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Homework 3 Question 1

1. function divide(array A, int start, int end) {

array B

array C

for(i = 0, i<(end-start)/2, i++) {

B[i] = A[i]

C[i] = A[i+((end-start)/2)]

}

if(sizeof(B) > 1) {

divide(B, 0, sizeof(B))

divide(C, 0, sizeof(C))

A = merge(B, C)

}

else {

A = merge(B, C)

}

getMIN(A)

getMAX(A)

}

function merge(array D, array E) {

array F;

int i, j, k = 0

while(i < sizeof(D) && j < sizeof(E)) {

if(D[i] < E[j]) {

F[k] = D[i]

i++

}

else {

F[k] =E[j]

j++

}

k++

}

while(i < sizeof(D)) {

F[k] = D[i]

i++

k++

}

while(j < sizeof(E)) {

F[k] = E[j]

j++

k++

}

return F

}

function getMIN(array A) {

return A[0]

}

function getMAX(array A) {

return A[sizeof(A)-1]

}

1. T(n) = 2T(n/2) + Θ(n) when n > 1; Θ(n) when n=1
2. Text, letter

   Description automatically generated