Hi everyone.

I am going to talk about physical interfaces in user experience. The reason I chose this topic is that we will develop plenty of interfaces in the future software project. I want to explore what is a good physical interface to get a clue in my career.

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My presentation consists of the 4 parts and we will go through them one by one.

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Let’s look at the definition of physical interfaces. I searched the keywords on google both in Chinese and English but I could not find an official definition. I just give my own version from the experience of my life.

Physical interfaces is part of a physical object which can connect to or interact with other devices of systems

There are two keywords.

It must be a physical object which you can touch, see and feel.

It is used to cooperate with others.

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The trick here is that you can see them everywhere around us but you might not consider them as interfaces.

Let’s see some examples.

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Everyone of us got a mobile with an interface to charge it and sometimes it could be used for other purposes.

And of course you may find other interfaces on your device.

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Yes, a tower bar is definitely an example of physical interface. It could be used to connect to many different types of trailers.

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Another example is the interfaces on the back of the PC. I will talk about it in detail later.

These three examples show us what a typical physical interface is. There might be other interfaces in your mind right now. Some of them may give you good experience and some of them may not.

We are going to talk about it next.

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I think we should follow these principles when designing interfaces.

First of all, an interface could work on different tasks when connecting to different devices. I will show you an example later but let’s finish the other two principles first.

The next one is that it should be easy to understand. The user may not be so familiar with the interface so it should be easy to learn.

The last one is that the interface should be independent. It can not affect the rest of the system when working.

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Can you find the two interfaces on your laptop?

The one on the right is called a lighting interface and has many different functions.

It could connect to a monitor;

It could connect to a disk with high speed of reading and writing;

It could be used to charge your laptop;

It could connect to a display card to enforce the ability with pictures and videos;

It could charge your mobile phones or tablets;

Compared with it is the interface next to its left. It is a typical usb interface.

It could connect to disks to transfer data ( the speed is not as fast as lighting)

It could charge your mobiles ( not fast charge)

From this picture we can know that a lighting interface could do more things and it is definitely a better choice.

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Here is an example of the second principle.

You may have heard of the Apple magnetic charger. You don’t have to pull or push it as it will be attracted by magnetism.

There is also an indicator light to show whether it is fully charged.

I think this is a good example for ease of use.

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On the other hand, the typical USB cable is really hard to apply. How many sides does a USB cable have? The answer is three. Because you try it on one side, and then turn it to the other side, and then you have to turn it another time. Fortunately it is going to be altered by the USB-C cable.

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Here is an example of the third principle.

There are two interfaces but only one of them works at the same time. It is a bad idea to develop interfaces this way.

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In this chapter, I will take a look at the interfaces on computers both inside and outside.

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As you can see from the picture, there are lots of different interfaces on the back of a PC. I have to say that the most popular ports for display are hdmi and DP which are not listed. More and more devices can be connected via Bluetooth, such as keyboards, mice and audios.

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There are also many interfaces inside a PC. Here is a picture of the motherboard.

Here is the slot for the CPU. One corner of the CPU is different from the other three and must not be misplaced. This is also a great example of ease of use.

Memory slots on the right.

Here are M.2 slots for high speed SSD.

PCIE slot for display card

Also SATA connectors for mechanical disks.

Sound card and network card are integrated in the chipset.

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In conclusion, there are also interfaces in the software industry.

We should follow these principles when designing both physical and digital interfaces.