

HEURISTIC EVALUATION GUIDELINE

A. PRELIMINARY

1. Participants will be given an explanation and informed consent
2. Researcher introduces herself and conveying the purpose of the meeting

B. IMPLEMENTATING

1. In the first round:
 - a. Three Experts as evaluators are given software an Android-based IDSM Application, usage modules and HE checklists.
 - b. Experts will be asked to operate the Android-based IDSM Application and conduct independent evaluations by writing down the problems found in accordance with HE principles. Each violation is noted as a usability problem.
2. In the second round:
 - a. The evaluators discussed the problems that had been identified and combined in a meeting convened by the evaluators and were given a list of problems.
 - b. A problem list is the same problem that has been identified by three evaluator and agreed upon among all evaluators.
 - c. Any disagreements regarding the problems identified and assigning them to specific heuristics are resolved by consensus.

HEURISTIC EVALUATION CHECKLIST

Heuristic #1: Visibility of system status.

#	Review Checklist	Yes	No	N/A	Comments
1.1	Is there some form of system feedback for each operator action?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.2	If pop-up windows are used to display error messages, do they allow the user to view the error field?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.3	In a multi-page data entry screen, is each page labeled to indicate its relationship to other pages?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.4	Is high informative content placed in a high hierarchical area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.5	Do all the items in the list on the same page? Are they sorted in an order that fits the needs of the task?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.6	If a list of items can be sorted by different criteria, does it provide an option to sort them using those criteria?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.7	If the list contains items that fall into different categories, is there a filter for the user to narrow down the number of elements they need to check?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.8	If the list contains only one item, is the user directly redirected to that item?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.9	If the list contains slowly downloading items (e.g., images), is the list divided into multiple pages to display only one page at a time?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.10	For articles spanning multiple pages, is the pagination shown at the bottom? Are there links to each individual page, not just the previous and next pages?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.11	Is the logo meaningful, identifiable, and sufficiently visible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.12	Are there links to detailed information about the company, website, webmaster, etc.?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.13	Are there ways of contacting with the enterprise?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

1.14	In articles, news, reports, etc. Is the author, source, date and review information clearly displayed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.15	For physical location information on the website, are links to maps provided and directions clearly accessible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.16	Is the response time appropriate for the user's cognitive processing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.17	Are response times appropriate for the task?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.18	If there is an observable delay (more than fifteen seconds) in system response time, is the user kept informed of the system's progress?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.19	Is latency sufficiently reduced?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.20	Are splash screens too long avoided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.21	If the download time is more than 20 seconds, is a progress bar offered instead of an uninformative download screen?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.22	Is there any visual feedback in the menu or dialog box about which option to choose?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.23	Is the current status of an icon clearly indicated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.24	Is there visual feedback when objects are selected or moved?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.25	Is the link recognizable? Are there characterizations according to circumstances (visiting, active, etc.)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.26	Are low discoverable areas as touch buttons well identifiable?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.27	When swiping gestures are possible, are visible hints offered to the user? Is swiping used with a unique meaning on the same screen?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.28	Are expandable menus used sparingly? Do menu labels clearly indicate that they extend to a set of options?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.29	When users access the site from a mobile, are they redirected to the mobile version of the site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.30	Is a link to the mobile site provided on the desktop version of the site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

1.31	Is a link to the full site included on the mobile page?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.32	For interface design on mobile, Is clear and concise information about system status provided on each screen?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.33	Is important and contextual information, such as battery status, network status, environmental conditions, etc. prioritized?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.34	Is sound and light feedback explored as an alternative to text feedback? However, these resources should be used wisely to avoid disturbing users.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.35	Does the device keep users informed of all processes and status changes via comments within a reasonable timeframe?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Heuristic #2: User control and freedom

#	Review Checklist	Yes	No	N/A	Comments
2.1	Users often select system functions by mistake, is there an option marked with "emergency exit" for the user to leave the unwanted state without having to go through an extended dialog?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.2	Are the undo and redo actions performed by the user supported by the system?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.3	Can users move forward and backward between fields or dialogue box options?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.4	If the system has a multi-page data entry screen, can the user move back and forth between all the pages in the batch?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.5	If the system uses a question and answer interface, can the user return to the previous question or skip to the next question?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.6	Are exits clearly marked?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.7	Is the general web site structure user-oriented?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.8	Is there a way to let the user know where they are and how to cancel their navigation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

2.9	Is accidental activation avoided or foreseen (a back button is offered)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.10	In mobile websites, is navigation on the homepage provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.11	Can users set their own system, session, file, and screen defaults?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.12	When a user task is finished, does the system wait for a signal from the user before processing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.13	Is the user being asked to confirm a command that has drastic and damaging consequences?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.14	Can users easily reverse their actions?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.15	Can users cancel out of operations in progress?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.16	If the system has multiple menu levels, is there a mechanism that allows the user to return to the previous menu?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.17	Is the menu broad (many items on the menu) rather than deep (many levels of the menu)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.18	If the user can return to the previous menu, can they change the previous menu selection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.19	Are interruptions made by the user treated naturally by the system?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.20	Is the user given the possibility to immediately restart his actions after an interrupt?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.21	Are basic navigation controls available on the screen even though the device itself provides buttons to perform this function?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.22	Should the horizontal and/or vertical navigation options offered by the system be intuitive?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.23	Are these options (undo, redo, exits) available via physical buttons or equivalent?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Heuristic #3: Match between system and real world

#	Review Checklist	Yes	No	N/A	Comments
---	------------------	-----	----	-----	----------

3.1	Does the system speak the user's language, with words, phrases and concepts that are familiar to the user, rather than system-oriented terms?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.2	Is real-world convention followed in the system?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.3	Is information displayed in a logical and natural order?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.4	Are metaphors properly used as visual clues?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.5	Are icons concrete and familiar?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.6	If the shape is used as a visual cue, does it fit with cultural conventions?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.7	Does the color chosen match the general expectations about color coding?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.8	If the site uses a hierarchical structure, are the depth and height balanced?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.9	Is a navigation map or table of contents included on the site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.10	Is too much navigation avoided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.11	Are menu options sorted in the most logical way, given the user, item name, and assignment variable?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.12	Do menu choices fit logically into categories that have easy-to-understand meaning?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.13	Are menu titles parallel grammatically?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.14	In the navigation menu, are the number of items and terms per item controlled to avoid memory overload?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.15	Do related and interdependent fields appear on the same screen?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.16	For the question and answer interface, are the questions stated in clear and simple language?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.17	Is the language used the same target users speak?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.18	Is the language clear and concise?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.19	Does the site follow the rule "1 paragraph=1 idea"?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.20	Does the system automatically enter a leading or trailing space to align the decimal point?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

3.21	Does the system automatically enter dollar signs and decimals for monetary entries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.22	Does the system automatically enter commas in numeric values greater than 9999?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.23	What are right-aligned integers and decimal-aligned real numbers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.24	The most natural and easy-to-use mode of operation is obtained by making the same experience of daily life events, is the natural mode extended to smartphones?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.25	Do movements such as sliding, dragging, twisting that are applied in everyday life seem/look natural?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.26	Does the app rely on user models derived from previous technologies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Heuristic #4: Consistency and standards

#	Review Checklist	Yes	No	N/A	Comments
4.1	Does the app make users wonder if different words, situations, or actions mean the same thing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.2	Are platform conventions followed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.3	Is limiting orientation avoided? (Users tend to switch orientations when deadlocks occur and, if the app doesn't support them, their flow will be interrupted, and they'll wonder why it's not working)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.4	Is the navigation (horizontal and vertical) consistent across orientations? (Some apps use different navigation directions in the two orientations; for example, they use horizontal navigation in landscape and vertical navigation in portrait).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.5	Is content consistent across orientations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.6	Are attention-getting techniques used with care?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

4.7	Is intensity maintained in two levels only?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.8	Is the number of colors used limited to four? Are additional colors saved for occasional use only?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.9	Are the colors far apart along the visible spectrum?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.10	Are soft tones used for regular positive feedback and loud for rare critical conditions?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.11	If the system has a multi-page data entry screen, do all the pages have the same title?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.12	Do online instructions appear in consistent locations across screens?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.13	Have industry or company standards been established for menu design, and are these standards consistently applied to all menu screens in the system?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.14	Are there no more than twelve to twenty icon types?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.15	Has a heavy use of all uppercase letters on a screen been avoided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.16	Is there a consistent icon design scheme and style maintenance across the system?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.17	Are menu choice lists presented vertically?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.18	If "exit" is a menu option, does it always appear at the bottom of the list?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.19	Are menu titles either centered or left-justified?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.20	Are field labels consistent from one data entry screen to another?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.21	Do field labels appear to the left of single fields and list fields above?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.22	Are field and field labels typographically differentiated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.23	Is the data entry value structure consistent from screen to screen?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.24	Are system objects named consistently across all commands in the system?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

4.25	Are user actions named consistently across all commands in the system?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.26	Are menu selection names consistent, both within each menu and across systems, in grammatical style and terminology?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.27	Does the menu selection name structure match the appropriate menu title?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.28	Does the menu structure match the task structure?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.29	When the prompt implies a required action, are the words in the message consistent with that action?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.30	Where is the website going? Are they well defined? Is the content and services provided fit for this purpose?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.31	Is the look & feel appropriate for the purpose, characteristics, content and services of the website?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.32	Is the web site updated frequently?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.33	Is system response after clicking links predictable?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.34	Are nowhere links avoided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.35	Are orphan pages avoided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.36	Is the mobile interface similar to the desktop interface? In terms of buttons, logos and color schemes for a consistent user experience across platforms?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.37	Are link labels emphasized in graphic elements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.38	Does the app maintain components in the same place and view all interactions?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.39	Are similar functions performed by similar interactions?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.40	Is the metaphor of each component or feature unique across the application, to avoid misunderstandings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Heuristic #5: Error prevention

#	Review Checklist	Yes	No	N/A	Comments
5.1	Even better than a good error message is a careful design that prevents the	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

	problem from occurring in the first place. Does the app eliminate error-prone conditions or check for them and give users a confirmation option before they take action?		
5.2	Are menu choices logical, distinctive, and mutually exclusive?	<input type="checkbox"/>	<input type="checkbox"/>
5.3	Are data inputs case-blind whenever possible?	<input type="checkbox"/>	<input type="checkbox"/>
5.4	Does the system warn users if they are about to make a potentially serious error?	<input type="checkbox"/>	<input type="checkbox"/>
5.5	Do the data entry screens and dialog boxes show the number of character spaces available in a field?	<input type="checkbox"/>	<input type="checkbox"/>
5.6	Do fields in data entry screens and dialog boxes contain default values if necessary?	<input type="checkbox"/>	<input type="checkbox"/>
5.7	Is accidental activation avoided or foreseen (a back button is offered)?	<input type="checkbox"/>	<input type="checkbox"/>
5.8	Is the touchable area large enough (Research has shown that the best target size for widgets is 1cmx1cm for touch devices)?	<input type="checkbox"/>	<input type="checkbox"/>
5.9	Is target crowding avoided (When targets are placed too close to each other, users can easily hit the wrong target)?	<input type="checkbox"/>	<input type="checkbox"/>
5.10	Even though the visible portion of the target may be small, is there an invisible target space so that if the user hits that space, the hits will still count?	<input type="checkbox"/>	<input type="checkbox"/>
5.11	When multiple items are listed in a column, one above the other, can the user press anywhere in the row to select the target that corresponds to that row?	<input type="checkbox"/>	<input type="checkbox"/>
5.12	Is downloading software that is inappropriate for the user phone avoided?	<input type="checkbox"/>	<input type="checkbox"/>
5.13	Are JavaScript and Flash use avoided?	<input type="checkbox"/>	<input type="checkbox"/>
5.14	Is confirmation from the user taken before performing, executing, or using complex procedures to avoid unintentional errors?	<input type="checkbox"/>	<input type="checkbox"/>

5.15	Are unavailable features hidden or disabled?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.16	Are users warned about critical actions and granted access to additional information?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Heuristic #6: Help users recognize, diagnose, and recover from errors

#	Review Checklist	Yes	No	N/A	Comments
6.1	Are error messages expressed in plain language (no codes) familiar language of the user?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6.2	Do the error messages correctly pinpoint the problem and constructively suggest a solution?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6.3	When signaling an input error in a form, is the text box that needs to be changed specially marked or is the text highlighted in it?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6.4	Due to limited data entry and, consequently, higher user error rate, does the phone provide meaningful feedback? Short error message? Easy error restore and recovery options?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Heuristic #7: Recognition rather than recall

#	Review Checklist	Yes	No	N/A	Comments
7.1	Are instructions for using the system visible or easily retrieved when needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.2	Is high levels of concentration unnecessary, and remembering information no longer than two to fifteen seconds?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.3	Are all data a user needs on display at each step in a transaction sequence?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.4	If the user has to navigate between multiple screens, does the system use context labels, menu maps, and placemarks as navigational aids?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.5	After the user completes an action (or group of actions), does the feedback indicate that the next group of actions can be started?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

7.6	Are optional data entry fields clearly marked?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.7	Do data entry screens and dialogue boxes show when fields are optional?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.8	Is page length controlled?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.9	Should the task flow begin with the actions that are important to the main task? And can the user start the task as soon as possible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.10	Are the controls associated with the task grouped together and reflect the sequence of actions in the task?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.11	For a question and answer interface, are visual cues and spaces used to differentiate questions, hints, instructions, and user input?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.12	Does the data display start in the upper-left corner of the screen?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.13	Are commands formatted using spaces, justifications, and visual cues to make scanning easier?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.14	Do text areas have "breathing space" around them?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.15	Are there "white" areas between information objects for visual relaxation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.16	Does the system provide visibility: i.e., by viewing, can the user tell the state of the system and alternative actions?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.17	Are size, bold, underline, color, shading, or typography used to indicate the quantity or relative importance of different screen items?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.18	Is color used in conjunction with some other redundant cue?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.19	Is there good color contrast and brightness between the image and the background color?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.20	Have light, bright, and saturated colors been used to emphasize the data and have darker, duller, and desaturated colors been used to reduce the emphasis of the data?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

7.21	Is the visual page space well used?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.22	On data entry screens and dialog boxes, are dependent fields shown only when needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.23	Are field labels close to fields, but separated by at least one space?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.24	Is the first word of each menu choice the most important?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.25	Are inactive menu items greyed out or omitted?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.26	Are there menu selection defaults?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.27	Is there a clear visual difference between the "choose one" and "choose many" menus?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.28	Is there a breadcrumb on a site with a deep navigation structure (many navigation branches)? And, is it avoided on sites with shallow navigation structures?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.29	Does the device provide visible objects, actions, and options to prevent users from remembering information from one part of the dialog box to another?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.30	Are objects, actions, and options visible to the user to minimize their memory load?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Heuristic #8: Flexibility and efficiency of use

#	Review Checklist	Yes	No	N/A	Comments
8.1	Accelerators are usually invisible to novice users but can often speed up interaction for expert users. Are accelerators used?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.2	Is the searching box easily accessible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.3	Is the searching box easily recognizable?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.4	Is there any advanced search option?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.5	Are search results displayed comprehensively to users?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.6	Is the box width appropriated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.7	Is the user assisted if the search results are impossible to calculate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

8.8	Is there a search box on the mobile site homepage?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.9	Is the search box length at least the size of the average search string? Or better, is it the largest size that will fit on the screen?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.10	Is the search string preserved between searches? Are there autocompletes and suggestions?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.11	Are multiple search boxes with different functions on the same page avoided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.12	If the search returns no results, is some alternative search offered or a link to the search results on the full page?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.13	Are links with a good smell of information (that is, links that clearly indicate where they are taking the user)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.14	Are there links to related content to help users navigate faster between similar topics?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.15	Does the device charge fast?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.16	Is the device ease to learn?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.17	To improve interaction efficiency, does the device provide an alternative way to display the same functionality as a shortcut?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.18	Are all features found in a single interaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.19	If possible, does the system suggest support and provide customization options for frequently performed actions?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.20	Does the device provide basic and advanced settings facilities to set and customize shortcuts for frequently performed actions?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.21	Is the information loaded and displayed in a reasonable time?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.22	Are a number of steps required to perform a task minimally?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.23	Are animations and transitions displayed seamlessly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Heuristic #9: Aesthetic and minimalist design

#	Review Checklist	Yes	No	N/A	Comments
9.1	Each additional unit of information in the dialog competes with the relevant unit of information and reduces its relative visibility. Does the dialog contain relevant and frequently needed information?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.2	Is the time to reach the target a function of the distance and the size of the target according to Fitts' Law?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.3	Is only (and all) information important for decision making shown on the screen?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.4	Are field labels brief, familiar, and descriptive?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.5	Are the prompts expressed in the affirmative, and do they use active voice?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.6	Is the layout clearly designed to avoid visual noise?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.7	Are the app icons recognizable enough to be found in a crowded list of apps?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.8	Does the use of images and multimedia content add value?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.9	Is the image a good size? Are they understandable? Is the resolution appropriate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.10	Are cyclical animations avoided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.11	Is flash content avoided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.12	Should the use of animated carousels be avoided? And if there is, can the user control it?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.13	Is the image size smaller than the screen (The whole image must be viewable without scrolling)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.14	For cases where a customer may need access to a higher resolution image, is the screen size image initially displayed, and is there a separate link to the higher resolution variant?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

9.15	When using thumbnails, can users tell what they are about?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.16	Do captions help understand the meaning of images that are part of the article if the meaning is not clear from the context of the article?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.17	Are moving animation avoided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.18	When using a video, is there a textual description of the video?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.19	Do clicking thumbnails and clicking video titles play the same video?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.20	Is the video length indicated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.21	If the video does not play on the user's device, what is the message that is displayed with this information?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.22	Is the entire surface of the screen used to efficiently place information (especially for popovers and modals)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.23	Has excessive detail in icon design been avoided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.24	Are each individual icon a member of a harmonious icon family?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.25	Does each icon stand out from its background?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.26	Are all icons in a set visually and conceptually distinct?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.27	Is each lower level menu option related to only one higher level menu?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.28	Are menu titles brief, yet long enough to communicate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.29	Desktop websites have strong guidelines for avoiding horizontal scrolling. But for touchscreens, horizontal swipes are often fine. Does this option count?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.30	Is the site designed to avoid a large number of persistent navigation options across all pages?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.31	Is the information presented in a consistent manner and divided into small sections? And easy to find to minimize the user's cognitive load?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.32	To access the full version of the app, does the phone allow users to access the	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

	desktop version of the site from their phone?			
9.33	Is the screen area partially used by a keyboard?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.34	The most relevant information should be highlighted visually through larger sizes, colors, use of markers, etc. Is the information highlighted that way visually?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.35	Due to the screen size limit, unlike websites for desktop, the navigation is NOT repeated on all pages?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.36	Is the display of unwanted information avoided to overload the screen?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Heuristic #10: Help and documentation

#	Review Checklist	Yes	No	N/A	Comments
10.1	Although assistance and documentation are required as part of the system, is the system in a usable condition without documentation support?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10.2	Is the information in the help and documentation easy to find, focused on the user's task, listed concrete steps to be taken, and not too large?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10.3	Are on-line instructions visually distinct?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10.4	Do the instructions follow the sequence of user actions?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10.5	If menu choices are ambiguous, does the system provide additional explanatory information when an item is selected?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10.6	If a menu item is ambiguous, does the system provide additional explanatory information when the item is selected?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10.7	Is the help function visible, for example, a button labeled HELP or a custom menu?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10.8	Is the help system interface (navigation, presentation, and conversation) consistent with the navigation,	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

	presentation, and conversation interfaces of the applications it supports?		
10.9	Is the information easy to find?	<input type="checkbox"/>	<input type="checkbox"/>
10.10	Is the visual layout well designed?	<input type="checkbox"/>	<input type="checkbox"/>
10.11	Is the information accurate, complete, and understandable?	<input type="checkbox"/>	<input type="checkbox"/>
10.12	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 for?), Procedural (How do I do this task?), Interpretive (Why did it happen??) and Navigation (Where am I?).	<input type="checkbox"/>	<input type="checkbox"/>
10.13	Is there context sensitive help?	<input type="checkbox"/>	<input type="checkbox"/>
10.14	Can the user change the level of detail available?	<input type="checkbox"/>	<input type="checkbox"/>
10.15	Can users easily switch between help and their work?	<input type="checkbox"/>	<input type="checkbox"/>
10.16	Is it easy to access and return from the help system?	<input type="checkbox"/>	<input type="checkbox"/>
10.17	Can users continue work where they left off after accessing help?	<input type="checkbox"/>	<input type="checkbox"/>
10.18	If there is an FAQ section, is the selection and editorial of questions and answers correct?	<input type="checkbox"/>	<input type="checkbox"/>
10.19	Does the design focus on one feature at a time? (Only the instructions required for the user to start should be presented at one time).	<input type="checkbox"/>	<input type="checkbox"/>
10.20	Does the app provide help options where common problems and ways to solve them are specified?	<input type="checkbox"/>	<input type="checkbox"/>
10.21	Are issues considered in the help option easy to find?	<input type="checkbox"/>	<input type="checkbox"/>
10.22	Does the device provide easy-to-find and helpful documentation, focus on the user's current task and show concrete steps to follow?	<input type="checkbox"/>	<input type="checkbox"/>

Heuristic #11: Privacy

#	Review Checklist	Yes	No	N/A	Comments
11.1	Are protected areas completely inaccessible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11.2	Are protected or secret areas only accessible with a certain password?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11.3	Is there any information about how personal data is protected and about content copyright?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11.4	For multiuser devices: Is permanent login in the app avoided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11.5	If the app stores credit card info, can users decide if they want to stay signed in? If the user chooses to stay logged in, he/she should get a message informing him of the possible risk.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11.6	Is the user's confidential data protected by the device?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Heuristic #12: Skills

#	Review Checklist	Yes	No	N/A	Comments
12.1	Is the word "default" avoided and replaced with "Standard", "Use Custom Settings", "Restore Initial Settings", or some other more specific term that describes what is actually going to happen?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.2	If the system supports both novice and expert users, is some level of error message detail available?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.3	If the system supports both novice and expert users, are different levels of detail available?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.4	Are users the initiators of actions rather than the responders?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.5	Do the selected input device(s) match user capabilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.6	Are important keys (for example, ENTER, TAB) larger than other keys?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.7	Does the system correctly anticipate and prompt the next possible user activity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Heuristic #13: Pleasurable interaction

#	Review Checklist	Yes	No	N/A	Comments
13.1	Is the user's job protected? For example, for data entry screens with many fields or where the original may be incomplete, can the user save the partially filled screen?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13.2	Do the selected input device(s) match environmental constraints?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13.3	Are typing requirements minimal for question and answer interfaces?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13.4	Does the system resolve unambiguous partial input on data entry fields?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13.5	Users don't like typing. Does the information count for the user? For example, ask for only postal codes and calculate states and cities; may offer a list of cities if there are more under the same zip code	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13.6	Is the input data tolerant of typos and offers correction? (Don't make the user type in incomplete information. For example, accept "123 Main" instead of "123 Main St.")	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13.7	Can users save history and select previously typed info?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13.8	Does default information make sense to the user?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13.9	If the app doesn't store any sensitive information (e.g., credit cards), does the user stay logged in (with logout prominently displayed)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13.10	Is the number of submissions (and clicks) minimized for users to enter information on the site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13.11	When logging in is required, is the graphical password used at least a few times, to avoid typing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13.12	Is registration not mandatory? Is skipping registration the default option?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13.13	When login is required, is there an option that allows the user to see the password clearly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

13.14	When a product list is presented, are the image thumbnails large enough for the user to get some information out of it?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13.15	On the product page, does the image size fit the screen? Are there links to higher resolution images where the product requires closer inspection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13.16	Is there the option to email a product to a friend?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13.17	Is there the option to save the product in a wish list?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13.18	On an ecommerce site, are important links included on the homepage to the following information: — location and opening hours (if applicable), — shipping costs, — phone number, — order status, and — promotions or products by event?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13.19	Whenever a user makes a transaction on the phone, can they save the confirmation number for the transaction by emailing themselves? If the phone has an embedded screenshot feature, are there any instructions on how to take a screenshot of it?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13.20	Does the device provide a pleasant iteration with the user so that the user does not feel uncomfortable while using the app?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

References :

1. Nielsen J. 10 Usability Heuristics for User Interface Design. 1994 Apr 24. URL: <http://www.nngroup.com/articles/ten-usability-heuristics/> [accessed 2021-11-25]
2. Khowaja, K., & Al-Thani, D., 2020. New checklist for the heuristic evaluation of mHealth apps (HE4EH): Development and usability study. *JMIR mHealth uHealth* 8. doi:10.2196/20353