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COMP2011  
Lab 3

Results Report:

|  |  |  |  |
| --- | --- | --- | --- |
|  | 100 integers | 1000 integers | 10000 integers |
| Bubble Sort | 705486 | 21096291 | 303769282 |
| Selection Sort | 295402 | 8648332 | 107157934 |
| Insertion Sort | 209727 | 6825048 | 121521546 |

The results above may slightly vary from time to time.  
The results hold true for what we have learned in lecture.

Java source code found on next page.

**import** java.util.Random;

**public** **class** sortCompApp{

**public** **static** **void** main(String[] args){

*executionTime*(100);

*executionTime*(1000);

*executionTime*(10000);

}

**public** **static** **void** executionTime(**int** size){

//Create objects for each type of search

ArrayBub bubObj = **new** ArrayBub(size);

ArrayIns insObj = **new** ArrayIns(size);

ArraySel selObj = **new** ArraySel(size);

//Fill each array object with randomized integers

**for**(**int** i=0; i<size; i++){

Random rn = **new** Random();

**int** randomNum = rn.nextInt(size);

bubObj.insert(randomNum);

insObj.insert(randomNum);

selObj.insert(randomNum);

}

//Measure time for each sort

**long** bubStart = System.*nanoTime*();

bubObj.bubbleSort();

**long** bubEnd = System.*nanoTime*();

**long** insStart = System.*nanoTime*();

insObj.insertionSort();

**long** insEnd = System.*nanoTime*();

**long** selStart = System.*nanoTime*();

selObj.selectionSort();

**long** selEnd = System.*nanoTime*();

//Print out results

System.***out***.println("Tested Array Size = " + size);

System.***out***.println("\t Bubble Sort - " + "The execution time is " + (bubEnd - bubStart) + " nanoseconds!");

System.***out***.println("\tInsertion Sort - " + "The execution time is " + (insEnd - insStart) + " nanoseconds!");

System.***out***.println("\tSelection Sort - " + "The execution time is " + (selEnd - selStart) + " nanoseconds!");

}

}