Pop Quiz 2

CS330, Algorithm Analysis, Fall 2017

Problem 1. Following you find an implementation of the binary search.

(a) Write down the recurrence relation and

(b) solve them using a recursion tree.

(c) What is BigO? Prove that!

```
// A recursive binary search function. It returns location of x in
// given array arr[l..r] is present, otherwise -1

int binarySearch(int arr[], int l, int r, int x)
{
        if (r >= l)
        {
                int mid = l + (r - l)/2;
                if (arr[mid] == x) return mid;
                if (arr[mid] > x) return binarySearch(arr, l, mid-1, x);
                return binarySearch(arr, mid+1, r, x);
        }
        return -1;
}
```

Problem 2. Solve the following recurrence relation using a recursion tree
$F(n) = 2F(n/2) + 4n$
$F(1) = 1$

Pop Quiz 2 - Answersheet

DATE: NAME:

Problem 1.

Problem 2: