CSE 241-501 Final Examination Muhammed Bedir ULUGAY 130106 2697

I hereby pledge that I will stricly adhere to academic integrity codes and the work done on this examination is solely my own and I will not receive / give any help from to anybody or source during this examination. Ulugay

a) implement a global templated c++ function takes as a array parameter Your function returns the median array without copying or modifying the array

b) Write static java dec_to_bin return it as String

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```
template <class T>
T* median (T arr[], int n) {
    T* med = new T[2];
    int smaller counter=0, bigger counter =0;
  if(n%2==1){
    int smaller counter =0, bigger counter =0;
    for(int i=0; i<n; ++i){
        smaller counter = bigges counter = 0;
        for(int j=0; j<n; ++j){
            if(arr[j] > arr[i])
                bigger counter ++;
            else if (arr[j]< arr[i])
                smaller counter ++;
        }
        if (smaller counter == bigger counter){
            med[0] = arr[i]; med[1] = NULL;
            return med;
        }
    }
}
```

continued for n%2==0

b)

```
static String dec_to_bin (int number) {
    StringBuilder str = new StringBuilder();

    while (number) {
        str.add (number %2);
        number /=2;
    }
    return (String) str.reverse();
}
```

21

10101

16 0 4 0 1

13 6 3 1 0

1011

4 0 1 0

continue...

a)

```
If (n %2== 0) {
    bool f1 = false, f2 = false;

    for (int i=0; i<n ; ++i) {
        smaller counter = bigger counter = 0;
        for (int j = 0; j<n; j++) {
            if ( arr [j] > arr [i] )
                bigger counter ++;
            else if ( arr [j] < arr [i])
                smaller counter ++;
        }
        if ( bigger counter - smaller counter == 1) {
            f1 = true; med [0] = arr [i]; }
        If ( smaller counter - bigger counter == 1) {
            f2 = true  med [1] = arr [i]; }

        if (f1 && f2)
            return med;
    }
}
} // end of template function
```