

CS 6901 Capstone Exam Systems Fall 2017: Choose any 2 of the 3 problems.

1) Rewrite ( , , , ) (0, 3, 4, 8, 10, 11)

CS 6901 Capstone Exam Data Structures and Algorithms Fall 2017

Choose any 2 of the 3 problems.

1) Given a possibly empty binary tree, write a function that returns the number of nodes in the tree that have a right child, but no left child. The prototype for your function is

```
int RightNoLeft(TreeNode *ptr) .
```

Global variables may not be used. No additional functions may be defined. Declare all data structures.

2) Given an array of  $n$  nonzero real numbers  $a[0] \dots a[n-1]$ , write a function to partition the array (not sort) so that all its negative elements come before all its positive elements. Your algorithm should have  $O(n)$  time complexity. The function prototype is

```
void negpospartition(float a[], int n) .
```

3) Count the precise number of "fundamental/basic operations" executed in the following code.

Your answer should (e)4(e)4( f)33e0.002 T varia ae fe0.002 T (as)-nli4DC -0.004papeTc ( ) Tj ent D(e)4(

# Theory Exam

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