Human-Computer Interface for Android
Better design, greater audience
Step by step

1.
2.
3.
4.
What is an HCI?

Communication between user and computer
Basics criteria of a good HCI
ISO 9241 : Usability

“The extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use.”

4 criteria to remember

- Utilisation
- Effectiveness
- Efficiency
- Satisfaction
Utilisation

Your interface must at least answer to 3 questions

- Who are the users?
- What do the users want or need to do?
- What is the users' context for working?

In other word

- One user
- One goal
- One context
Utilisation

The audience
Who are the users?
• Gender, age, level of expertise ...

The objectives
What the user want to do with your application / interface?
• Application's goals

The context
What is the user's context to use your interface?
• Technological context
• Social context
• Ambiant context
Effectiveness

Some questions to use to test the effectiveness of your interface

- Is my interface easy to use?
- Is my interface easy to learn?

In other word

- Lisibility
- Learnability
Effectiveness

Lisibility

Is my interface easy to use?

- Organisation
- Symbols
- Accessibility

Learnability

Is my interface easy to learn?

- Coherence
- Convention
- Information
Efficiency

Some questions to use to test the efficiency of your interface

- Is my interface fast to use?
- Does the user make a lot of mistakes?

In other word

- Speed
- Feedback
Efficiency

Speed
Does the user lost time to achieve its goal?
- Use Case scenario

Feedback
Is the user helped if he makes mistakes?
- Assistance
- Errors handling
Satisfaction

Subjective evaluation of your interface by the users.

- confort
- simplicity

Good users

- will READ explanations if you give some
- will follow explanations
  Don't count too much on it
Remember : Ask the good questions

How can i create a good interface for my app?

• Who are the users?
• What are they using my interface for?
• In what context do they use it?
• Is it easy to use?
• Is it easy to learn?
• Is it fast to use?
• Is the user helped if he makes mistakes?
For more information

Some useful laws

•

•

•

•
Android guidelines
Google presentation and recommendation for android application design.

- Design principles
- User interface overview
Design principles

Keep it cool!

- Add effects: Sounds, Animations (Transitions)
- Use objects when you can
- "Let me change the theme!"
- Keep track of preferences
Design principles

Keep it simple!

- Be brief
- Images, better than texts
- User is in control (but do most of the work please)
- Just the essential choices
- Same design, same purpose
Design principles

Keep me satisfied!

- Same short cuts everywhere
- It's not my fault
- What am I doing?
- Lifting the process
- Make important things fast
Android User interface overview

- Android devices
- Gestures
- Android UI
- Patterns
Android devices
Devices with several size mean several UI definition to handle for one app
Android devices
Design UI for different screen density: *size buckets*

- LDPI: 120 dpi
- MDPI: 160 dpi
- HDPI: 240 dpi
- XHDPI: 320 dpi
- XXHDPI: 480 dpi
Gestures

Interactions with the system controlled by the touch screen
Gestures
2 points interactions
Android UI

Graphic environment
Android UI
Basic application UI
Android UI

Several design templates available

- Themes
- Typography
- Even color palettes
Android UI

Interface elements available

- Tabs
- Lists
- Grid lists
- Scrolling
- Spinners
- Buttons
- Text Fields
- Seek Bars
- Progress & Activity
- Switches
- Dialogs
- Seek Bars
- Pickers
Android UI
Tabs
### Android UI

#### Lists

<table>
<thead>
<tr>
<th>Single Line List</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>List item number one</td>
<td></td>
</tr>
<tr>
<td>Second list item</td>
<td></td>
</tr>
<tr>
<td>This is the third item</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2 Line List</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Line List</td>
<td></td>
</tr>
<tr>
<td>Austin mixtape cosby sweater butcher. Fixie ad vice, brooklyn...</td>
<td></td>
</tr>
<tr>
<td>Second list item</td>
<td></td>
</tr>
<tr>
<td>Assumenda commodo laborum accusamn</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3 Line List</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Three line list title</td>
<td></td>
</tr>
<tr>
<td>Put a bird on it qui fanny pack, portland irony nisi fap irure. Donec hendrerit elit nec ligula dapibus</td>
<td></td>
</tr>
<tr>
<td>Second row in list</td>
<td></td>
</tr>
<tr>
<td>Vinyl laboris lo-fi ethical, adipiscing assumenda beard. Curabitur gravida quam id orci sodales</td>
<td></td>
</tr>
</tbody>
</table>
Android UI

Grid lists
Android UI
Scrolling

Display

Brightness

Wallpaper

Auto-rotate screen

Sleep
After 5 minutes of inactivity

Daydream
Android UI
Spinners
Android UI

Buttons
Android UI

Text Fields

Supercalifragilisticexpialidocious

I'll be on my way then. See you tomorrow.

<table>
<thead>
<tr>
<th>PHONE</th>
<th>MOBILE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 650-123</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>EMAIL</th>
<th>HOME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ADDRESS</th>
<th>HOME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td></td>
</tr>
</tbody>
</table>
## Android UI

### Seek bars

<table>
<thead>
<tr>
<th>State</th>
<th>Image 1</th>
<th>Image 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>DISABLED</td>
<td><img src="image1" alt="Disabled state" /></td>
<td><img src="image2" alt="Disabled state" /></td>
</tr>
<tr>
<td>PRESSED</td>
<td><img src="image1" alt="Pressed state" /></td>
<td><img src="image2" alt="Pressed state" /></td>
</tr>
<tr>
<td>FOCUSED</td>
<td><img src="image1" alt="Focused state" /></td>
<td><img src="image2" alt="Focused state" /></td>
</tr>
<tr>
<td>NORMAL</td>
<td><img src="image1" alt="Normal state" /></td>
<td><img src="image2" alt="Normal state" /></td>
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</tbody>
</table>
Android UI
Progress and activity indicators
# Android UI

## Switches

<table>
<thead>
<tr>
<th></th>
<th>Normal</th>
<th>Focused</th>
<th>Pressed</th>
<th>Disabled</th>
<th>Disabled Focused</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unchecked</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Checked</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Unchecked</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Checked</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

![Switches Diagram](image-url)
Android UI

Dialogs
Android UI
Alerts

Unfortunately, the process com.android.phone has stopped.

Report | OK

Erase USB storage?

You’ll lose all photos and media!

Cancel | Erase
Android UI

Pop ups
Android UI

Toasts
Android UI
Pickers
Android UI
For more information and details