Question 1. [4 marks]

Beside each code fragment below, show the output that it would create. If it would generate an error say so, and give the reason why.

Part (a) [1 mark]

L = ['this', 'is', 'fun']
for x in L:
    x = x + '!
print L

Part (b) [1 mark]

s = 'helllllo'
d = {}
for i in range(len(s)):
    d[s[i]] = i
print d

Part (c) [1 mark]

L = [[10, 12, 14], [1, 2, 3, 4, 5], ['a', 'b', 'c']]
print L[1][3]

Part (d) [1 mark]

s = 'what!sup?'
k = s.index('!')
print s[1:k-1] + s[k+1:]

Solution:

['this', 'is', 'fun']
{'h': 0, 'e': 1, 'l': 5, 'o': 6}
4
hasup?
Question 2. [6 marks]
Write the function below, according to its docstring. You must not use a for-loop in this question or your solution will earn zero.

```python
def first_neg(L):
    '''L is a list of ints. Return the index of the first element of L that is negative. If none are negative, return -1.'''
    i = 0
    while i < len(L) and L[i] >= 0:
        i += 1
    if i < len(L):
        return i
    else:
        return -1
```

Solution:
```python
i = 0
while i < len(L) and L[i] >= 0:
    i += 1
if i < len(L):
    return i
else:
    return -1
```
Question 3.  [6 marks]

Suppose we have two dictionaries whose values are ints. Define the dictionary maximum of the two dictionaries to be a new dictionary containing every key that is in both of the dictionaries. The value associated with a key is the maximum of the values for that key from d1 and d2. For example, if we have these two dictionaries:

\[
\begin{align*}
d1 &= \{"a": 5, "d": 11, "c": -2, "j": 99\} \\
d2 &= \{"d": 4, "j": 101, "z": 8\}
\end{align*}
\]

their dictionary maximum is \{d: 11, j: 101\}.

Write the function below, according to its docstring.

```python
def dict_max(d1, d2):
    '''d1 and d2 are dicts whose values are ints. Return a new dict that is the dictionary maximum of d1 and d2.'''
    new_dict = {}
    for k in d1:
        if k in d2:
            new_dict[k] = max(d1[k], d2[k])
    return new_dict
```

Solution:

```python
def dict_max(d1, d2):
    new_dict = {}
    for k in d1:
        if k in d2:
            new_dict[k] = max(d1[k], d2[k])
    return new_dict
```
Question 4.  [8 MARKS]

Write the function below, according to its docstring.

def big_deposits(filename):
    '''str filename is the name of a file that stores deposits into a bank account. Each deposit is stored in a single line as an amount preceded by a dollar sign (for example: $1254.95). Return the number of deposits that exceed $1000.'''

Solution:

def big_deposits(filename):
    deposits = open(filename, 'r')
    total = 0
    for line in deposits:
        if float(line[1:]) > 1000:
            total += 1
    return total