In [1]:
```
import os
import shutil
import glob2glob
import array
import bcolpy
import numpy as np
import numpy as np
import matplotlib.pyplot import inscan
from PIL import Image
import matplotlib.pyplot as plt
import pyxcc
import warnings
warnings.filterwarnings("ignore")
```

In [2]:
```
#splicing all data files and creating a small subset of folders for every 500 .asm files
def mkd_mass_asm(source):
    if os.path.isdir(source):
        for root, dirs, files in os.walk(source):
            count = 0
            for file in sorted(files):
                if file.endswith('.asm'):
                    count += 1
                    if file.endswith("0.asm"):
                        os.remove(source+'\\'+file)
                    else:
                        if not os.path.exists(source+'\\new_dir'):
                            print('New folder is made with name :',new_dir)
                        else:print('New folder already exists')
                        shutil.move(source+'\\'+file,source+'\\new_dir'+'\\'+file)
                        temp=temp+1
```

In [3]:
```
source=r'D:\secondsoft\train'
mkd_mass_asm(source)#creating subfolder for multi threading
```

```
New folder is made with name :ex00
New folder is made with name :ex0100
New folder is made with name :ex0200
New folder is made with name :ex0300
New folder is made with name :ex0400
New folder is made with name :ex0500
New folder is made with name :ex0600
New folder is made with name :ex0700
New folder is made with name :ex0800
New folder is made with name :ex0900
New folder is made with name :ex1000
New folder is made with name :ex1100
New folder is made with name :ex1200
New folder is made with name :ex1300
New folder is made with name :ex1400
New folder is made with name :ex1500
New folder is made with name :ex1600
New folder is made with name :ex1700
New folder is made with name :ex1800
New folder is made with name :ex1900
New folder is made with name :ex2000
New folder is made with name :ex2100
New folder is made with name :ex2200
New folder is made with name :ex2300
New folder is made with name :ex2400
New folder is made with name :ex2500
New folder is made with name :ex2600
New folder is made with name :ex2700
New folder is made with name :ex2800
New folder is made with name :ex2900
New folder is made with name :ex3000
New folder is made with name :ex3100
New folder is made with name :ex3200
New folder is made with name :ex3300
New folder is made with name :ex3400
New folder is made with name :ex3500
New folder is made with name :ex3600
New folder is made with name :ex3700
New folder is made with name :ex3800
New folder is made with name :ex3900
New folder is made with name :ex4000
New folder is made with name :ex4100
New folder is made with name :ex4200
New folder is made with name :ex4300
New folder is made with name :ex4400
New folder is made with name :ex4500
New folder is made with name :ex4600
New folder is made with name :ex4700
New folder is made with name :ex4800
New folder is made with name :ex4900
New folder is made with name :ex5000
New folder is made with name :ex5100
New folder is made with name :ex5200
New folder is made with name :ex5300
New folder is made with name :ex5400
New folder is made with name :ex5500
New folder is made with name :ex5600
New folder is made with name :ex5700
New folder is made with name :ex5800
New folder is made with name :ex5900
New folder is made with name :ex6000
New folder is made with name :ex6100
New folder is made with name :ex6200
New folder is made with name :ex6300
New folder is made with name :ex6400
New folder is made with name :ex6500
New folder is made with name :ex6600
New folder is made with name :ex6700
New folder is made with name :ex6800
New folder is made with name :ex6900
New folder is made with name :ex7000
New folder is made with name :ex7100
New folder is made with name :ex7200
New folder is made with name :ex7300
New folder is made with name :ex7400
New folder is made with name :ex7500
New folder is made with name :ex7600
New folder is made with name :ex7700
New folder is made with name :ex7800
New folder is made with name :ex7900
New folder is made with name :ex8000
New folder is made with name :ex8100
New folder is made with name :ex8200
New folder is made with name :ex8300
New folder is made with name :ex8400
New folder is made with name :ex8500
New folder is made with name :ex8600
New folder is made with name :ex8700
New folder is made with name :ex8800
New folder is made with name :ex8900
New folder is made with name :ex9000
New folder is made with name :ex9100
New folder is made with name :ex9200
New folder is made with name :ex9300
New folder is made with name :ex9400
New folder is made with name :ex9500
New folder is made with name :ex9600
New folder is made with name :ex9700
New folder is made with name :ex9800
New folder is made with name :ex9900
New folder is made with name :ex10000
New folder is made with name :ex10100
New folder is made with name :ex10200
New folder is made with name :ex10300
New folder is made with name :ex10400
New folder is made with name :ex10500
```

In [4]:
```
#folder name
folder_names=[]
for i in range(0,2010,100):
    folder_names.append('ex'+str(i))
```

In [5]:
```
def collect_img_and_source:
    for asmfile in os.listdir(source):
        filename = asmfile.split('.')[0]
        file = open(source+'\\'+asmfile, 'r', asmfile, 'r')
        filebin = bn.path.getsize(source+'\\' + asmfile)
        width = int(filebin ** 0.5)
        rem = filebin % width
        a = array.array('B')
        a.fromfile(file, filebin)
        file.close()
        rehsape = np.reshape(a[:-rem], (-1, width))
        rehsape1 = np.uint8(rehsape)
        imsave(source+'\\' + filename + '.png',rehsape1)
        print('Completed in this location :',source)
    print('This location is completed',source)
```

In [6]:
```
print('Total Number of subfolder',len(folder_names))
```

```
Total Number of subfolder 204
```

In [7]:
```
#dividing the folder into three groups
first_set=folder_names[:68]
second_set=folder_names[68:136]
third_set=folder_names[136:]
```

In [8]:
```
#implementing the multithreadscript
for i in first_set:
    for j in sec_set:
        source='D:\secondsoft\train'+'\'+i
        collect_img_and_source(source)
```

In [109]:
```
!!!%j = threading.Thread(target=collect_above, args=(first_set,))
%j2 = threading.Thread(target=collect_above, args=(second_set,))
%j3 = threading.Thread(target=collect_above, args=(third_set,))
%j.start()
%j2.start()
%j3.start()
```

In [110]:
```
%j = threading.Thread(target=collect_above, args=(first_set,))%j2 = threading.Thread(target=collect_above, args=(second_set,))%j3 = threading.Thread(target=collect_above, args=(third_se
%j.start()%j2.start()%j3.start()
```

In [1]:
```
#dew tripig with five threads
first_set=folder_names[:40]
second_set=folder_names[40:80]
third_set=folder_names[80:120]
fourth_set=folder_names[120:160]
fifth_set=folder_names[160:]
```

In [4]:
```
#picking up all pixels and writing to asm_pixel_file
source='D:\secondsoft'
def convert_to_image(direction_source):
    ex=os.listdir(direction_source)
    for i in ex:
        image=os.listdir(direction_source+'\'+i)
        columns.append('pixel'+str(i))
        print('Completed in this location',i)
    new_df=pd.DataFrame(columns=columns,index=None)
    new_df.to_csv(source+'\'+'pixel_asm_file.csv',index=False)
threading.enumerate()#to_source
```

In [5]:
```
def convert_to_image(source):
    for i in os.listdir(source):
        image=Image.open(source+'\'+i+'.png')
        array=np.asarray(image).flatten()[:50]#pick first 200 pixels
        print(array.shape)
        df=pd.DataFrame(data=[array],index=None)
        df.to_csv(source+'\'+'pixel_asm_file.csv', header=False, mode='a', sep=',', index=False)
        clear(direction_source+'\'+i+'.png')
        print('Completed in this location',source)
    os.remove(source+'\'+'.png')
    print('Completed in this location',source)
```

In [6]:
```
def call_above_list_sec:
    for i in sec_set:
        source='D:\secondsoft\train'+'\'+i
        convert_to_image(source)
```

In [7]:
```
%j = threading.Thread(target=call_above, args=(first_set,))
%j2 = threading.Thread(target=call_above, args=(second_set,))
%j3 = threading.Thread(target=call_above, args=(third_set,))
%j4 = threading.Thread(target=call_above, args=(fourth_set,))
%j5 = threading.Thread(target=call_above, args=(fifth_set,))
%j.start()
%j2.start()
%j3.start()
%j4.start()
%j5.start()
```

```
Completed in this location D:\secondsoft\train#0000
Completed in this location D:\secondsoft\train#0001
Completed in this location D:\secondsoft\train#0002
Completed in this location D:\secondsoft\train#0003
Completed in this location D:\secondsoft\train#0004
Completed in this location D:\secondsoft\train#0005
Completed in this location D:\secondsoft\train#0006
Completed in this location D:\secondsoft\train#0007
Completed in this location
```