# Divide and Conquer Activity

**Due**  Sep 30, 2022 by 11:59p.m.      **Points**  0      **Submitting**  a file upload
**File Types**  pdf, zip, and z      **Available**  Sep 22, 2022 at 12a.m. - Sep 30, 2022 at 11:59p.m.

This assignment was locked Sep 30, 2022 at 11:59p.m..

A) Implement the merge sort using a programming language (python is favourable). Report the runtime for arrays with different sizes.

B) Solve the following recurrent equations using the **master theorem**:

$T(n) = 8\ T(n/3) + n^2$

$T(n) = 10\ T(n/3) + n^2$

$T(n) = 16\ T(n/4) + n^2 \log^3 n$

$T(n) = 9\ T(n/3) + n^3$