Problem Solving

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For Quiz

- You need to solve the syntactical errors:
  - Missing : after the loops and function definition
  - elseif (i>10):
  - print Hello
  - elif:
  - Def functionName():

For Quiz

- You will need to solve the logical errors:
- That means the program will execute but will not give a desired output

```
if(i%2 !=0)
    print “Number is even”

for i in S:
     sum = Sum + i
     print sum
```

Example

- Write a function that takes a number and and tells if it is positive or negative

Solution

```
def checkNumber(num):
        if (num>0):
                print “Positive”
        else:
                print “Negative”
```

Example

- Modify the function to accept list and count number of positive integers in the list

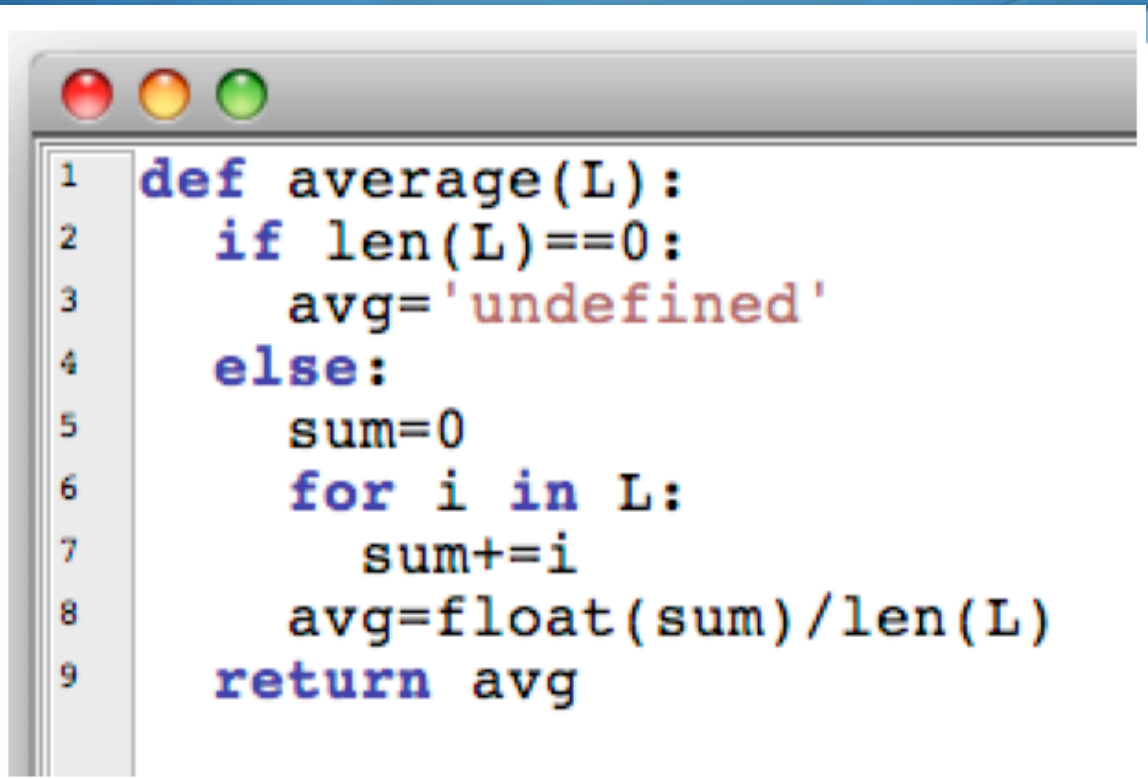
Solution

```
def checkNumber(S):
    count = 0
    for i in S:
        if (i>0):
            count = count+1
    print count, " Positive elements are in the list"
```

Example

- Write a function that calculates average of all the numbers in a list

Solution



```
1  def average(L):
2      if len(L)==0:
3          avg='undefined'
4      else:
5          sum=0
6          for i in L:
7              sum+=i
8          avg=float(sum)/len(L)
9      return avg
```

Example

- Write a function checkEven(S): That counts number of even numbers in a list

Functions used in a list
S = [1, 5, 1, 2]

- append(x): add an item x to the end of a list
  - e.g. S.append(3) → S=[1,5,1,2,3]
- insert(i,x): insert an item x in the position i
  - e.g. S.insert(1,9) → S=[1,9,5,1,2,3]
- remove(x): remove the first item from the list whose value is x
  - e.g. S.remove(2) → S=[1,9,5,1,3]
- index(x): returns the index of the first item whose value is x
  - e.g. S.index(5) → 2
- count(x): returns the number of times x occurs in the list
  - e.g. S.count(1) → 2

Example

- Write a function that search for an item x in a specific list S and replace it with y

```
def search (S, x, y):
        xPosition = S.index(x)
        S.remove(x)
        S.insert(xPosition,y)
        for i in S:
            print i
```

To execute:
search ([1,4,5,3], 5, 9)

Problem (Find minimum in a list)

```
def empty(S):
  return len(S) == 0
```

```
def min(S):
  if empty(S):
    return 'undefined'
  else:
    min_so_far = S[0]
    for i in range(1,len(S)):
      if S[i] < min_so_far:
        min_so_far = S[i]
  return min_so_far
```

Sort a list using selection sort

```
def selectionSort(S):
    sortedS = []
    for i in range(0,len(S)):
        minElement = min(S)
        S.remove(minElement)
        sortedS.append(minElement)
    return sortedS
```