Nicholas Weekes

CS 325

Prof: J. Reid

Homework 3

1. **Explain Moore’s Law.**

Moore’s Law is the hypothesis that number of transistors will double approximately every two years. This will continue to help computers processing speed to keep up with our everyday work task.

1. **List and briefly define two of the techniques used in contemporary processors to increase speed.**

**Pipelining:** The process when the computer receives multiple instructions and process them in the “que” format (FIFO)

**Superscalar Execution:** When the computer processes multiple operations simultaneously. It is somewhat similar to “multithreading”**.**

**3)**

#include <iostream> // Input Output standard operator

#include <fstream> // File reading operator

#include <string> // String operator

#include <cmath> // Math functionality operator

using namespace std; // Standard namespace function

double GM(ifstream &in) {

double total = 1, x; // Data type to define numeric variables with decimal points

int n = 0; // starting integer

while (in >> x) { // input for x

total \*= x; //total of all x var

}

return pow(total, 1.0 / n); //total 1.0 exponential function

}

int main() {

string fileName; // the filename

cout << "Enter file name: "; // message prompt asking for the file

cin >> fileName; // file input

ifstream in(fileName.c\_str()); // function to read the file input

if (in.is\_open()) {

cout << "Geometric mean is " << GM(in) << endl; // message prompt for the geomtric mean calculation

in.close();

} else {

cout << fileName << " does not exists!" << endl; // message telling user the file does not exist

}

return 0;

}