

레포트 #2

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소스코드

Main함수

```
package main.src;
public class Sort {
    public static void main(String[] args) {
        int[] n = {1000, 5000, 10000, 20000, 50000, 100000};

        long start;
        long stop;

        long mergeSum = 0;
        long quickSum = 0;

        double mergesortTime;
        double quicksortTime;

        for (int i = 0; i < n.length; i++) {
            for (int j = 0; j < 10; j++) {
                int []arr1 = Generater.genNumber(n[i]);
                int []arr2 = arr1;

                start = System.currentTimeMillis();
                MergeSort.sort(arr1);
                stop = System.currentTimeMillis();
                mergeSum += stop - start;

                start = System.currentTimeMillis();
                QuickSort.sort(arr2);
                stop = System.currentTimeMillis();
                quickSum += stop - start;
            }

            mergesortTime = mergeSum / 10.0;
            quicksortTime = quickSum / 10.0;

            System.out.println("-----");
            System.out.println("Samples " + n[i]);
            System.out.println("MergeSort : " + mergesortTime);
            System.out.println("QuickSort : " + quicksortTime);
            System.out.println("-----");
        }
    }
}
```

genNumber함수

랜덤한 숫자 배열을 만드는 부분은 static Generater클래스를 생성하여 genNumber()함수로 구현하였습니다.

```
package main.src;
import java.lang.Math;

public class Generater {
    public static int[] genNumber(int count) {
        int []array = new int[count];
        for (int i = 0; i < count; i++) {
            array[i] = (int)(Math.random()*999);
        }
        return array;
    }
}
```

실행결과

The terminal output shows the execution of a program comparing MergeSort and QuickSort for various sample sizes. The results are as follows:

Samples	MergeSort	QuickSort
1000	1.4	1.6
5000	19.1	3.7
10000	57.9	9.8
20000	127.0	22.8
50000	513.1	67.2
100000	2265.2	197.4

Samples	1000	5000	10000	20000	50000	100000	
MergeSort	1.4	19.1	57.9	127.0	513.1	2265.2	
QuickSort	1.6	3.7	9.8	22.8	67.2	197.4	

그래프

