**Part A**

A) unordered\_set<string> peopleServed;

B) map<string, int> peopleServed;

C) vector<string> peopleServed;

**Part B**

1. Question a: how many times were you served?

#include <iostream>

#include<fstream>

#include <string>

#include <map>

using namespace std;

int main(){

map<string, int> peopleServed;

ifstream inFile("lab4.txt");

string line;

while (getline(inFile, line)){

peopleServed[line] += 1;

}

inFile.close();

ofstream outFile("outputB.txt");

string name;

int numServed;

for(auto e : peopleServed){

outFile<<e.first<<e.second<<endl;

}

//Question a: how many times were you served?

int numMealsServed = 0;

for(auto e : peopleServed){

numMealsServed+=e.second;

}

cout<< "We served " << numMealsServed << " meals" << endl;

1. Question b: how many different people did you serve?

#include <iostream>

#include<fstream>

#include <string>

#include <unordered\_set>

using namespace std;

int main(){

unordered\_set<string> peopleServed;

ifstream inFile("lab4.txt");

string line;

while (getline(inFile, line)){

peopleServed.insert(line);

}

inFile.close();

ofstream outFile("outputA.txt");

for(auto e:peopleServed){

outFile<<e;

}

//Question b: how many different people did you serve?

cout<< "We served " << peopleServed.size() << " different people." <<endl;

}

1. Question c: Average number of times we served a person?

//b) The name of each individual you served in 2016, and how many times you’d served that individual.

#include <iostream>

#include<fstream>

#include <string>

#include <map>

using namespace std;

int main(){

map<string, int> peopleServed;

ifstream inFile("lab4.txt");

string line;

while (getline(inFile, line)){

peopleServed[line] += 1;

}

inFile.close();

ofstream outFile("outputB.txt");

string name;

int numServed;

for(auto e : peopleServed){

outFile<<e.first<<e.second<<endl;

}

//Question a: how many times were you served?

int numMealsServed = 0;

for(auto e : peopleServed){

numMealsServed+=e.second;

}

cout<< "We served " << numMealsServed << " meals" << endl;

//Question c: Average number of times we served a person?

double numPeople = (double)1.0\*peopleServed.size();

double numMeals = (double)1.0\*numMealsServed;

double avgServed = numMeals/numPeople;

cout<< "We served an average of " << avgServed << " meals to a person." <<endl;

}

**Part C**

#include <iostream>

#include <string>

using namespace std;

int salary(int n);

int main(){

int afterTwo = salary(2);

cout<< afterTwo <<endl;

return 0;

}

int salary(int n){

if (n == 0 ){

return 50000;

}

else{

return (5000+1.1\*salary(n-1));

}

}