Homework 5

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Code of Task 3 – Homework 4

// This function check whether an array is a maxheap or not

#include <iostream>

bool checkMaxHeap(float arr[], int n)

{

int i, max;

max = 0;

// running to the middle of the array

for (i = 0; i < n/2+1; i++)

{

if (i == 0)

{

if (arr[1] > arr[2])

{

max = arr[1];

}

else

{

max = arr[2];

}

}

else

{

if (arr[2\*i+1] > arr[2\*i+2])

max = arr[2\*i+1];

else

max = arr[2\*i+2];

}

if(arr[i] < max)

{

std::cout << "This is NOT a max heap" << std::endl;

return false;

}

}

std::cout << "This is a max heap" << std::endl;

return true;

}

/\* Function to print an array \*/

void printArray(float arr[], int size)

{

int i;

for (i=0; i < size; i++)

printf("%5.2f ", arr[i]);

printf("\n");

}

// Main program to test above functions

int main()

{

// input part

float arrA[] = {16, 14, 10, 8, 7, 9, 3, 2, 4, 1};

float arrB[] = {10, 3, 9, 7, 2, 11, 5, 1, 6};

int n = sizeof(arrA)/sizeof(arrB[0]);

//print out the input data

printf("The input array: \n");

// printArray(arrA, n);

printArray(arrB, n);

printf("\n");

// call the check MaxHeap function

checkMaxHeap(arrB, n);

return 0;

} p-