Assignment 3

George Huang

G00775631

[Ghuang3@masonlive.gmu.edu](mailto:Ghuang3@masonlive.gmu.edu)

Question 4

Faster to slowest

Merge

Radix

Insertion

Selection

Bubble

Question 5

1. Selection sort

public static int[] selectionSort(int[] data){

int min=0, k=0;

for(int i=0; i<data.length-1; i++){

min = data[i];

for(int j=i+1; j<data.length; j++){

if(min > data[j]) {

min = data[j];

k=j; }}

if(data[i] > min){ //swap

int temp = data[i];

data[i] = data[k];

data[k] = temp;

} }

return data; }

n = size of the array

time = n + n – 1 + n – 2…. + 3 + 2 + 1

time = n(n – 1)/2

O(n^2)

1. Bubble Sort

for(int x=0; x<n; x++) {

for(int y=0; y<n-1; y++) {

if(array[y]>array[y+1]){

int temp = array[y+1];

array[y+1] = array[y];

array[y] = temp;

}

}

}

N = size of the array

Time = n + n – 1 + n – 2... + 3 + 2 + 1

Time = n(n – 1)/2

O(n^2)