

Cryptography

DMT crypto engine

Easy demos for Caesar & Affine ciphers & VIGENERE CIPHER

🕒 history

text

text

select cryptography type

Type

caesar cipher

🔑 encoding

🔒 decoding

Result

result

confirm

A modern cryptography system designed using HCI principles

It follows the design principles & UX factors

Functionality :it do what should he do

Usability

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1. Effectiveness: **yes** ,it do what suppose to do .
2. Efficiency: **yes** ,it encode and decode quickly without fill inputs from first ,you only change text and type of cryptography .


Usability



3. safety : **yes**, it keep user out of troubles , The system warns the user before doing risky actions like : you can not clear history directly you must confirm by **dialog** .


Usability

 History

 Home

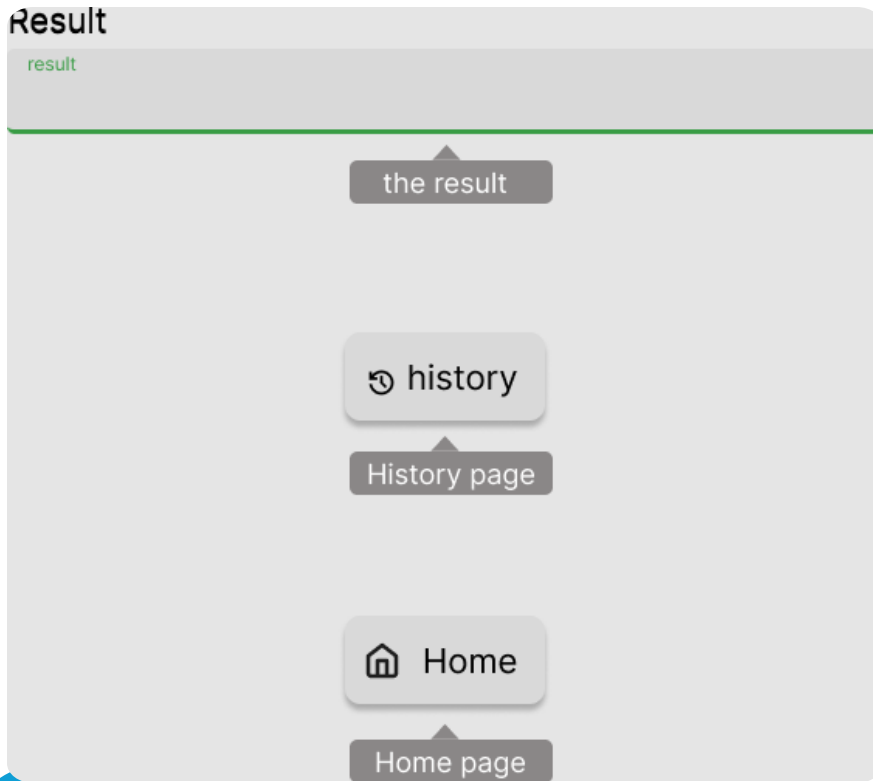
plain text
crypto type
key
encode or decode
cipher text
Date
Time

	hello
	caesar cipher
	key :10
	encode
	rovvy
	2025-12-09
	20:41:46

 Clear

4. memorability : **yes** ,
how easily can user
remember after time
away , app handle that by
make **history page** and
remember what he done
before and Time &Date of
process .

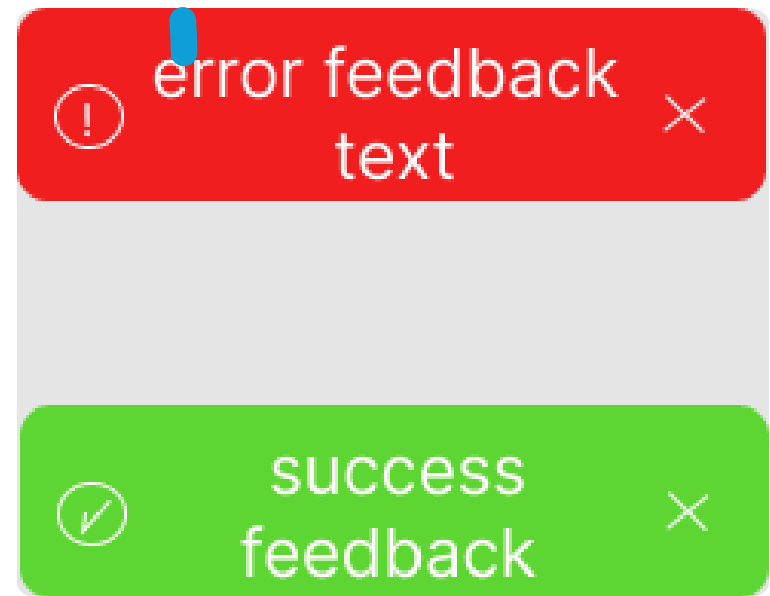
Design principles



1. **Visibility** : the more visible function are the more likely users , app put **tooltip** for component to describe what it do this help , and more that the app designed **vertical** that show what is the next step.

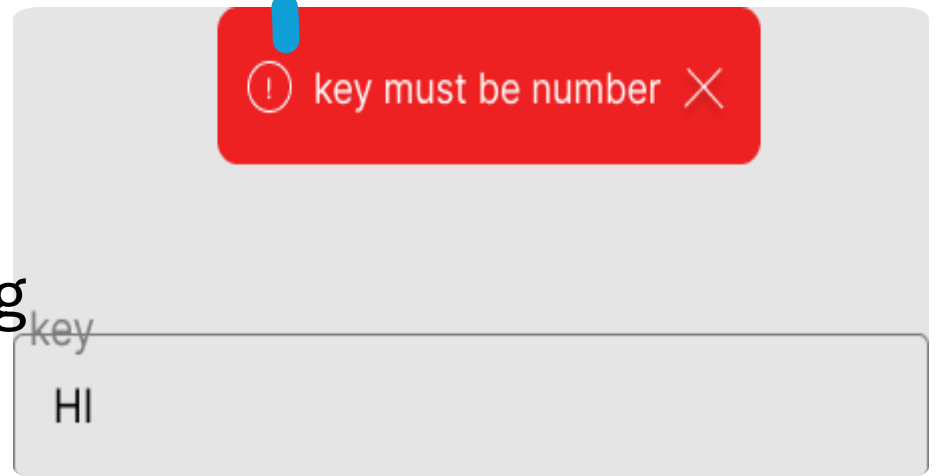
Design principles

- 2. **feedback** : app return feedback to user to know him if the process done or not is call "**snackbar**" or "**Toast**", **selected color** of feedback represent the kind of feedback ,red is error feedback ,green is success feedback .



Design principles

- 3. **constraints:** **restricting** user to do type of action , like here he can not encrypt using ceasar cipher by using ket : "text" must benumber , the same with others .



Design principles

- **4.mapping** : app takes into consideration the relationship between controls and their effects , like here vertical design make it good mapping for everyone know what it doing , the encode & decode buttons well design like one and reflection

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Design principles

- 5. ***affordance*** : the properties of object show how it can be used, here shape of inputs mean you can put data in it, and shape of button mean you can click on it

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Visual

We took into consideration the **peripheral vision**, which **Rods** cells is more sensitive than cones, so we exploited it by if we wanna make any attention so just do put it in any side of window, like here the feedback is in the top

The image shows a web application interface for a crypto engine. At the top, a red error message box displays the text "key must be number" with an information icon and a close button. Below this, the title "DMT crypto engine" is followed by the subtitle "Easy demos for Caesar & Affine ciphers & VIGENERE CIPHER". A "history" button is located on the right. There are two text input fields, both containing the placeholder text "text". Below these is a label "select cryptography type" and a dropdown menu currently showing "caesar cipher". Two buttons, "encoding" and "decoding", are positioned below the dropdown. A "Result" section contains a label "result" and a large grey rectangular area for the output. At the bottom is a blue "confirm" button. Blue hand-drawn lines are present: a curved line above the error message, a vertical line pointing to the subtitle, and a large semi-circle at the bottom right corner of the image.

Visual percept

1. Size & depth :

Choose the font size carefully, so that it is neither too big nor too small is medium that what called **visual acuity** , and **low of size constancy** mean the chosen font size is not change in app .

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Clear


Visual percept

2 . **Brightness :**

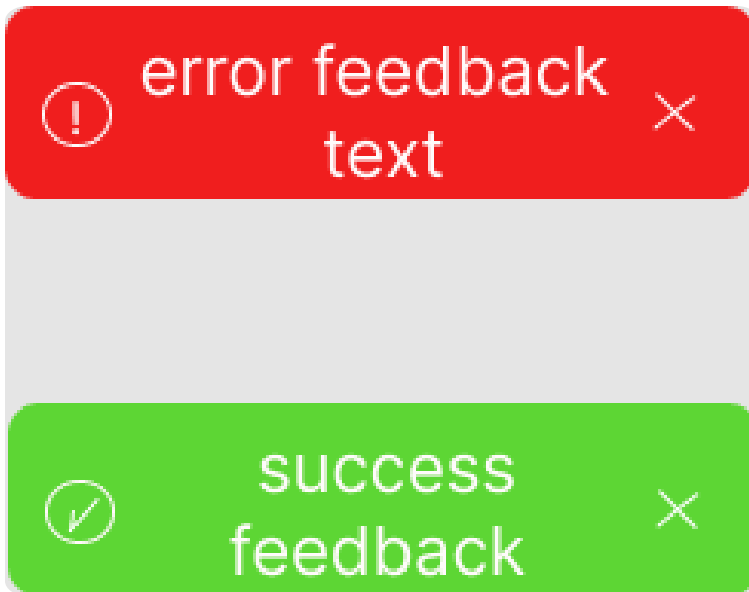
We focus on intensity that attract user by Brightness,

So we to **balance in Brightness** , not make it too much that can make eye strain and not make too low that make word not clear , like make background Brightness and make text black , or make background not Brightness and make text white , to ensure the text **obvious** .

 encoding

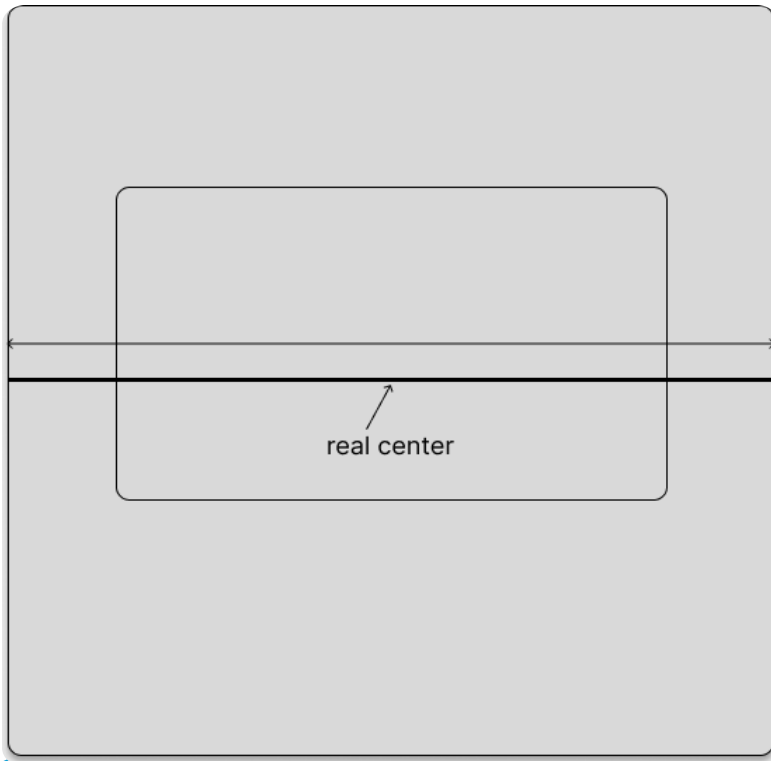
 decoding

Visual percept



- 3. **color** :
- The color not just appearance but reflect meaning and emotion
- Meaning & emotion : red = **error** , green = **success** , blue = **info** .
- Human eye can perceive more 7 million colors but use 3-5 colors reduce user **confused** .
- We select **light blue** due to the least sharpness color and user spend more time .

Visual percept



- **Center Illusion :**

Users tends to see the center above the true center , so we did margin bottom to it , this make it above of real center .

Audio percept



Error sound



Success sound

Audio :

1. Attention
2. Navigation
3. Feedback

Some people suffering from color blindness , so we can not fully depending on color to export felling , we add audio to describe feedback

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