CSC207, Fall 2012: Quiz 1
Duration — 25 minutes
Aids allowed: none

Student Number: |_|_|_|_|_|_|_|_|_|_|_|

Last Name: _____ **First Name:** _____

Lecture Section: L0101 **Instructor: Horton**

Please fill out the identification section above as well as the one on the back page, and read the instructions below.

Good Luck!

This quiz consists of 3 questions on 7 pages (including this one). When you receive the signal to start, please make sure that your copy of the quiz is complete.

If you use any space for rough work or need to scratch out an answer, circle the part that you want us to mark.

The final page includes excerpts from **the Java API** for your reference.

1: _____/ 7

2: _____/ 4

3: _____/ 5

TOTAL: _____/16

Question 1. [7 MARKS]

Suppose you have a repository containing one file called `birthdays.txt`, with the following contents:

```
Jane - July 23
Mia - July 15
Rohit - Feb 10
```

and that two partners have checked it out in two different places: Partner 1 has working copy 1 and partner 2 has working copy 2 (or WC1 and WC2 for short). In the following questions, assume that the *only* subversion commands executed are the ones described.

Part (a) [1 MARK]

Suppose that, inside working copy 1, partner 1 changes the line containing Mia's birthday to say `July 17` and then does `svn commit -m "Corrected Mia's birthday"`. Inside WC2, what would partner 2 see when executing `svn status`?

Part (b) [6 MARKS]

Suppose next that, inside working copy 2, partner 2 changes the line containing Mia's birthday to say `July 30` then does `svn commit -m "Fixed Mia's birthday"`. The commit fails, saying "File or directory 'birthdays.txt' is out of date; try updating". But when partner 2 tries `svn update`, svn reports that there is a conflict.
Suppose Partner 2 is sure about the birthday. Show the steps that must be taken in order for working copy 1 to also have Mia's birthday as July 30. For each step, show where it must be done (either in WC1 or WC2).

Where (either WC1 or WC2)	svn command or other action

Question 2. [4 MARKS]

Consider the following code:

```
1  public class Miscellaneous {

2     public static void main(String[] args) {

3        Object[] stuff;

4

5        stuff[0] =

6        stuff[1] =

7        stuff[1].append("!!");

8    }

9 }
```

Part (a) [1 MARK]

There is no way to complete line 5 so that the code will compile, unless a certain action is taken before line 5. On line 4 above, write a line of Java code that will solve this problem.

Part (b) [1 MARK]

Complete line 5 so that it puts the first digit of your phone number into the array.

Part (c) [1 MARK]

Complete line 6 so that it puts a sentence of your choosing into the array. Use a `StringBuffer`, because we are going to append to that sentence on the next line.

Part (d) [1 MARK]

Line 7 will not compile. Why not?

Question 3. [5 MARKS]

Consider the following code from Assignment 0:

```
public class Node {

    // The left and right children of this Node.
    Node left, right;
    // The contents of this Node, if it is a leaf node, or null otherwise.
    Object contents;
    // The parent of this Node, or null if it is the root.
    Node parent;

    // Constructors omitted.
}

public class Encoder {

    /*
     * The prefix code is represented by a binary tree in which each left branch
     * represents a 0, each right branch represents a 1, and the sequence of 0s
     * and 1s represented by the path from root to a leaf is the encoding for
     * the character stored in the leaf.
     */

    // The root of the tree representing this prefix code.
    private Node root = null;
    // A mapping from characters to their corresponding leaf node in the tree.
    private HashMap<Character, Node> lookup = new HashMap<Character, Node>();

    // Methods omitted.

}
```

Part (a) [1 MARK]

Does the following describe a legal prefix-free code, as defined on assignment 0?

character	encoding
K	01
L	11
M	10
N	0

Circle one: Yes No

Part (b) [4 MARKS]

Below, write a public method named `endsInOne()` to go in this class. It should take a `Character` as an argument and return true iff the code for that character ends with a 1.

Hint: This does not require a loop or recursion or anywhere near this full page!

This page is for rough work and for answers that didn't fit in the space provided.

Last Name: _____ **First Name:** _____

Short Python function/method descriptions:

```
__builtins__:
  abs(number) -> number
    Return the absolute value of the given number.
  max(a, b, c, ...) -> value
    With two or more arguments, return the largest argument.
  min(a, b, c, ...) -> value
    With two or more arguments, return the smallest argument.
  raw_input([prompt]) -> string
    Read a string from standard input.  The trailing newline is stripped.  The prompt string,
    if given, is printed without a trailing newline before reading.
int:
  int(x) -> integer
    Convert a string or number to an integer, if possible.  A floating point argument
    will be truncated towards zero.
media:
  choose_file() --> str
    Prompt user to pick a file. Return the path to that file.
sound:
  copy(Sound) --> Sound
    Return a copy of the given Sound.
  create_sound(int) --> Sound
    Create a sound with the specified number of samples. All sample values are 0.
  get_left(sample) --> int
    Return the left value of the given sample.
  get_right(sample) --> int
    Return the right value of the given sample.
  load_sound(str) --> Sound
    Return a Sound object from file with the given filename.
  set_left(sample, int)
    Set the left value of the given sample to the given int value.
  set_right(sample, int)
    Set the right value of the given sample to the given int value.
  play(Sound)
    Play the given Sound.
str:
  x in s -> bool
    Return True if x is in s, and False otherwise.  str(x) -> str
    Convert an object into its string representation, if possible.
  S.find(sub[,i]) -> int
    Return the lowest index in S (starting at S[i], if i is given) where
    the string sub is found or -1 if sub does not occur in S.
  S.isalpha() -> bool
    Return True if all characters in S are alphabetic, False otherwise.
  S.isdigit() -> bool
    Return True if all characters in S are digits and False otherwise.
  S.lower() -> str
    Return a copy of the string S converted to lowercase.
  S.startswith (sub) -> bool
    Return True if s starts with substring sub, and False otherwise.
```