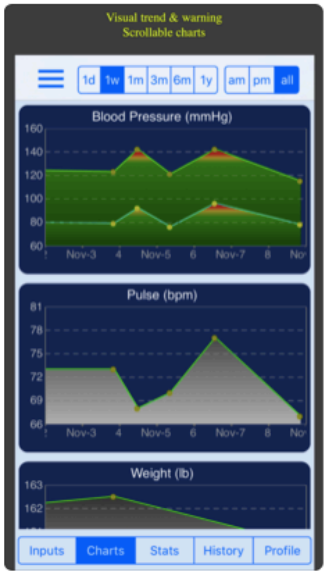




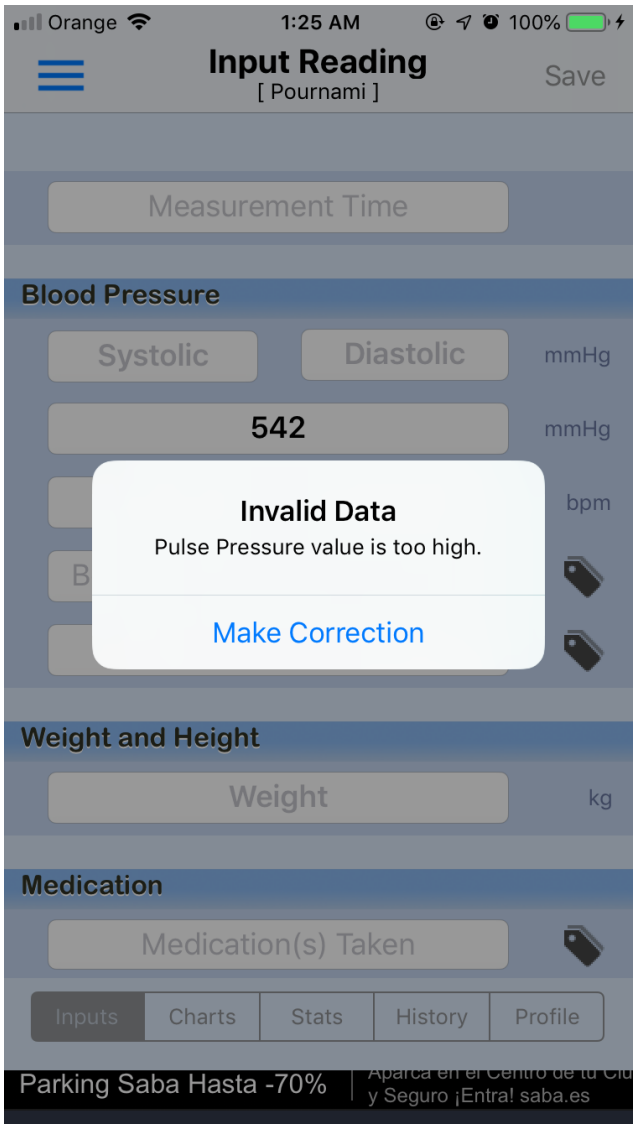


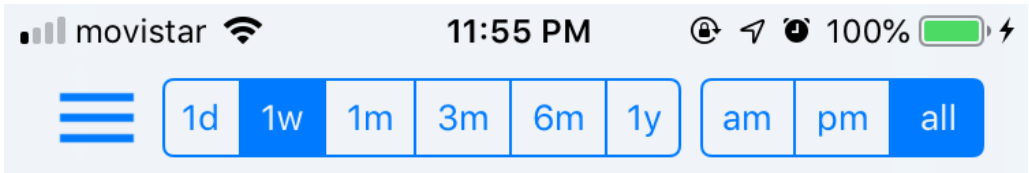
Heuristic Criteria 4:





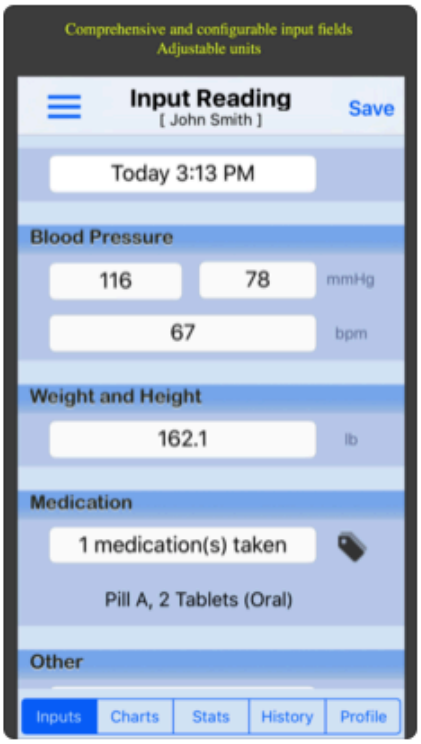
Heuristic Criteria 5:

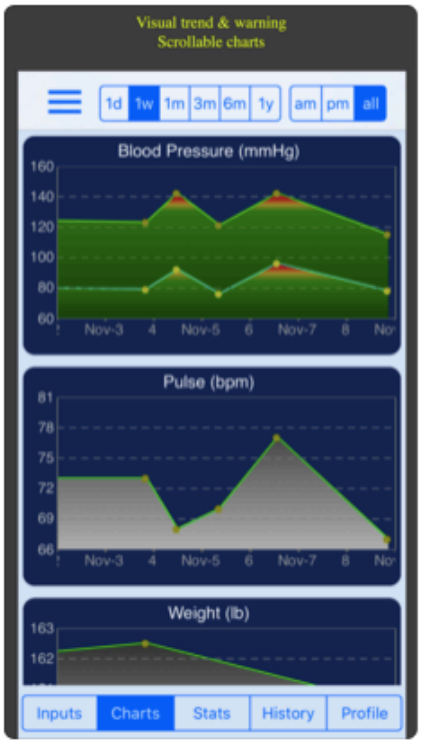


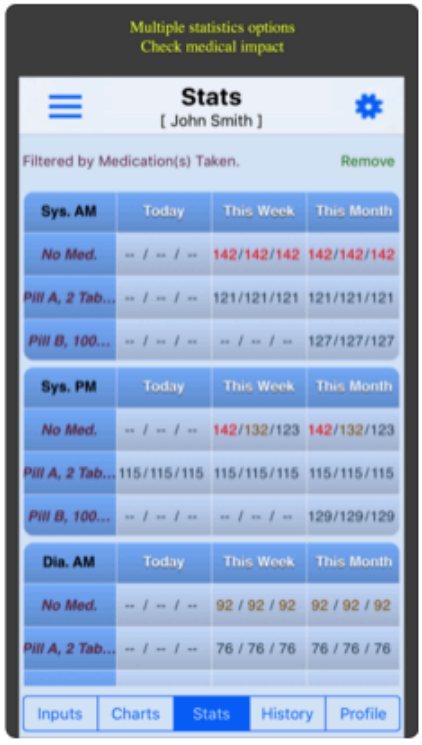


Heuristic Criteria 6 & 7:

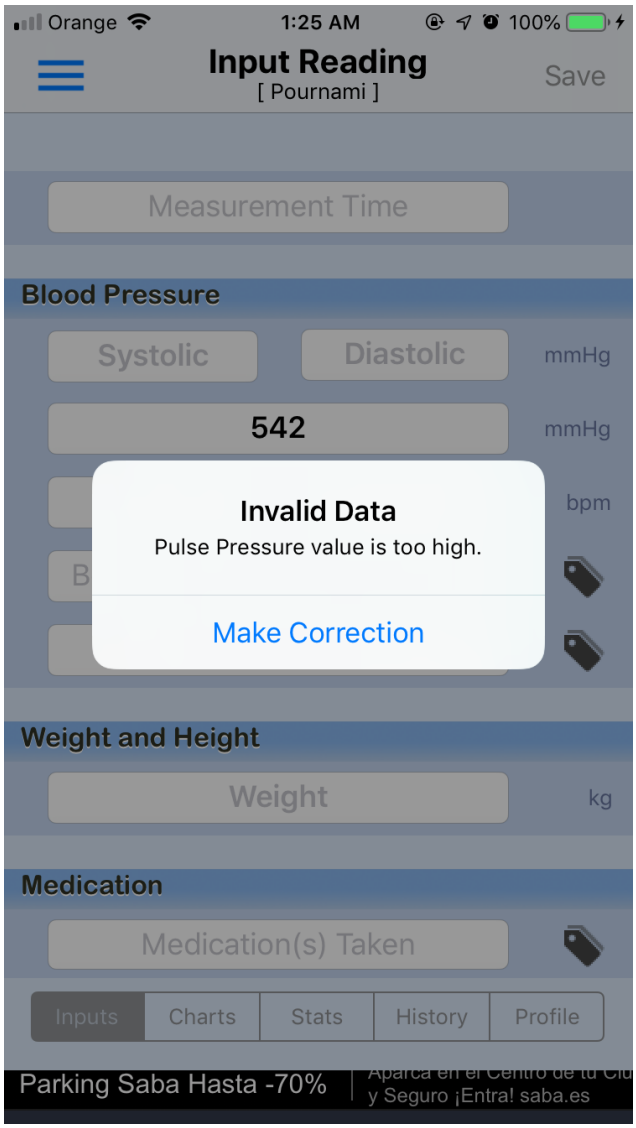
Heuristic Criteria 8 & 11:



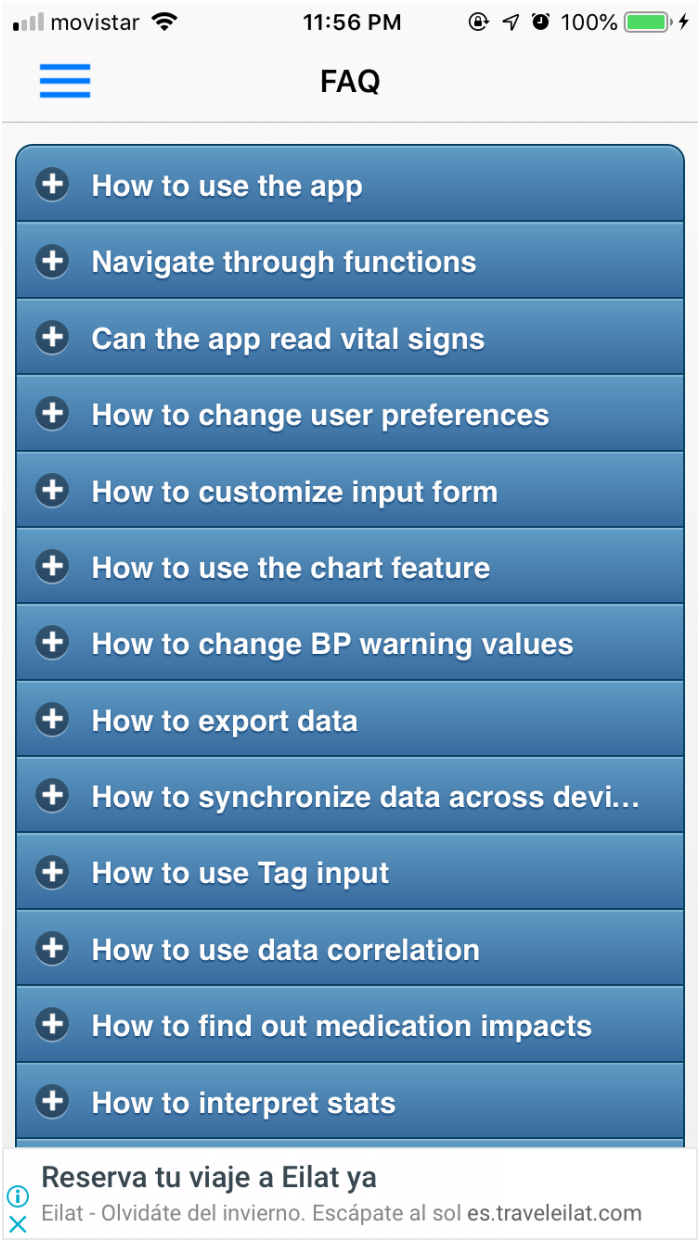




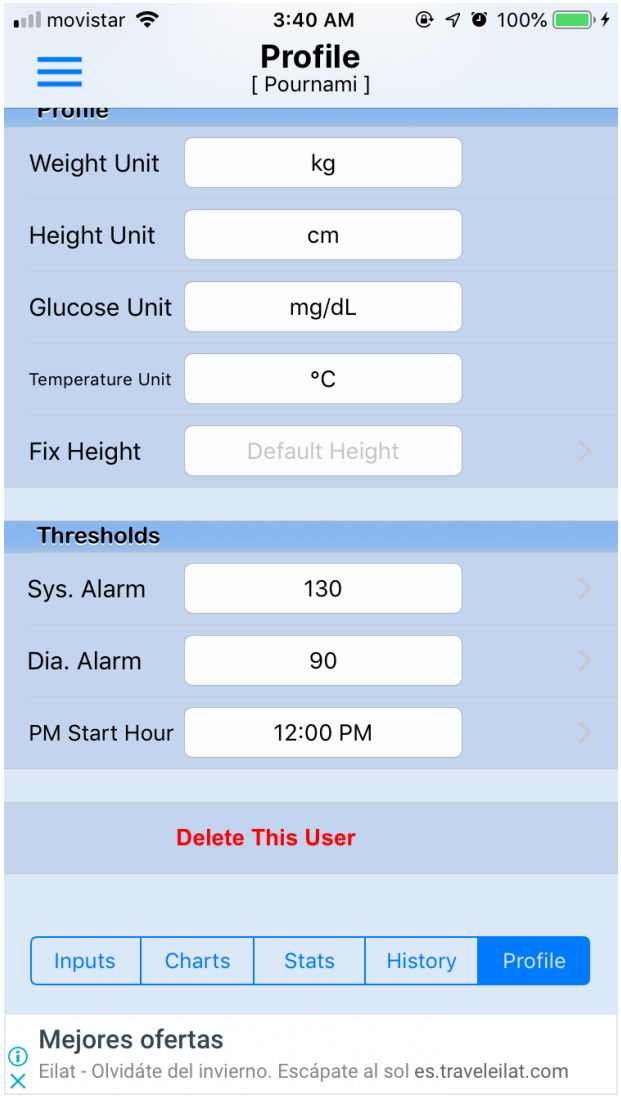
Heuristic Criteria 9:



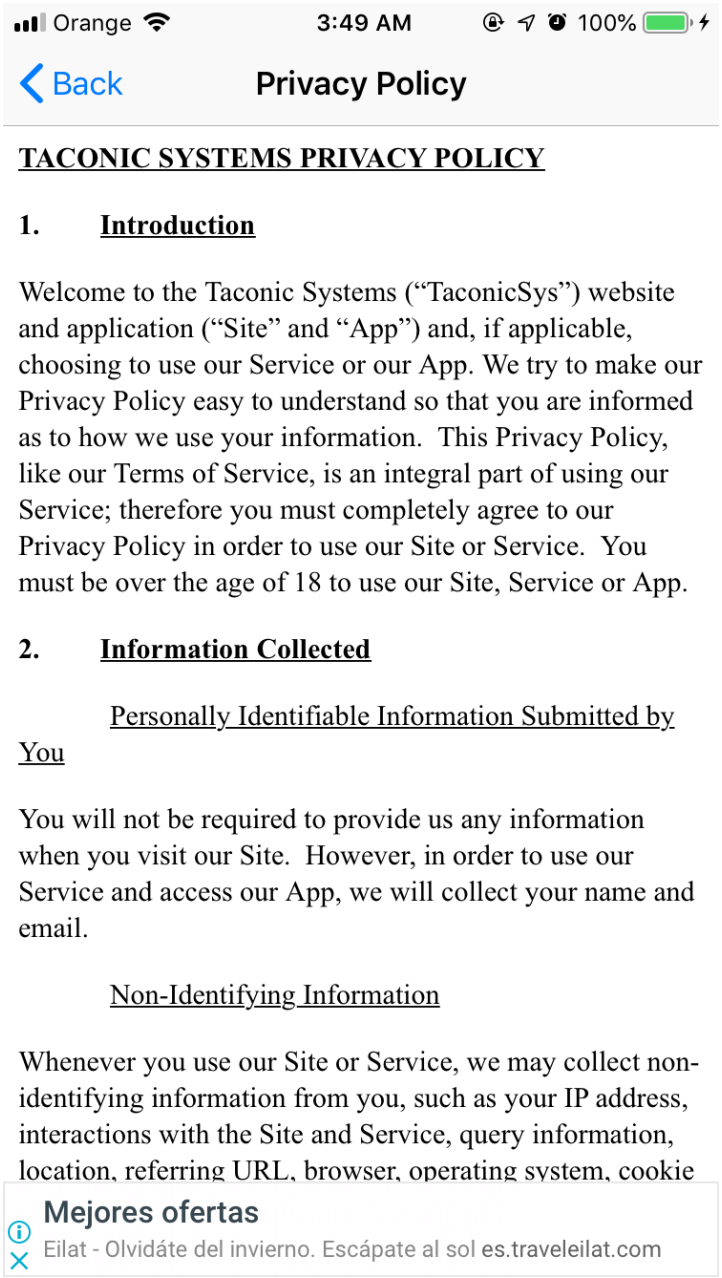
Heuristic Criteria 10:



Heuristic Criteria 12:



Heuristic Criteria 13:



Review of the app by users: