

CS 344 Assignment 2

Craig Perkins, Alex Tang, Steve Grzenda

Due March 14, 2014

Problem 1

- A.
- B.
- C.
- D.
- E.

Problem 2

- A.
- B.

Problem 3

- 1.
- 2.
- 3.

Problem 4

```
function getMissingDate():
    boolean puzzles[n] // puzzles is a n-bit array
    for i in [1..n]:
```

```

puzzles[i] = 0

for i in [1..n]:
    crossword_puzzle puzzle = getPuzzle(i)
    day = getDay(puzzle);
    month = getMonth(puzzle)
    year = getYear(puzzle)
    puzzles[hash(month, day, year)] = 1

for i in [1..n]:
    if puzzles[i] == 0:
        day = getDay(puzzle)
        month = getMonth(puzzle)
        year = getYear(puzzle)
        return month, day, year

```

This algorithm will run in $O(n)$ time and take n -bits of space, i.e. $O(n)$ space. Note that `hash()` can be any function that maps a 1-to-1 correspondence between the dates and the indices in the boolean array `puzzles`.

Problem 5