EE4213 Human-Computer Interaction
Individual Assignment

Name: CHENG Cheung Yu Student ID: 56204372 Date: 29 / 1 / 2023

1. Good Design Example: Octopus App

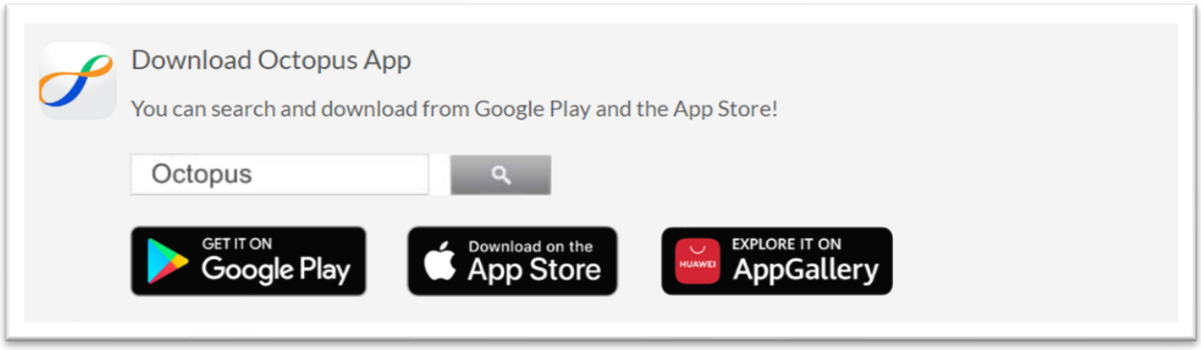

Fig. 1: Instruction to search/download the Octopus App

Introduction

Octopus Card is a rechargeable contactless smart card that can be used for payment on public transport systems and for purchases at convenience stores, supermarkets, and fast-food restaurants in Hong Kong. The Octopus App shown in Fig. 1 is a mobile application designed for users of the Octopus Card. It is very easy to find and get this App from Google Play, App Store or even the AppGallery in Harmony OS.

Functionalities

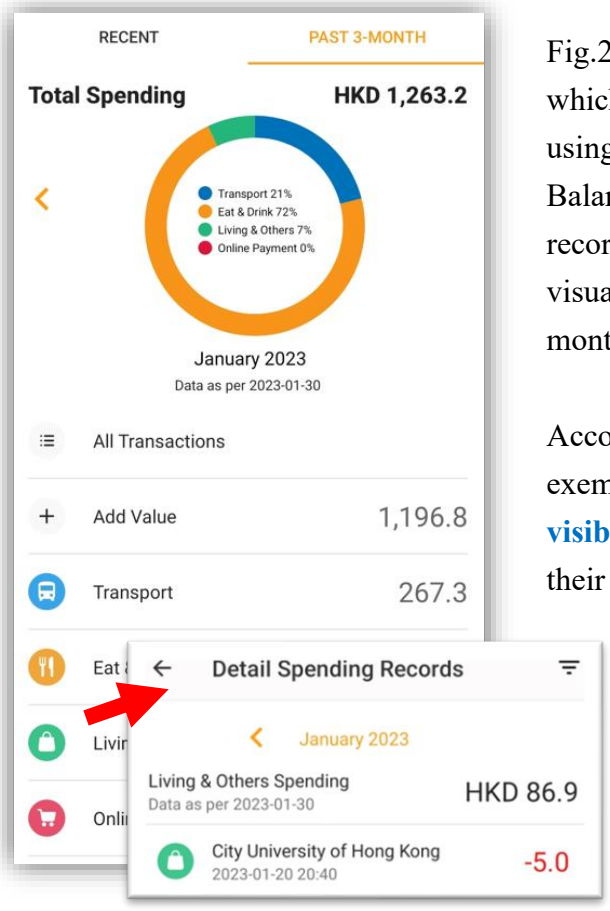

Fig. 2: Card Enquiry Page

Fig.2 shows the Card Enquiry functions which allow users to tap their Octopus card using NFC to view Recent Records and Balance. Also, it can store at most 3-month records. It can help the users to manage and visualize their daily expenses and their monthly expenses.

According to Norman's principles, this app exemplifies good UI design in terms of **visibility** which the users can easily view their account information and transaction history. Different colors are also used to represent different types of transactions(e.g., transport, meals, …). In order to view each of the detail spending record, the users only need to click the corresponding row which is very easy to understand by users.

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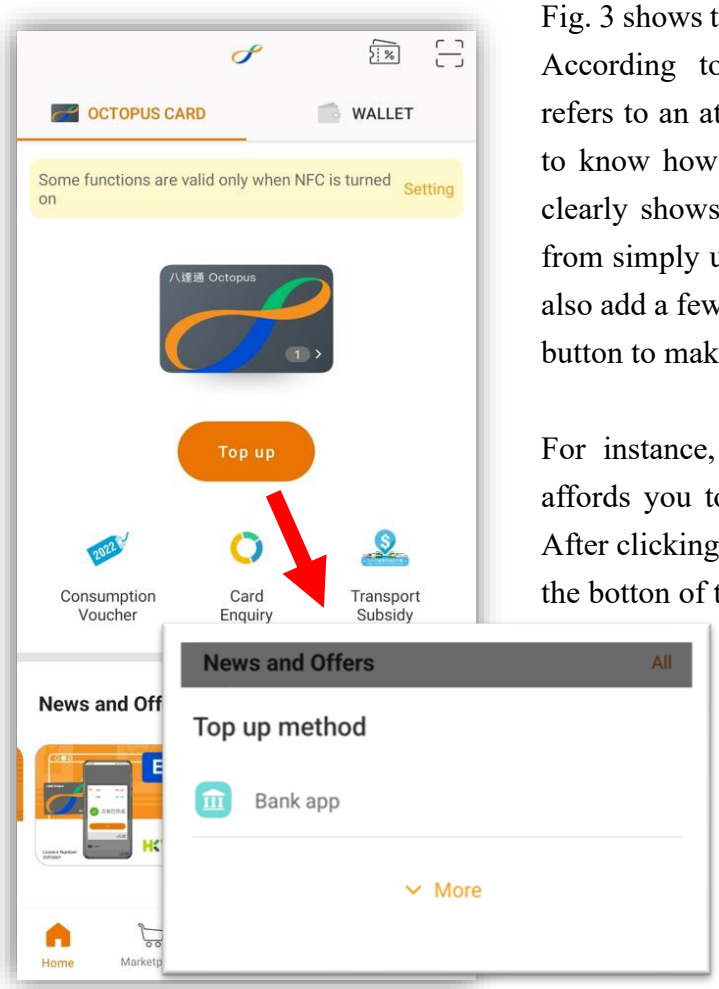

Fig. 3: Top up Button

Fig. 3 shows the Splash Screen of the Octopus App. According to Norman's principles, **affordance** refers to an attribute of an object that allows users to know how to use it. In this interface, the App clearly shows the functions of each button. Apart from simply using the symbol as each button, they also add a few words to describe the function of the button to make it clearer and more understandable.

For instance, the button labeled with "Top up" affords you to click it when you want to top up. After clicking it, the App will prompt a dialog from the botton of the page to let you choose the method you want such as the choice of "Bank app" displayed. Also, the down arrow symbol labeled with "More" affords you to click it to display more choices on the screen.

Fig. 4 shows the instruction of reading the card information by simply tapping the card at the back of the mobile device with the NFC function. According to the **mapping** principle of Norman, this process has a natural relationship between controls & their effects. When the users tap the card, the App will retrieve the latest information from your card which allows users to link their Octopus Card easily to the App. There is an animation to guide the users to do this action. Thus, this implies that the animation affords the users to tap their card. Moreover, when you clicked different buttons as shown on Fig.2 and Fig. 3, it will redirect to different pages and the button affords the users to press it.

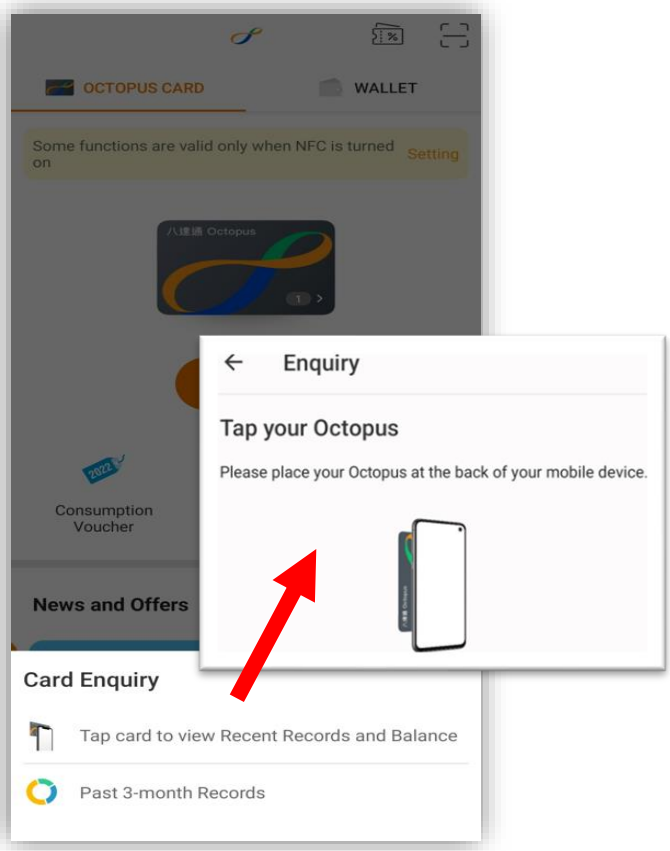

Fig. 4: Instruction of tapping the Octopus

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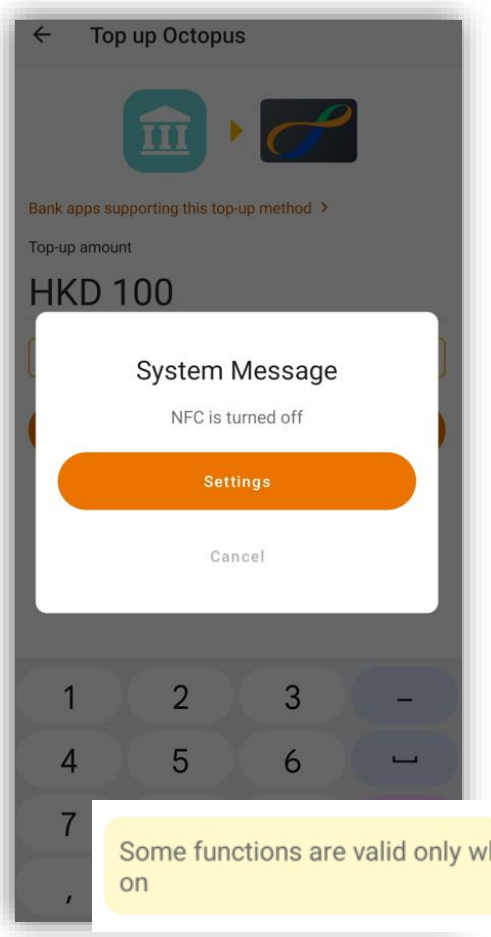

Constraints in Norman's Principles refers that restricting the possible actions that can be performed at a given moment. As shown on Fig. 5, some functions cannot be performed if the NFC is turned off since many operations are rely on the physical Octopus Card. Therefore, there will be system messages prompts up to remind you to turn on the NFC whenever you forget it. Then, the above figures demonstrate the **Feedback** principle in Norman. Once the users clicked any buttons, the App will perform certain functions such as checking the detailed transaction history (Fig.2), animation of guiding you to tap the card and link to the App (Fig. 4).

(This reminder can be found on Fig.3.)

Fig. 5: Constraints Message

Comments and Suggestions

From the above, we can observe that the App can fulfill the Norman's Principles of Usability which is quite a good design example. Apart from analyzing the App with Norman's principle, I would use a few other usability principles in this part.

(1) Protection: The App will pop up a message box to let the users double check the top up amount after the users entered the amount and clicked the OK button, which can prevent the users enter a wrong amount.

(2) Flexibility: The App only provides two languages, English and Chinese, for users which is not enough as Hong Kong is a cultural diversity society and always have many tourists from other countries. Thus, the app can provide more languages like Japanese, Korean for users to choose.

(3) Control: For improvement, the App can provide a simplified interface for the elderly like the App from HKTV mall.

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2. Bad Design Examples: Drawboard PDF

Introduction

To be honest, Drawboard PDF is not really a bad design after you used it for a long time. Being a previous Adobe Acrobat Reader DC user, I would say it is not a user-friendly App for those who just get started to use it as you may need some time to learn how to control it when comparing to the Adobe one. Now it has become my default PDF viewer in my daily life. It can be downloaded from Google Play, Microsoft Store, App Store or Web browser. You can have a try via this link: https://pdf.drawboard.com/.

Functionalities

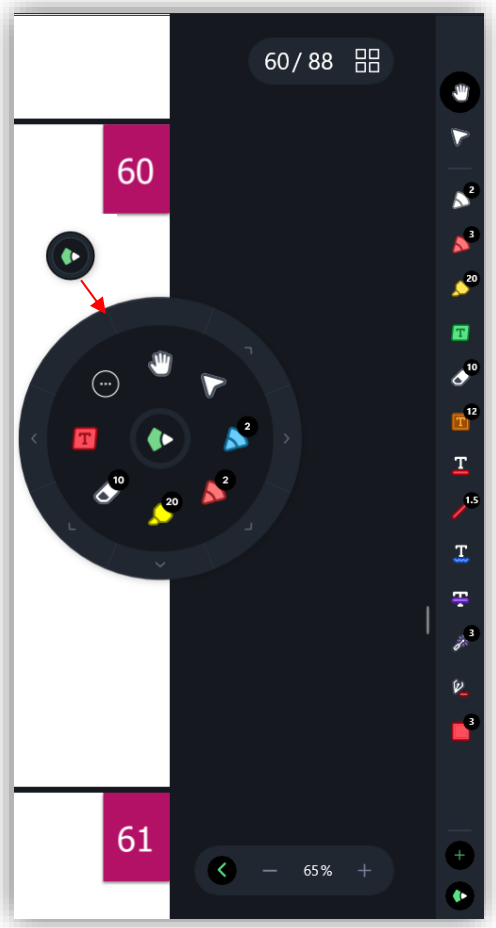

Fig. 6 shows the two types of menus provided by the App. The left one is a "radial menu" which is movable on the screen by dragging it around. It is quite fancy and interesting when comparing with other PDF viewers. And the right one is the formal menu bar. However, when you look into the menus, you can observe that both of them are mainly formed by a bunch of icons. Each of the icons refers to a tool. However, it is difficult to determine the use or differences between them. For instance, can you identify the difference between  and  on the radial menu? Therefore, without description or trying it, you could not identify the difference between them

Fig.6: tool menus

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According to Norman's principles, these menus cannot fully fulfill the principle of **visibility** as the users need to have some prior knowledge or experience of the icons. The following fig. 7 demonstrates the action sequence of one of the tools.

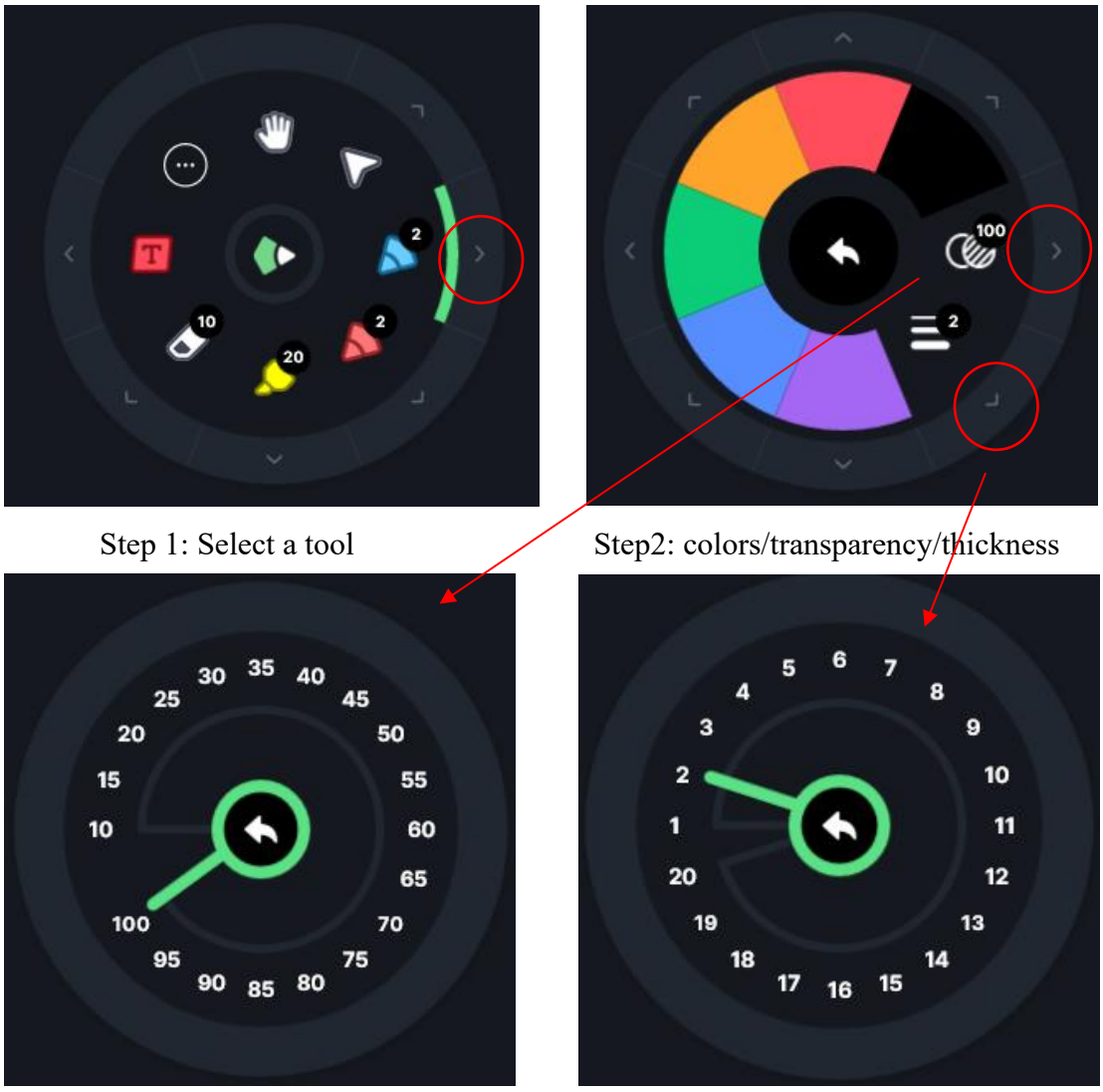

Fig. 7: Illustration of using a pen tool

For **mapping** and **affordance** principles, this design interface can semi-fulfill them. Firstly, it is easy to understand that each of the icons represents one of the tools; therefore, it is easy to know that you can select it by clicking the symbol in Fig.7 Step 1. In Fig.7 Step 3 and 4, turning it clockwise implies increasing the thinkness and transparency, and verse versa. However, for affordance, some of the parts are difficult to understand what thing is for such as the thickness and transparency icons are not easy to identify by some people. The only clue to understand the functions is just by guessing and trying. That's why I say this App is not user-friendly for the new users.

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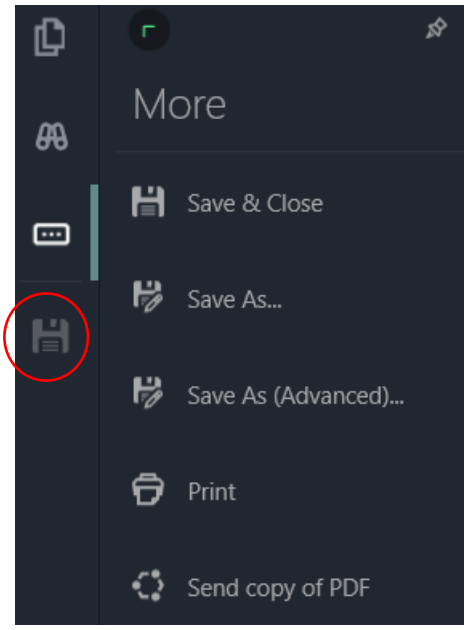

For the principles of **Constraints** and **Feedback**, this App does not violate these two principles. For constraint, if you did not make any new changes to the PDF file, you would not receive any response when you clicked the save button as shown on Fig.8. After you make any new changes and click the save button, it will prompt up a window for you to choose the location to store it. From this case, we can observe the principles of Constraints and Feedback.

Fig. 8: Save file function

Comments and Suggestions

From the above, we can observe the main reason turns it into a bad design interface to the beginners is the explanation and description of each tool is not enough. Apart from the principles from Norman, I will further raise other points with other usability principles.

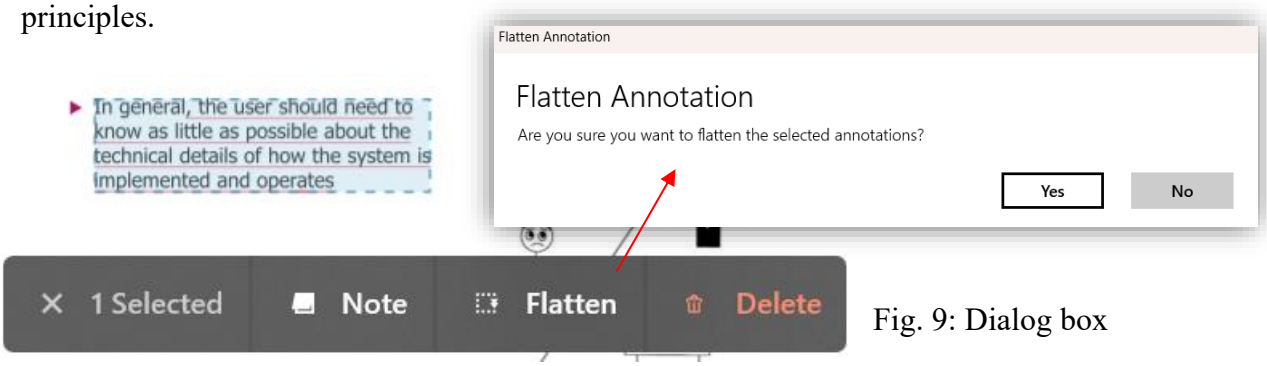

Fig. 9: Dialog box

(1) Protection: The message from Fig. 9. protect users against disastrous results of common human error. The users can think twice before they perform any actions.

(2) Accessibility: This App is not user-friendly to those who have Color blind as it would not have any description of color even when the user is using the mouse pointing it which shown in the Fig.7 Step 2.

(3) Flexibility: This App is not user-friendly to elderly or others who are not familiar with using PDF readers or IT. They will have a hard time to learn and memorize the functions or properties of each tool.

To improve it, description can be added and displayed when the mouse is pointing to the tool. Thus, users can easily understand and learn faster to this App.