**Practical Test (Set B1) Solution**

1. Write a function to accept a list and return two list. A list of unique positive numbers and also a list of the count of the unique positive number of the input list. Example: Lst=[-1,23,-5,9,6,-23,9] would return [23,9,6] and [1,2,1]

Also copy the code in the blank space below. [5 marks]

|  |  |
| --- | --- |
| Task | Verification by Tutor |
| Correct function definition and call | 1 mark |
| Demo with input list  Lst=[-1,23,-5,9,6,-23,9] | [-1, -5, -23] 1 mark  [0, 2, 5] 1 mark |
| Demo with input list  Lst2=[-2,-33,-25,7,8,-33,9,7,8,33,] | [-2, -33, -25] 1 mark  [0, 1, 2] 1 mark |

Lst=[-1,23,-5,9,6,-23,9]

Lst2=[-2,-33,-25,7,8,-33,9,7,8,33,]

def count\_pos(xlist):

idx=[]

neg\_num=[]

for c in xlist:

if c not in neg\_num:

if c<0:

neg\_num.append(c)

for c in neg\_num:

idx.append(xlist.index(c))

return neg\_num, idx

ans, idx=count\_pos(Lst2)

1. Load the network traffic data from the file ‘cs448b\_ipasn.csv’.Perform the follows tasks:

|  |  |
| --- | --- |
| Task | Verification by Tutor |
| Read in the csv file and show the first 5 rows of data. | 1 mark |
| Show that there is no NA, Null or missing data | 1 mark |
| Convert the column ’date’ to python date format and set it as the index. | 1 mark |
| Compute the mean ‘f’ value of all data between 2006-03-01 and 2006-7-30 (inclusive). [37.22040540540541] | 2 mark |

Import numpy as np

Import pandas as pd

df['date']=pd.to\_datetime(df['date'],format='%Y-%m-%d')

df.set\_index('date', inplace=True) # set the date time as index

print(df.head())

print(df.describe())

1. Based on the process created in **Question 2**, plot bar chart for mean value of ‘f’ for all local IP. The following setting

[5 marks]

|  |  |
| --- | --- |
| Attribute | Verification by Tutor |
| Correct chart in red | 2 mark |
| Properly label both axis and chart title | 2 mark |
| Legend Position: center right | 1 mark |

import matplotlib.pyplot as plt

fig=plt.figure()

ax=plt.axes()

bars = ('1', '2', '3', '4','5','6','7','8','9')

x\_pos = np.arange(len(bars))

values=[]

for x in range(1,10,1):

values.append(np.mean(df[(df.l\_ipn==x)].f))

print(x)

print(values)

ax.bar(x\_pos, values,label='Mean Flow value',color='r')

ax.set\_xticks(x\_pos)

ax.set\_xticklabels(bars)

ax.set\_title('Mean flow value for different local ip')

ax.set\_xlabel('local ip no')

ax.set\_ylabel('Mean flow value'

ax.legend(loc='center right')

plt.show()

2 mark

