

Lab2: If-else & while

Dian-Lun Lin (Luan)

Yasin Zamani

Department of Electrical and Computer Engineering

University of Utah , Salt Lake City, UT



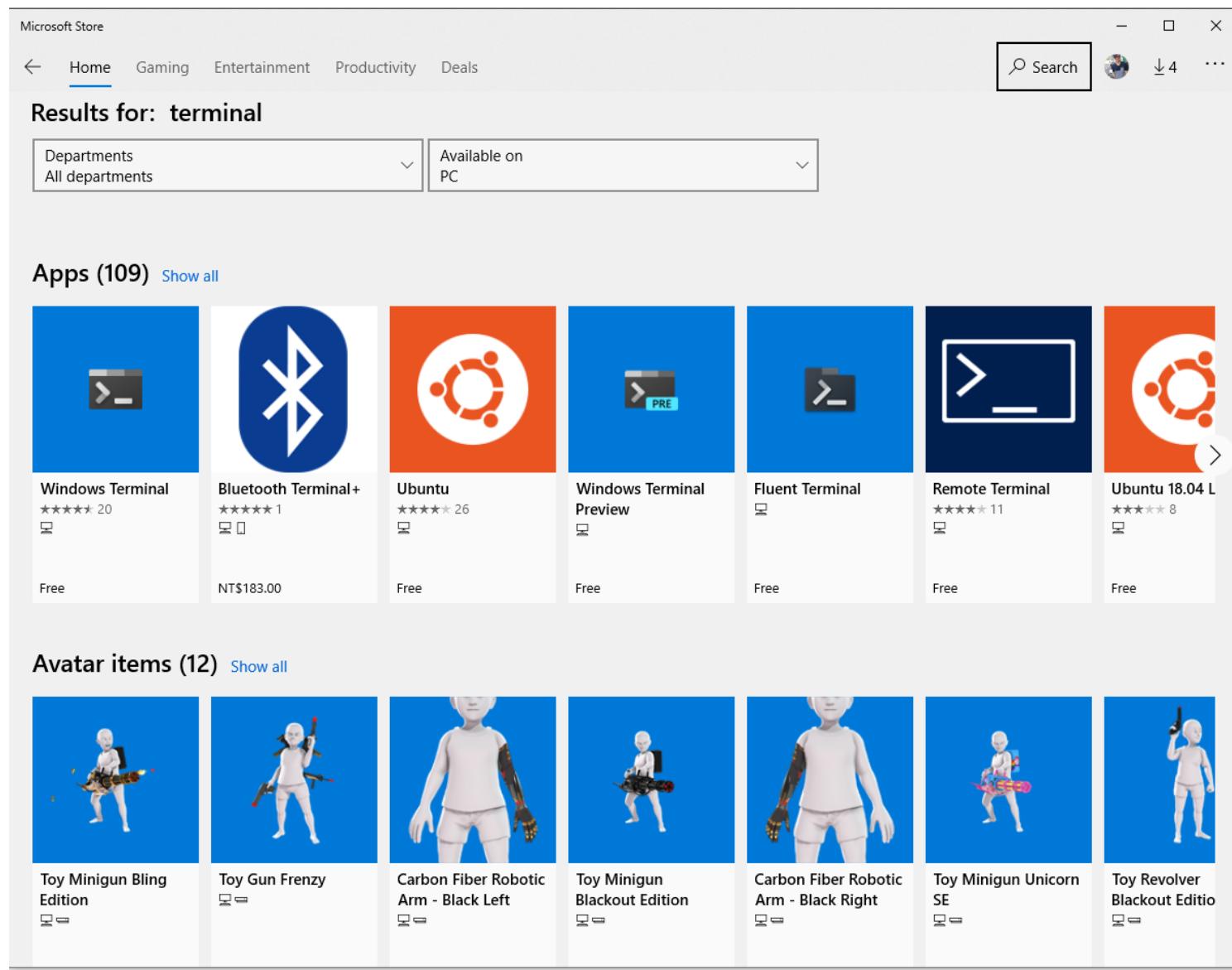
Outline

- More of Vim & Windows Terminal
- Example: detect negative number
- Lab assignment
 - Maximum of 3 values
 - Sum of first N natural numbers
 - Challenge: digital sum of given number N

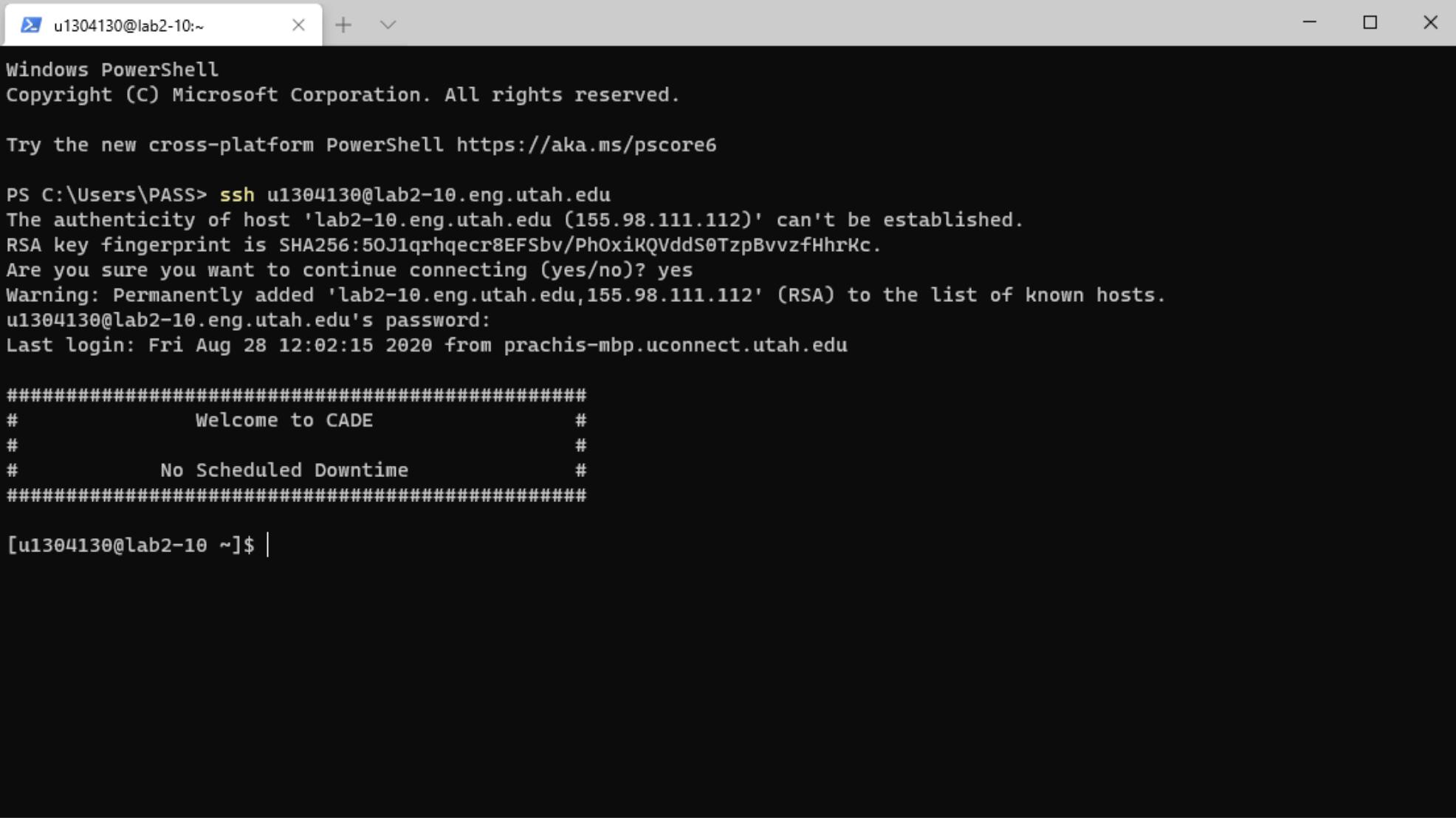
Outline

- More of Vim & Windows Terminal
- Example: detect negative number
- Lab assignment
 - Maximum of 3 values
 - Sum of first N natural numbers
 - Challenge: digital sum of given number N

Windows Terminal



Windows Terminal



A screenshot of a Windows Terminal window titled "u1304130@lab2-10:~". The window contains a PowerShell session. The output shows:

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\PASS> ssh u1304130@lab2-10.eng.utah.edu
The authenticity of host 'lab2-10.eng.utah.edu (155.98.111.112)' can't be established.
RSA key fingerprint is SHA256:50J1qrhqecr8EFSbv/PhOxiKQVddS0TzpBvvzfHhrKc.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'lab2-10.eng.utah.edu,155.98.111.112' (RSA) to the list of known hosts.
u1304130@lab2-10.eng.utah.edu's password:
Last login: Fri Aug 28 12:02:15 2020 from prachis-mbp.uconnect.utah.edu

#####
#          Welcome to CADE
#
#          No Scheduled Downtime
#####
[u1304130@lab2-10 ~]$ |
```

Vim



- Visual mode ‘v’, ‘V’
- Some handy commands
 - copy: ‘y’ ‘yy’
 - paste: ‘p’
 - delete: ‘d’ ‘dd’
- Configuration (.vimrc file)

Outline

- More of Vim & Windows terminal
- Example: detect negative number
- Lab assignment
 - Maximum of 3 values
 - Sum of first N natural numbers
 - Challenge: digital sum of given number N

Example: detect negative number

Iteratively give a integer number k_i

The program exits when detecting negative number

```
luan@Luande-MacBook-Pro:~/phd/sem2/00P/example/lab2$ g++ detect_negative.cpp -o detect_negative.out
luan@Luande-MacBook-Pro:~/phd/sem2/00P/example/lab2$ ./detect_negative.out
Input: 10
number >= 0
Input: 20
number >= 0
Input: 0
number >= 0
Input: -1
Negative number, exit the program
luan@Luande-MacBook-Pro:~/phd/sem2/00P/example/lab2$ █
```

Example: detect negative number

```
#include <iostream>

int main() {
    int number;
    while(true) {
        std::cout << "Input: ";
        std::cin >> number;

        if(number >= 0) {
            std::cout << "number >= 0\n";
        }
        else {
            std::cout << "Negative number, exit the program\n";
            break;
        }
    }
}
```

Outline

- More of Vim & Windows terminal
- Example: detect negative number
- Lab assignment
 - Maximum of 3 values
 - Sum of first N natural numbers
 - Challenge: digital sum of given number N

Maximum of 3 values

Given three different integers a, b, and c

Find the maximum among a, b, and c

```
luan@Luande-MacBook-Pro:~/phd/sem2/OOP/example/lab2$ g++ max_in_3_elements.cpp -o max_in_3_elements.out
luan@Luande-MacBook-Pro:~/phd/sem2/OOP/example/lab2$ ./max_in_3_elements.out
Input 1: 27
Input 2: -50
Input 3: 68
Maximum number: 68
luan@Luande-MacBook-Pro:~/phd/sem2/OOP/example/lab2$ █
```

Sum of first N natural numbers

Given a positive integer N

Print the summation of 1, 2, ..., N

```
luan@Luande-MacBook-Pro:~/phd/sem2/OOP/example/lab2$ g++ sum_positive.cpp -o sum_positive.out
luan@Luande-MacBook-Pro:~/phd/sem2/OOP/example/lab2$ ./sum_positive.out
Input: 10
Sum: 55
luan@Luande-MacBook-Pro:~/phd/sem2/OOP/example/lab2$ ./sum_positive.out
Input: 100
Sum: 5050
luan@Luande-MacBook-Pro:~/phd/sem2/OOP/example/lab2$ █
```

Challenge: digital sum of given number N

Given a positive integer N

Print the digital sum of N

```
luan@Luande-MacBook-Pro:~/phd/sem2/00P/example/lab2$ g++ digital_sum.cpp -o digital_sum.out
luan@Luande-MacBook-Pro:~/phd/sem2/00P/example/lab2$ ./digital_sum.out
Input: 10
Sum: 1
luan@Luande-MacBook-Pro:~/phd/sem2/00P/example/lab2$ ./digital_sum.out
Input: 10234
Sum: 10
luan@Luande-MacBook-Pro:~/phd/sem2/00P/example/lab2$ █
```