Question 1.   [3 marks]

For each block of code in this question, write its output in the box below it. If it would generate an error, say so, and give the reason for the error.

Part (a)   [1 mark]

```
inner2 = ['pizza', 'party']
nested = [inner2[:], inner2[:]]
nested[0].insert(1, 'birthday')
print nested
```

```
[['pizza', 'birthday', 'party'], ['pizza', 'party']]
```

Part (b)   [2 marks]

```
inner2 = ['x', 'y', 'z']
nested2 = [inner2, inner2]
print nested2[1]
```

```
['x', 'y', 'z']
```

```
# continued from above
nested2[1].append('new')
print nested2
```

```
[['x', 'y', 'z', 'new'], ['x', 'y', 'z', 'new']]
```

Question 2.   [3 marks]

In A2, a `board` was a `list of lists of strs` where each inner list represented a row on the board. Complete the following function, according to its docstring description.

```
def display_column(board, col):
    '''(list of lists of strs, int) -> NoneType
    Print column col of the board.  You may assume: 0 <= col < len(board)'''

    for row in range(len(board)):
        print board[row][col]
```

Question 3.   [8 MARKS]

Part (a)   [5 MARKS] Complete the following function according to its docstring description.

```
def is_first_letter(sentences, letter):
    '''(list of lists of strs, str) -> bool
    The strs in the lists in sentences are lowercase words and letter is a single
    lowercase letter. Return True if one or more words in sentences starts with letter,
    and return False otherwise.'''

    found = False

    for sentence in words:
        for word in sentence:
            if word.startswith(letter):
                found = True
    return found
```

Part (b)   [3 MARKS] In the question below, fill in the box with python code that will make the program behaviour match the comments. You may **not** make any other changes to the code.

```
if __name__ == '__main__':
    sentences = [['hi', 'there'], ['this', 'is', 'fun'], ['hooray']]

    # Continually prompt the user (using raw_input) to enter a letter until they enter
    # a letter that one or more words in sentences starts with.

    letter = raw_input("Enter a letter: ")
    while not is_first_letter(words, letter):
        letter = raw_input("Enter a letter: ")

    print "One or more words starts with %s.", % (letter)
```

Question 4.   [10 MARKS]

A file is used to keep track of phone numbers where each line is of the form:
`DDD-DDD-DDDD`
where `D` is a digit (a number between 0 to 9, inclusive).

Here is a sample "phone file":

```
416-555-1111
905-555-4444
416-555-2222
647-555-8888
```

A "phone list" is generated based on a "phone file" like the one shown above.

The "phone list" for the file above is:
`['(416) 555-1111', '(416) 555-2222', '(905) 555-1111', '(647) 555-8888']`
Note: the format in the file differs from the list (e.g., `416-555-1111` as compared to `(416) 555-1111`).
The first three digits of a phone number are the area code.

Part (a)   [6 MARKS] Complete the following function according to its docstring description.

```
def get_phone_list(phone_file):
    '''(file) -> list of strs
    Return the "phone list" for the "phone file" phone_file.'''

    numbers = []

    for line in phone_file:
        part1, part2, part3 = line.strip().split('-')
        phone = "(%s) %s-%s" % (part1, part2, part3)
        numbers.append(phone)

    return phone
```

Part (b)   [4 MARKS] Complete the following function according to its docstring description.

```python
def count_area_code(phone_list, area_code):
    '''(list of strs, str) -> int
    phone_list is a "phone list" and area_code is a 3-digit number.
    Return the number of phone numbers from phone_list with area code area_code.'''

    count = 0
    for number in dates:
        if number.startswith('(' + area_code + ')'):
            count += 1
    return count
```

You may use the space below for rough work. This section will not be marked unless you clearly indicate the part of your work that you want us to mark.