# COMPUTING MACHINERY

CPSC 355

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MSc CPSC

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# What to expect?

- Learning C basics.
- Learning Assembly Language for ARMv8 Architecture.
- Help with assignments.
- No office hours.
- No CT hours.
- Emails preferred for communication.
- Work Periods before assignment submission deadline.
- Submit assignments on D2L.
- Extensions for assignments: only from professor.

# Resources

## For Windows:

- Download Putty

## For macOS/Linux:

- Use Terminal

**Server:** arm.cpsc.ucalgary.ca, csa1.cpsc.ucalgary.ca, csa2.cpsc.ucalgary.ca, csa3.cpsc.ucalgary.ca

**OS:** Fedora 26

**Remote File Transfer:** Samba, Filezilla

**Editor:** Vim or Vi

Link:

https://www.ucalgary.ca/cpsc/tech/services/computing_resources

# ssh
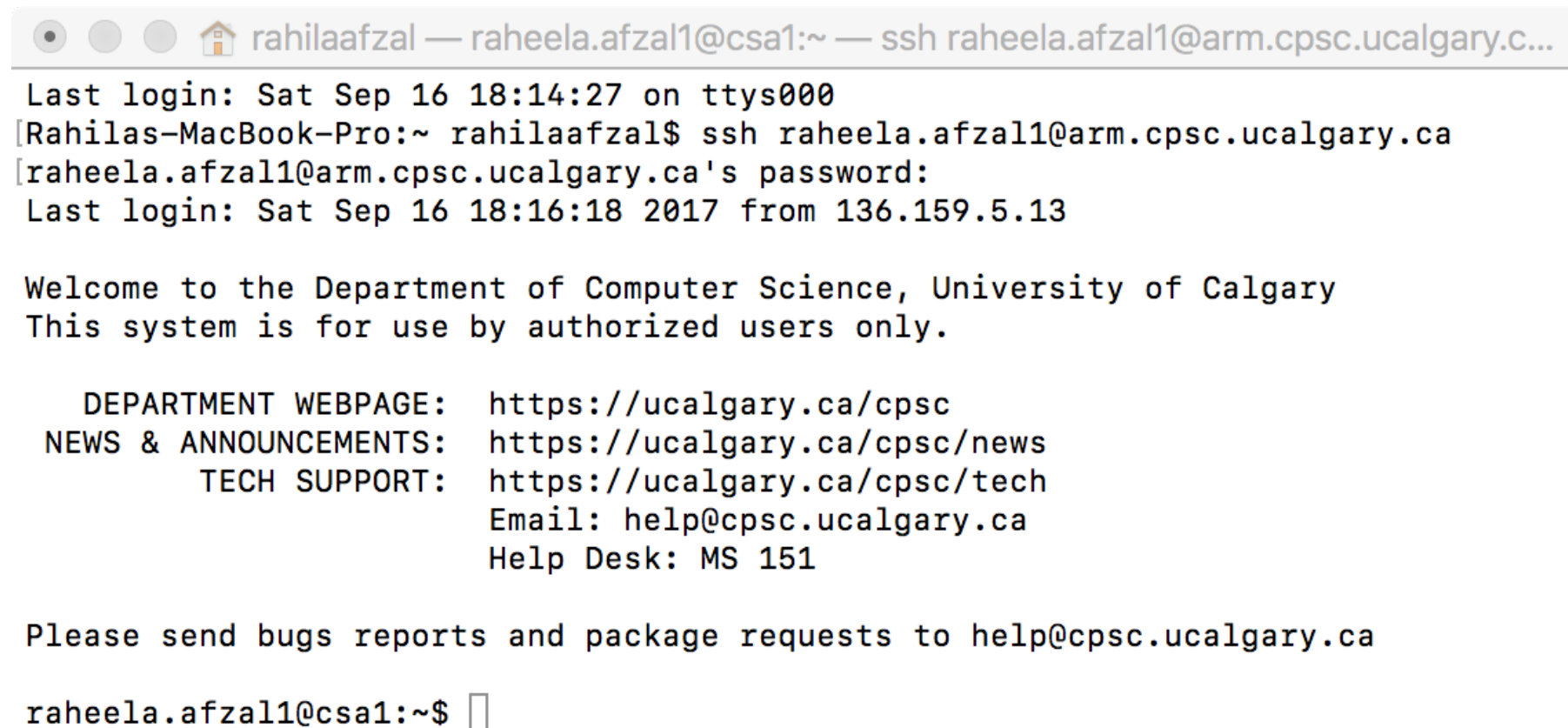
**macOS**: ssh cpsc-account-username@arm.cpsc.ucalgary.ca
**Windows**: arm.cpsc.ucalgary.ca

```
Last login: Sat Sep 16 18:14:27 on ttys000
[Rahilas-MacBook-Pro:~ rahilaafzal$ ssh raheela.afzal1@arm.cpsc.ucalgary.ca      ]
[raheela.afzal1@arm.cpsc.ucalgary.ca's password:                                 ]
Last login: Sat Sep 16 18:16:18 2017 from 136.159.5.13

Welcome to the Department of Computer Science, University of Calgary
This system is for use by authorized users only.

    DEPARTMENT WEBPAGE:  https://ucalgary.ca/cpsc
 NEWS & ANNOUNCEMENTS:  https://ucalgary.ca/cpsc/news
        TECH SUPPORT:  https://ucalgary.ca/cpsc/tech
                       Email: help@cpsc.ucalgary.ca
                       Help Desk: MS 151

Please send bugs reports and package requests to help@cpsc.ucalgary.ca

raheela.afzal1@csa1:~$ 
```

# Vi

| Command Mode | |
|---|---|
| :wq | Write file to disk and quit the editor |
| :q! | Quit (no warning) |
| :q | Quit (a warning is printed if a modified file has not been saved) |

| Insert Mode | |
|---|---|
| i | Insert text before the current cursor position |
| Esc | insert mode to command mode |

# Hello World

## Pg. 7 Kernighan & Ritchie

**raheela.afzal1@csa1:~/Programs$** vi hello.c

vim/vi: open an existing file/create a new file

```c
#include<stdio.h>
int main(){
        printf("hello world\n");
        return 0;
}
~
~
~
~
~
~
~
```

# Compile and Run

**Compile the program:**

gcc -o hello hello.c

**Execute the program:**

./hello

NOTE: Change the message and recompile

# SCANF

scanf("%d", &x);

```c
#include <stdio.h>
int main()
{
    char ch;
    printf("Enter any character \n");
    scanf("%c", &ch);
    printf("Entered character is %c \n", ch);
    return 0;
}
~
~
~
~
~
~
~
~
~
~
```

# SCANF

Write a C program that accepts two integers from the user and calculates(and prints) the sum of the two integers.

```c
#include <stdio.h>

int main()
{
    int a, b, c;
    printf("Enter the first value:");
    scanf("%d", &a);
    printf("Enter the second value:");
    scanf("%d", &b);
    c = a + b;
    printf("%d + %d = %d\n", a, b, c);
    return 0;
}
```

Or scanf("%d %d", &x,&y);

```
~
~
~
~
~
~
~
~
~
~
~
~
"addition.c" 13L, 239C                                    8,1           All
```

# Something to try…?

1. Write a program to check whether a number is even or odd.
2. Write a program to swap two numbers using a third variable.
3. Find the sum of all digits in a 3-digit number that the user provides.
4. Write a program to print the corresponding Celsius(0-300 degrees) to Fahrenheit table.

# Common Error

‣ ECDSA host key for arm.cpsc.ucalgary.ca has changed and you have requested strict checking.
Host key verification failed.

**Solution:**

‣ cd .ssh/
‣ ls                                                          *[confirm the "known_hosts"*
*directory exists"]*
‣ rm known_hosts

# References

- ❖ The C Programming Language by Brian W. Kernighan and Dennis Ritchie

- ❖ Vim Editor Commands - http://www.tldp.org/LDP/intro-linux/html/sect_06_02.html

- ❖ Resources - https://www.ucalgary.ca/cpsc/tech/services/computing_resources