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CS2062 – Data Structures and Algorithm II (Intake 40)

Lab Sheet 03

1. Sort the following array by using shell sort. Use the following algorithm for it.
   {33,31,40,8,12,17,17,25,42}

```
ShellSort(a, n) // 'a' is the given array, 'n' is the size of array
for (interval = n/2; interval > 0; interval /= 2)
for ( i = interval; i < n; i += 1)
temp = a[i];
for (j = i; j >= interval && a[j - interval] > temp; j -= interval)
a[j] = a[j - interval];
a[j] = temp;
End ShellSort
```

2. Modify the ShellSort.java and QuickSort.java programs to handle sorting of appropriately large arrays. Use random numbers to fill the arrays and compare the speeds of these sorting algorithms. Additionally, compare these speeds with three simple sorting algorithms: Bubble Sort, Selection Sort, and Insertion Sort.