

# 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

DMT crypto engine  
Easy demos for Caesar & Affine ciphers & VIGENERE CIPHER

text

text

select cryptography type  
Type caesar cipher

encoding decoding

Result  
result

confirm

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

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

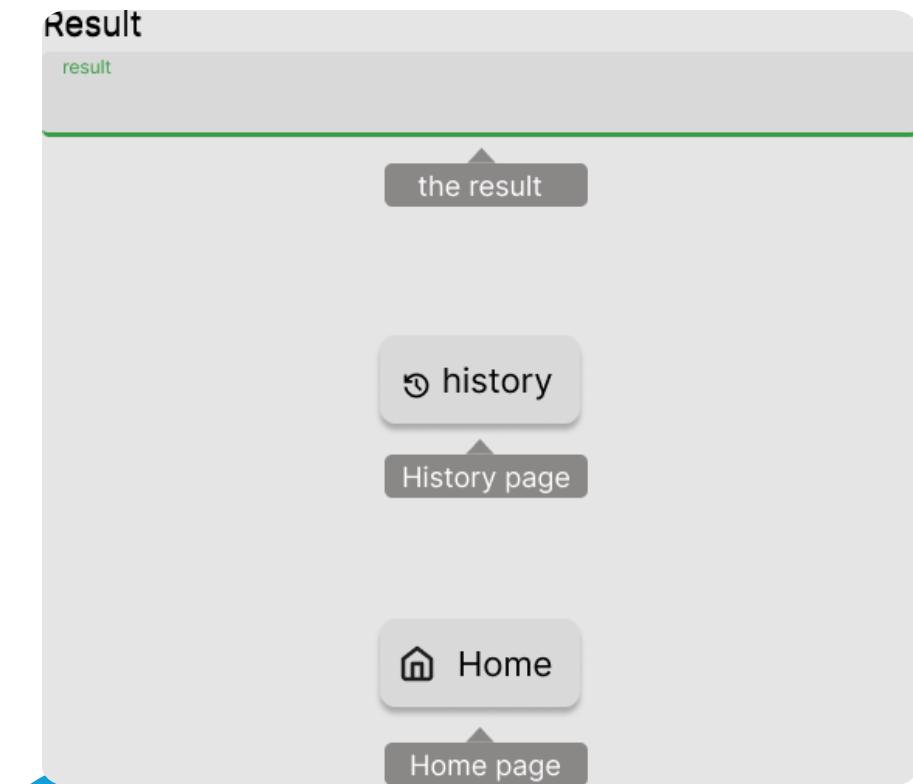
🏠 Home

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 .

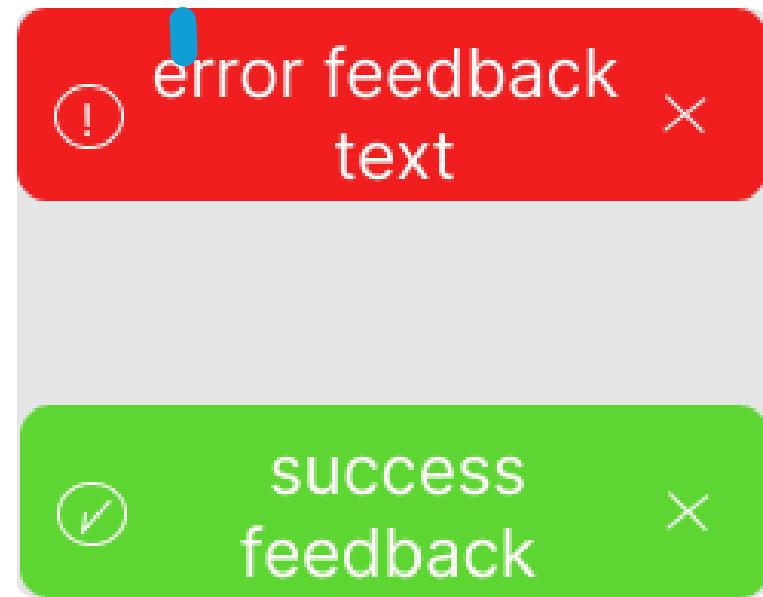
# Design principles



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.

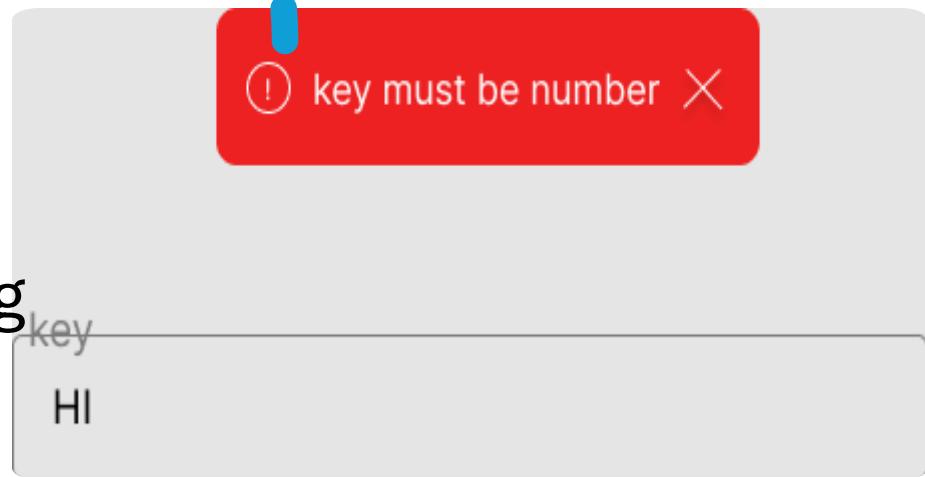
# Design principles

- 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 .



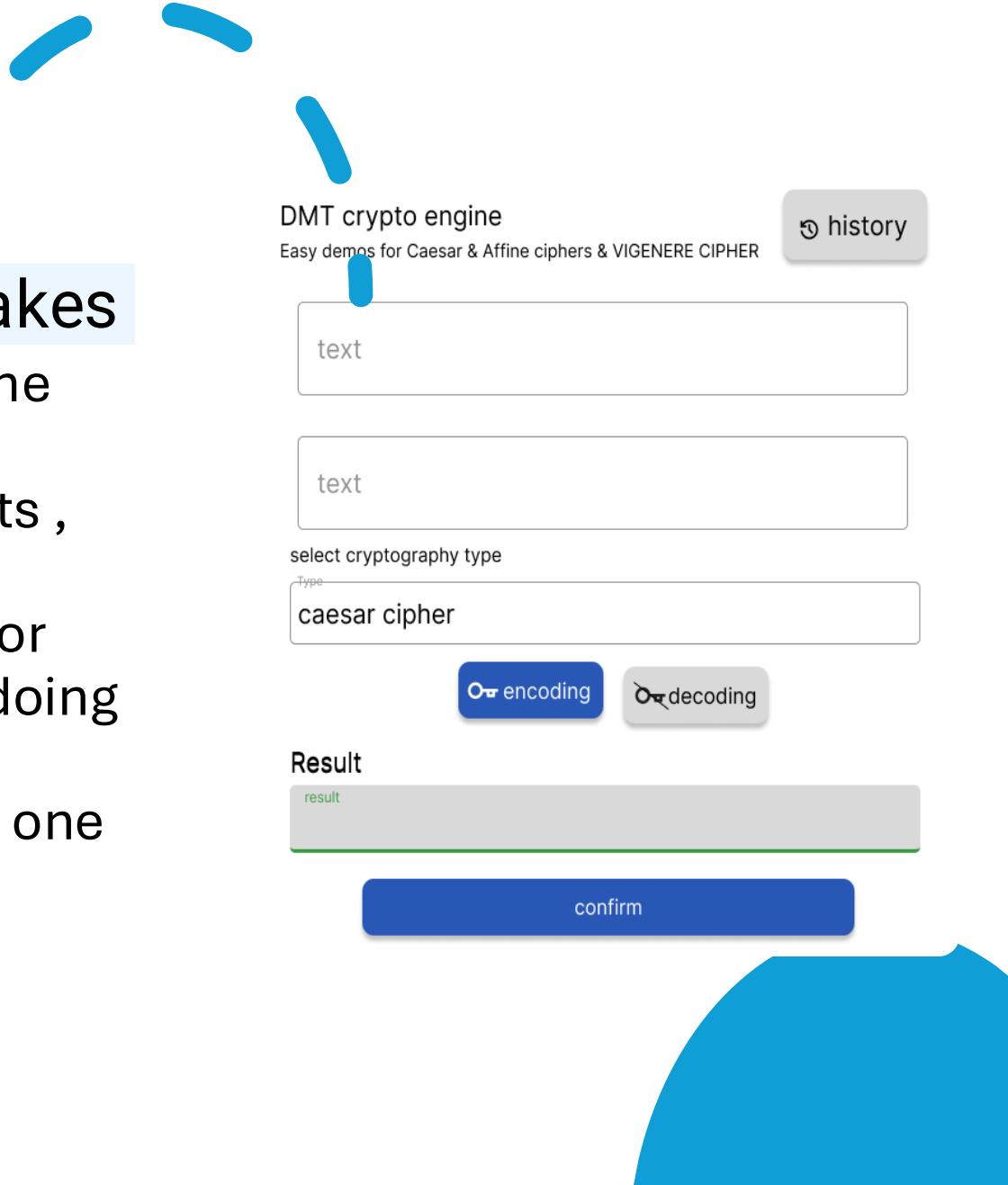
# Design principles

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



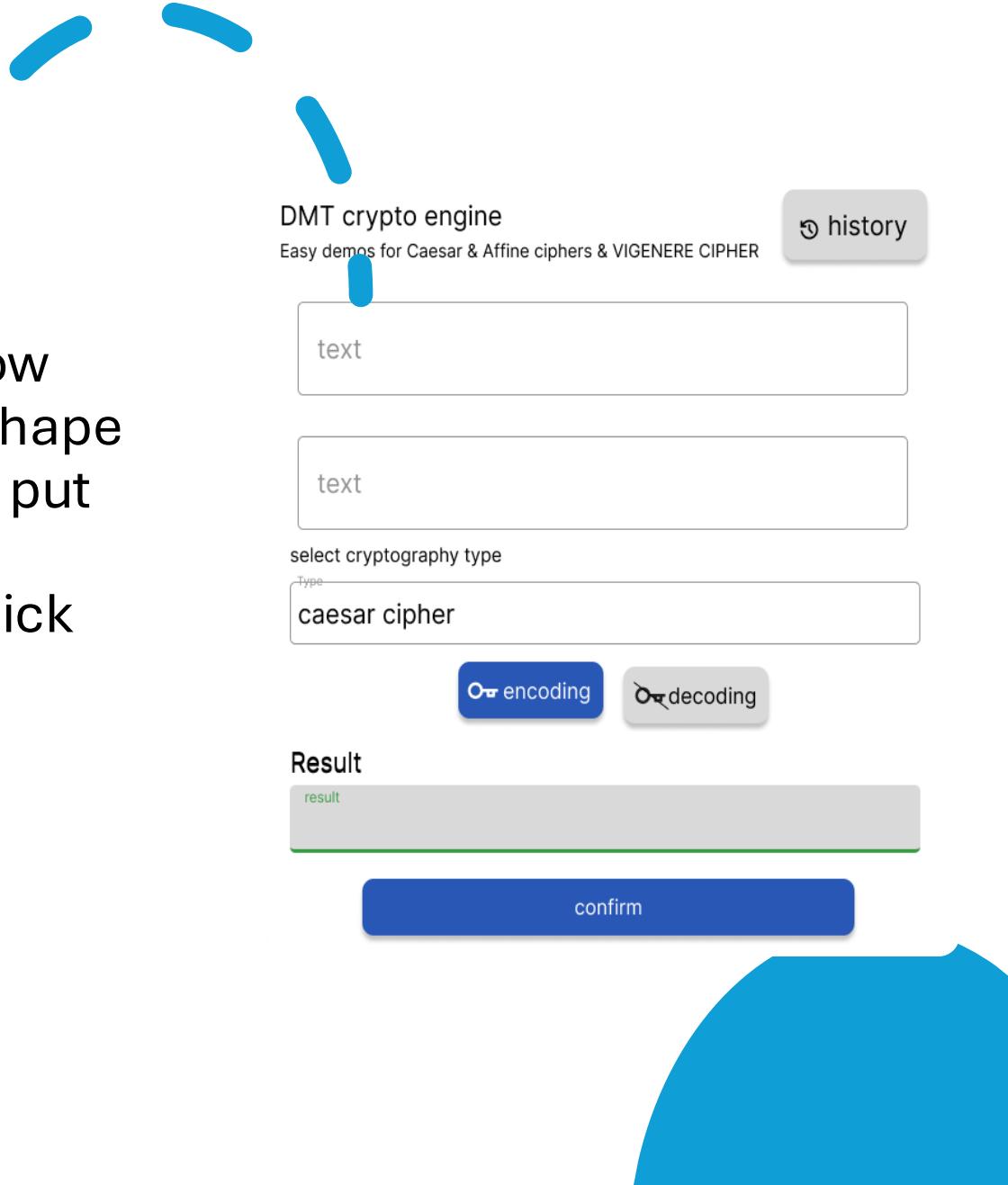
# Design principles

- 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



# Design principles

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



# Visual

We took into consideration the **peripheral vision**, which **Rods** cells is more sensitive than cons, 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 screenshot shows a user interface for a crypto engine. At the top, there is a red error message box containing the text "key must be number" with a close button. Below the message, the title "DMT crypto engine" is displayed, followed by a subtitle "Easy demos for Caesar & Affine ciphers & VIGENERE CIPHER". To the right of the subtitle is a "history" button. The main area contains two input fields labeled "text" each. Below the inputs is a dropdown menu set to "caesar cipher". At the bottom, there are two buttons: "encoding" (highlighted in blue) and "decoding". A "Result" section shows the word "result" in green text. A large blue "confirm" button is located at the bottom center.

# 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 .

History

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

Home

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

Clear

# Visual percept

## 2 . Brightness :

We focus on intensity that attract user by Brightness,

So we to **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



error feedback  
text

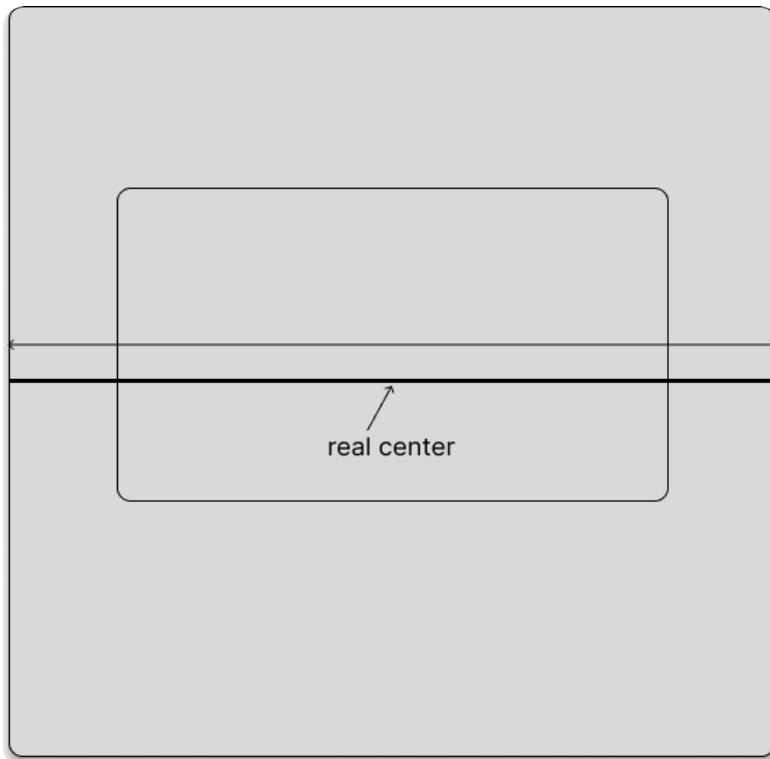


success  
feedback



- 3. **color :**
- The color not just appearance but reflect meaning and emotion
- Meaning & emotion : red =**error** , green=**success** , blue =**info** .
- Human eye can perceives 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 .