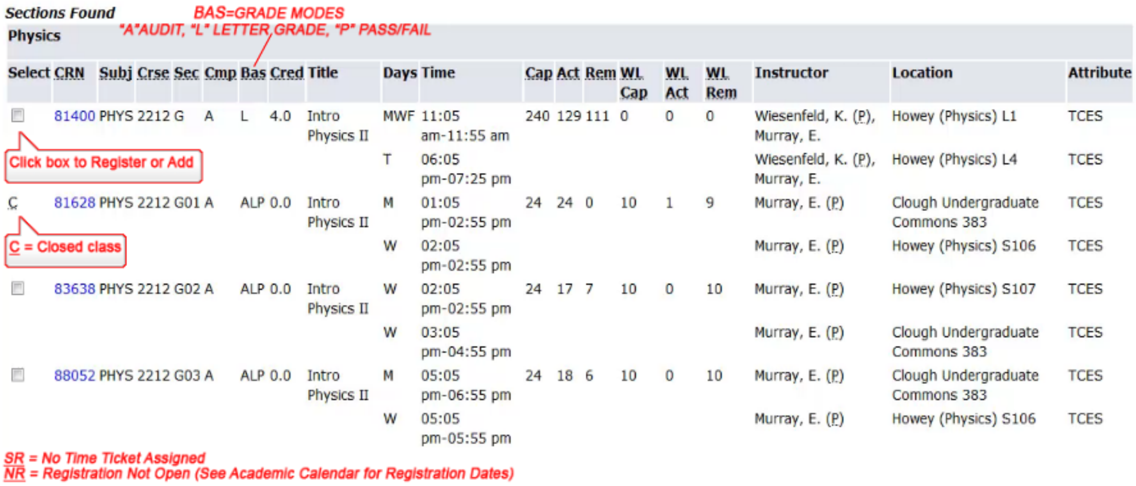
Assignment P2

Question 1

Normally for OMSCS students looking up and enrolling in classes, they might go through the following steps:

1. Login through Buzzport and click on "Registration-OSCAR".
2. Choose "Student Services & Financial Aid".
3. Choose "Registration".
4. Choose "Look Up Classes".
5. Select a certain term and "Submit".
6. Select "Advanced Search" then select "Subject: Computer Science", "Campus: Online" and click "Section Search".
7. The students will see an interface like Figure 1, and they could register classes by checking the box in front of the class CRN on "Select" column, then clicking "Register" or "Add to Worksheet".
8. It will jump to "Add/Remove Class" page, and students could add more classes by entering their CRN in "Add Class" table and click “Submit Changes”.
9. Some registration error message may pop-up and the students should take actions accordingly.



Sections Found

BAS=GRADE MODES
"A"AUDIT, "L" LETTER GRADE, "P" PASS/FAIL

Physics

Select	CRN	Subj	Crse	Sec	Cmp	Bas	Cred	Title	Days	Time	Cap	Act	Rem	WL Cap	WL Act	WL Rem	Instructor	Location	Attribute
□	81400	PHYS	2212	G	A	L	4.0	Intro Physics II	MWF	11:05 am-11:55 am	240	129	111	0	0	0	Wiesenfeld, K. (P), Murray, E.	Howey (Physics) L1	TCES
									T	06:05 pm-07:25 pm							Wiesenfeld, K. (P), Murray, E.	Howey (Physics) L4	TCES
C	81628	PHYS	2212	G01	A	ALP	0.0	Intro Physics II	M	01:05 pm-02:55 pm	24	24	0	10	1	9	Murray, E. (P)	Clough Undergraduate Commons 383	TCES
									W	02:05 pm-02:55 pm							Murray, E. (P)	Howey (Physics) S106	TCES
□	83638	PHYS	2212	G02	A	ALP	0.0	Intro Physics II	W	02:05 pm-02:55 pm	24	17	7	10	0	10	Murray, E. (P)	Howey (Physics) S107	TCES
									W	03:05 pm-04:55 pm							Murray, E. (P)	Clough Undergraduate Commons 383	TCES
□	88052	PHYS	2212	G03	A	ALP	0.0	Intro Physics II	M	05:05 pm-06:55 pm	24	18	6	10	0	10	Murray, E. (P)	Clough Undergraduate Commons 383	TCES
									W	05:05 pm-05:55 pm							Murray, E. (P)	Howey (Physics) S106	TCES

Click box to Register or Add

C = Closed class

SR = No Time Ticket Assigned
NR = Registration Not Open (See Academic Calendar for Registration Dates)

Figure 1. The classes-selecting interface of Buzzport.

A redesigned interface could be something like the interface shown in Figure 2. The left window includes the titles of available classes (could directly be registered or have empty seats in waiting list), and the right window has the classes the user intends to register. Such design could be more “direct” than the current way by reducing the semantic and articulatory distance, along with enhancing the direct engagement. The following two specific features could prove it.

I. Feature for reducing semantic distance and articulatory distance.

A current classes-selecting interface is hard for the first-time users to know how to do their tasks. On the one hand, it is difficult for them to tell the differences between “Register” and “Add to WorkSheet” buttons. On the other hand, if the maximum hours were exceeded, the users have to click the “Save Change” and redo the searching.

In the new interface, only OMSCS available classes titles will be shown and users could easily understand the meanings and consequences of clicking “Add” and “Remove” buttons, and see their selected classes in real-time. It fixes the above two issues and dramatically shortens the semantic and articulatory distances.

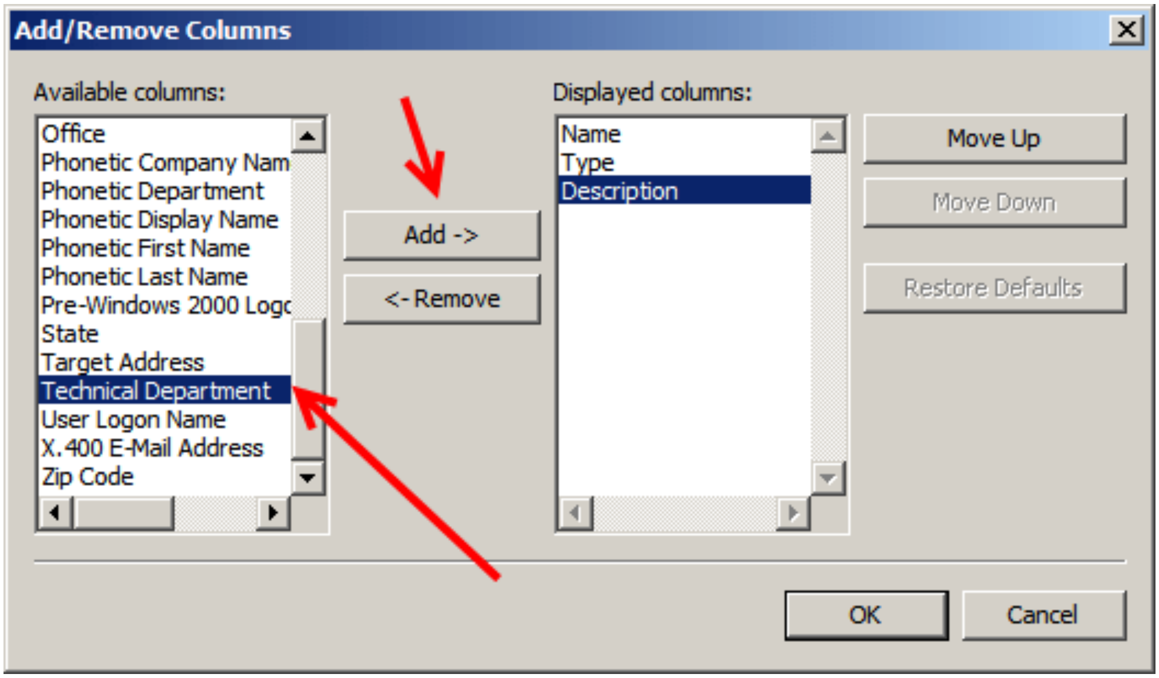


Figure 2. The interface of adding columns in active directory users and computers console in Windows OS.

II. Feature for enhancing the direct engagement.

The new interface gives the users qualitative feelings that they are directly engaging in selecting classes themselves. It mimics the natural way users choosing items in real world. For instance, while shopping in grocery store, people pick items up from the shelves and put them into the cart, and put items back to the shelves if they changed their minds and do not want them anymore.

Question 2

Task: Riding bike out of company's garage.

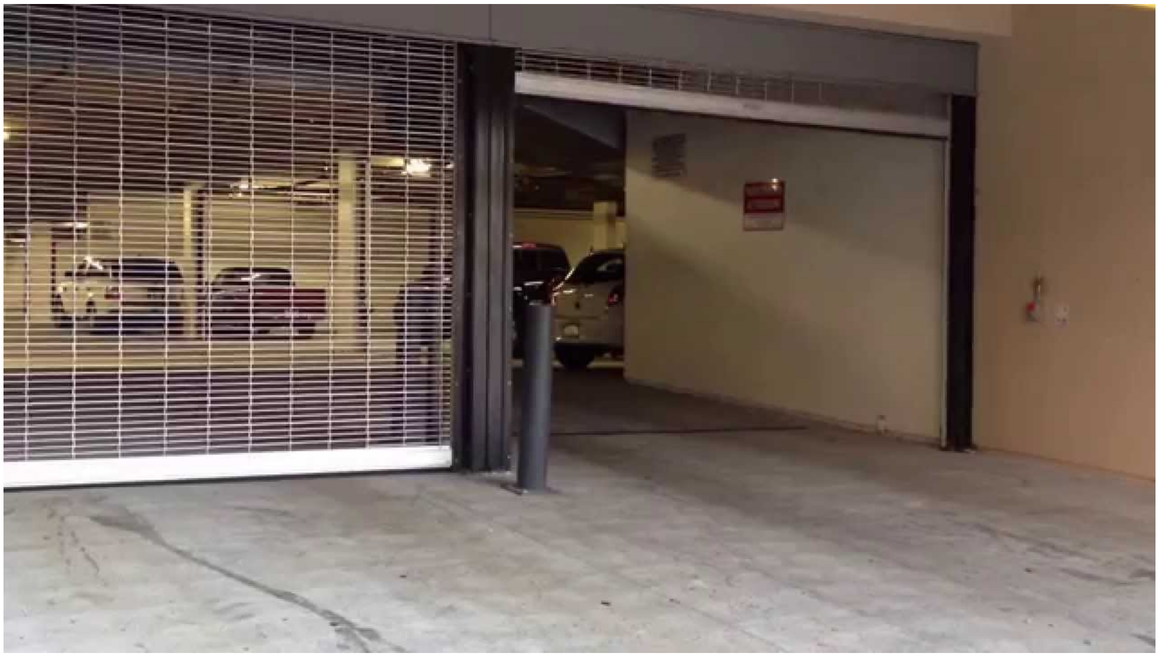


Figure 3. A typical door of underground garage.

My company allows the employees to park their bikes at the underground garage. Yet it is quite difficult for them to ride their bikes out of the garage, at least for me. In my first few days on the new job, when I finished my work and ride my bike towards the garage door, I assumed the door would open automatically yet it didn't. So I think a lot about the following components of the interface:

1. Distances:

The garage door refuses to open maybe because the bike was too close or too far way from the door. Thus I made my bike straight towards the garage door with different distances yet it didn't help.

2. Angles:

I tried different angles between my bike front wheel and the garage door and it didn't solve the problem either.

3. Time:

Maybe the garage door only opens at certain hours, so I tried to reach the garage door with my bike at different time and then I failed again.

The correct solution for this issue is simple. The normal way from bike parking place to the garage door is going alone and making a huge left turn. Since bikes are smaller than cars, to make sure all sensors detecting the bike, the bike riders should stop before they taking the huge left turn and give sensors enough time to recognize, which I were not be aware of until someone told me. Now I no longer have to spend as much time focusing on the gate, because I have found the optimal stopping spot by trail and error. My current thought process is before making the huge left turn, riding the bike in the middle line, keeping about 10 meters between the bike and the wall in front of me, stopping for 2 seconds then the garage door will open automatically and I can exit.

There are at least two ways to redesign the interface making me to the point of invisibility more quickly.

1. Highlight a certain area on the garage ground with “Bike Stop” sign.
2. Add a garage door remote on the bike, while rider click the “Open” button on the remote, the door will open.

Question 3

I. Visual.

1. Existing features:

Most of the signs on the dashboard are giving visual feedbacks to the drivers. For instance, if people see a red exclamation mark with word “brake” goes on, they will realize the hand brake need to be released.

2. Future features:

It would be great if sensors could detect the pupil size of driver and record the baseline value, along with the outside light intensities. Thus when the pupil size combined with outside light intensities are beyond a threshold, the car glasses will change their colors accordingly, like electrochromic windows, to protect driver’s eyes and make driving safely.

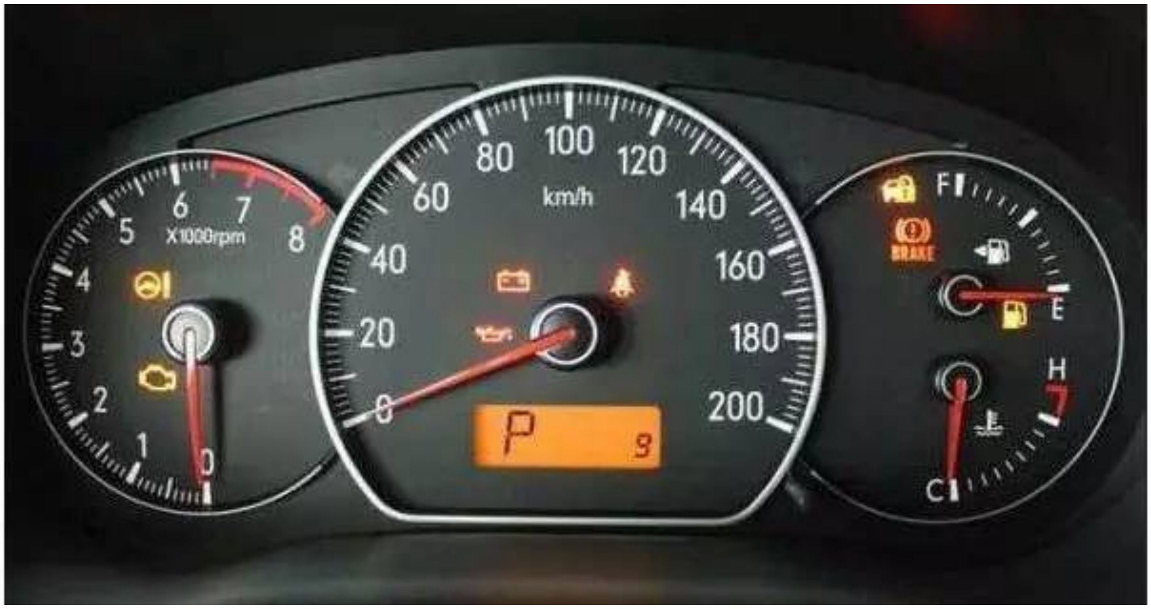


Figure 4. An example of vehicle’s dashboard.

II. Auditory.

1. Existing features:

Many auditory alerts are already embedded in vehicle information systems. They could be used stand-alone or with other visual feedbacks. For install, a ring-bell sound from the vehicle blue-teeth system indicates an incoming call for the driver. A continue ding sound with seat belt waning sign on the dashboard means driver/passenger did not tight the seatbelt.

2. Future features:

People could always hear horns from other vehicles during driving and sometimes these sounds would make drivers annoying and stressful. Because they do not know what really happens. Ideally the interface could convert the horn sounds into more meaningful information, such as “Warning, you are cutting in the right line”, or “You are good, keep going”.

III. Haptic.

1. Existing features:

There are lots of haptic rotary devices used in vehicles. Such as the button to control the volume of the radio, the button to adjust the temperature of air-condition etc.

2. Future features:

For most touchscreens in vehicles, they require drivers making extra attentions to ensure they touch the correct key and often such key is small. So ideally the touchscreen only pops up into actual buttons when they are necessary, and it reduces the time that the drivers’ eyes are off road and the risk of collisions.

IV. Other perception: Chemoreceptors

Many severe car accidents were caused by drunk or drug overdose. Thus if the vehicle could detect certain chemicals’ concentrations in drivers’ bloods, it will avoid numerous tragedies. For instance, the vehicle is able to test the driver’s blood alcohol concentration, by evaluating the exhalation or through some portable devices. If it is over the dangerous threshold, the vehicle will lock the engine until such value returns to normal.

Question 4

I. Tip 1: Emphasize essential content and minimize clutter.

The current Buzzport OMSCS classes' registration interface mentioned in Question 1 is an example of violating the suggestion of emphasizing essential content and minimizing clutter. The interface was shown in Figure 1 and the followings are the ways it violates the tip:

1. There are too many information on the interface with ambiguous abbreviations and small fonts, like 'Crse' and 'Cmp' etc. It is hard for first-time users to understand these terms and make their decisions. Also some information is not useful for OMSCS students, such as Time, Days and Location.
2. The listed closed classes will disturb the users' attentions. They are not clustered together as a group, but interlude within available classes. The users need some time to get accustomed to such pattern of listing classes.

So a better redesign of this interface could be:

1. Reduce the number of columns of class table, only keep the most important ones such as title, instructors etc., and avoid unnecessary elements for OMSCS students.
2. Remove the closed classes and only display the available classes.

II. Tip 2: Offload tasks

One example of violating the suggestion of offloading tasks is the online check-in system of cruise companies. The interface requires the user to input every passenger's information within a cabin, and it violates the tip from the following perspectives:

1. Even if all passengers within the same cabin are from the same family, the user has to input some information repeatedly, such as home address and home phone number.
2. No smart default, every blank needs to be filled manually.
3. No pictures. It always asks the dining room preference and without a picture, no one knows how far it is from the cabin to the dining room.

So a better redesign of this interface could be:

1. Re-display previously entered information, and give users options to leverage this information.
2. Set default values that could be edited. For instance, if a cruise departs from the port of Los Angles, the default residence of most passengers should be California.
3. Use pictures occasionally to help users finish their tasks rather than all plain text.