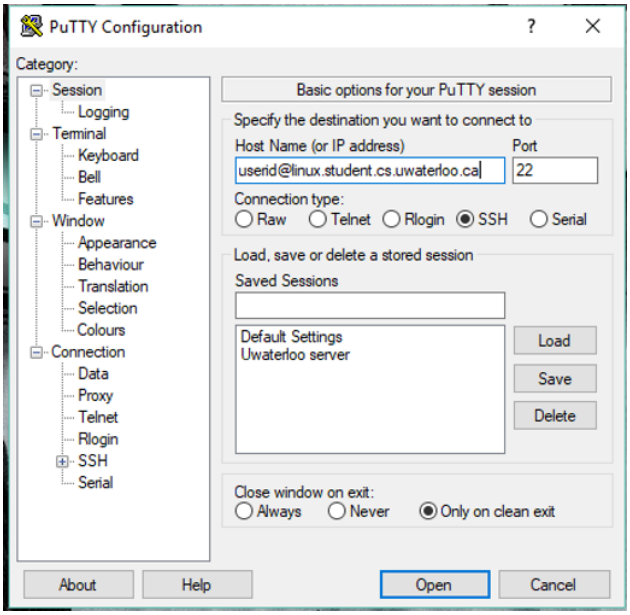
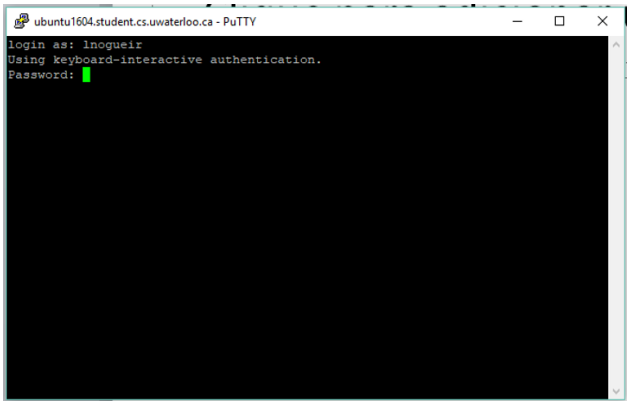
Tutorial 1

1 student environment set up

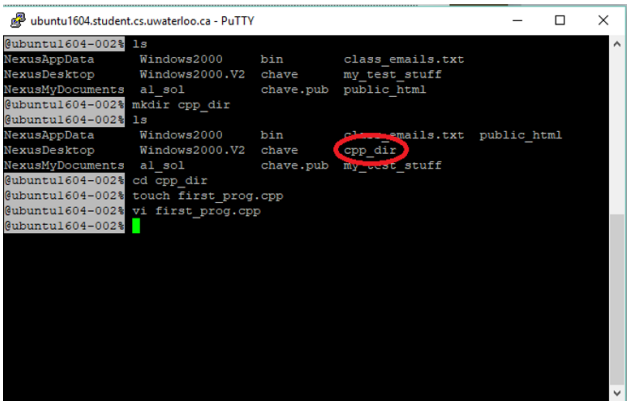
1. First download Putty



2. Login with the information from your CS account



3. create a new directory to store your files, strat editing your file using vim



2 Compiling your programs

command: g++ -std=c++14 -wall XXX.cc -o YYY
-std=c++14: compile using version c++14
-wall: dsiplay warning
-o: output file(defult as a.out)

3 set of problems

1. What is the output of this function?

```
#include <iostream>
#include <string>
#include <vector>
using namespace std;

int main() {
  string str;
  vector<string> v;
  while(!cin.eof()) {
    getline(cin, str);
    v.push_back(str);
    if(str == "") {
      cout << "empty" << endl;
    }
  }
  cout << v.size() << endl;
}
```

(a)
```
Input: abcd\n\nEOF
Output:
empty
empty
3
```

(b)
```
Input: abcd\nEOF
Output:
empty
2
```

What about

```
#include <iostream>
#include <string>
#include <vector>
using namespace std;

int main() {
  string str;
  vector<string> v;
  while(getline(cin, str)) {
    v.push_back(str);
    if(str == "") {
      cout << "empty" << endl;
    }
  }
  cout << v.size() << endl;
  }
```

(a)
```
Input: abcd\n\nEOF
Output:
empty
2
```

(b)
```
Input: abcd\nEOF
Output:
1
```

2. Create a function that reads a text file and store the values of each line in a vector.

3. Create a function that gets the entires of a vector and stores them in a text file.

4. Create a function that given a text file with names, creates another text file with the names sorted in alphabetical order.

```
#include <string>
#include <vector>
#include <fstream>
#include <iostream>
#include <algorithm>
using namespace std;

void storeVals(vector<string> &vals, string &file) {
  ifstream input;
  string str;
  input.open(file);
  if(!input.good()) {
    return;
  }
  while(input >> str) {
    vals.push_back(str);
  }
  input.close();
}

void OutputVals(vector<string> & vals, string &file) {
  ofstream output;
  if(file.find(".txt") == string::npos) {
    cerr << "File should be .txt" << endl;
    exit(1);
  }
  output.open(file);
  int size = vals.size();
  for(int i = 0; i < size; ++i) {
    output << vals[i] << endl;
  }
  output.close();
}

int findMin(vector<string> &vals, int begin) {
  int min = begin, size = vals.size();
  for(int i = begin + 1; i < size; ++i) {
    if(vals[min] > vals[i]) {
```

```
      min = i;
    }
  }
  return min;
}

void swap(vector<string> &vals, int i, int j) {
  string temp = vals[i];
  vals[i] = vals[j];
  vals[j] = temp;
}

void sortNames(vector<string> &vals) {
  //sort(vals.begin(), vals.end());
  int size = vals.size();
  for(int i = 0; i < size; ++i) {
    int min = findMin(vals, i);
    swap(vals, i, min);
  }
}

int main() {
  string nameIn ,nameOut;
  cin >> nameIn >> nameOut;
  vector<string> names;
  storeVals(names, nameIn);
  sortNames(names);
  OutputVals(names, nameOut);
  return 0;
}
```