

```
In [1]: import pandas as pd
import matplotlib.pyplot as plt
import numpy as np

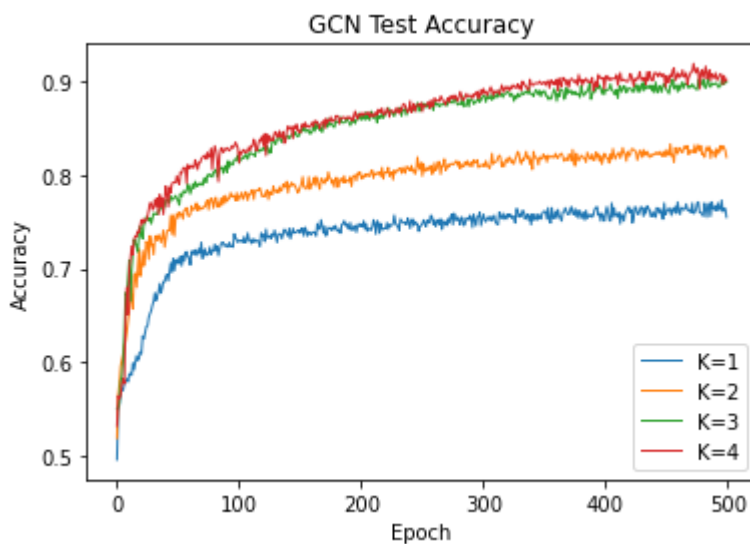
result_dir = r'C:\Users\yl646\Documents\ADHD_Research\DATA\OUTPUT\step_6_test_complete
filename = result_dir+r'\kfold_'
```

```
In [2]: def getValue(model, k_hop=1):
    if model == 'CNN':
        results = pd.read_csv(filename+f'{model}_ndam_epo_50.csv')
    else:
        results = pd.read_csv(filename+f'{model}_k_{k_hop}_ndam_epo_50.csv')
    test = results["Test"]
    train = results["Train"]
    valid = results["Valid"]
    return train, valid, test
```

```
In [3]: (train11, valid11, test11) = getValue('GCN', 1)
(train12, valid12, test12) = getValue('GCN', 2)
(train13, valid13, test13) = getValue('GCN', 3)
(train14, valid14, test14) = getValue('GCN', 4)
```

```
plt.title('GCN Test Accuracy')
plt.plot(test11, label='K=1', linewidth=1)
plt.plot(test12, label='K=2', linewidth=1)
plt.plot(test13, label='K=3', linewidth=1)
plt.plot(test14, label='K=4', linewidth=1)
```

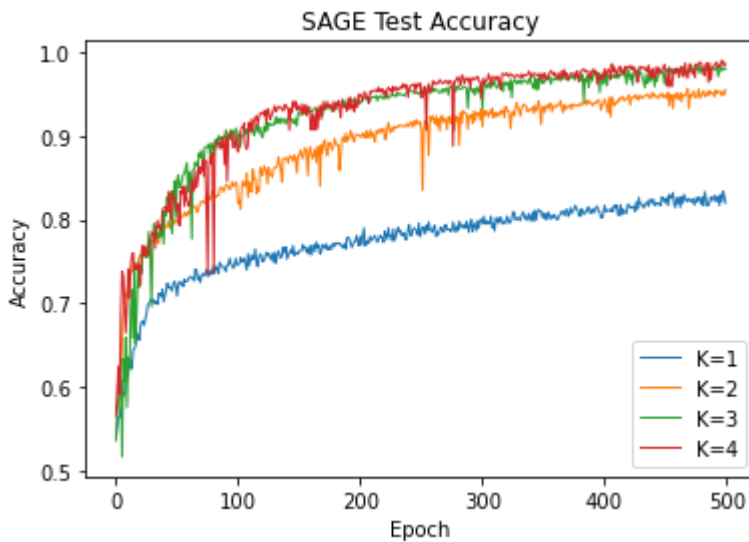
```
plt.xlabel('Epoch')
plt.ylabel('Accuracy')
plt.legend()
plt.savefig('GCN_Test.png')
plt.show()
```



```
In [4]: (train21, valid21, test21) = getValue('SAGE', 1)
(train22, valid22, test22) = getValue('SAGE', 2)
(train23, valid23, test23) = getValue('SAGE', 3)
(train24, valid24, test24) = getValue('SAGE', 4)
```

```
plt.title('SAGE Test Accuracy')
plt.plot(test21, label='K=1', linewidth =1)
plt.plot(test22, label='K=2', linewidth =1)
plt.plot(test23, label='K=3', linewidth =1)
plt.plot(test24, label='K=4', linewidth =1)

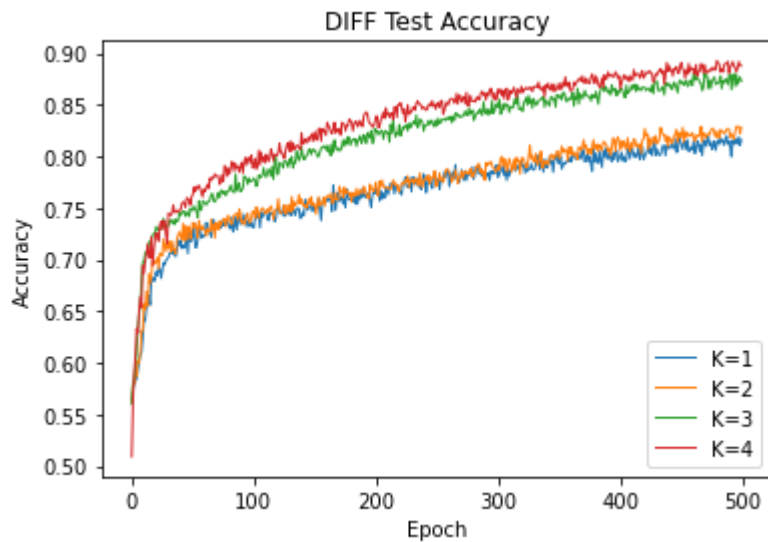
plt.xlabel('Epoch')
plt.ylabel('Accuracy')
plt.legend()
plt.savefig('SAGE_Test.png')
plt.show()
```



```
In [5]: (train31, valid31, test31) = getValue('DIFF', 1)
(train32, valid32, test32) = getValue('DIFF', 2)
(train33, valid33, test33) = getValue('DIFF', 3)
(train34, valid34, test34) = getValue('DIFF', 4)

plt.title('DIFF Test Accuracy')
plt.plot(test31, label='K=1', linewidth =1)
plt.plot(test32, label='K=2', linewidth =1)
plt.plot(test33, label='K=3', linewidth =1)
plt.plot(test34, label='K=4', linewidth =1)

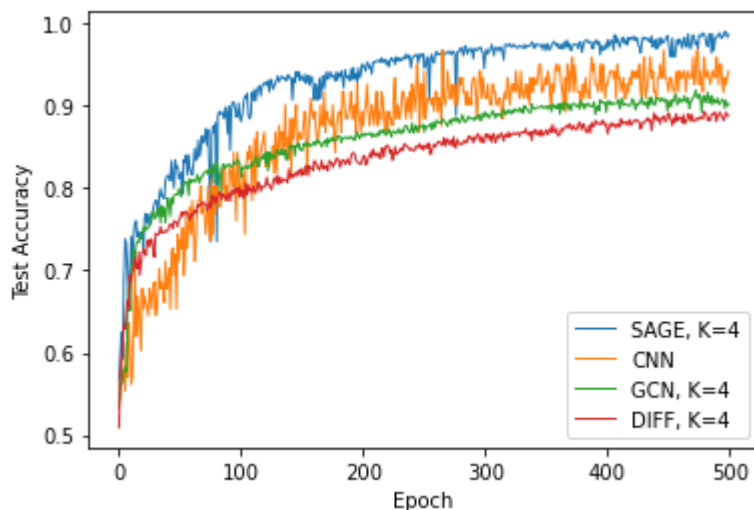
plt.xlabel('Epoch')
plt.ylabel('Accuracy')
plt.legend()
plt.savefig('DIFF_Test.png')
plt.show()
```



```
In [9]: (train4, valid4, test4) = getValue('CNN')

#plt.title('Model Comparison')
plt.plot(test24, label='SAGE, K=4', linewidth =1)
plt.plot(test4, label='CNN', linewidth =1)
plt.plot(test14, label='GCN, K=4', linewidth =1)
plt.plot(test34, label='DIFF, K=4', linewidth =1)

plt.xlabel('Epoch')
plt.ylabel('Test Accuracy')
plt.legend()
plt.savefig('Model_Comparison.png')
plt.show()
```



```
In [7]: gcn_train = [train11.iloc[-1], train12.iloc[-1], train13.iloc[-1], train14.iloc[-1]]
gcn_valid = [valid11.iloc[-1], valid12.iloc[-1], valid13.iloc[-1], valid14.iloc[-1]]
gcn_test = [test11.iloc[-1], test12.iloc[-1], test13.iloc[-1], test14.iloc[-1]]

sage_train = [train21.iloc[-1], train22.iloc[-1], train23.iloc[-1], train24.iloc[-1]]
sage_valid = [valid21.iloc[-1], valid22.iloc[-1], valid23.iloc[-1], valid24.iloc[-1]]
sage_test = [test21.iloc[-1], test22.iloc[-1], test23.iloc[-1], test24.iloc[-1]]

diff_train = [train31.iloc[-1], train32.iloc[-1], train33.iloc[-1], train34.iloc[-1]]
```

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diff_valid = [valid31.iloc[-1], valid32.iloc[-1], valid33.iloc[-1], valid34.iloc[-1]]
diff_test = [test31.iloc[-1], test32.iloc[-1], test33.iloc[-1], test34.iloc[-1]] #, te

cnn_train = [train4.iloc[-1], train4.iloc[-1], train4.iloc[-1], train4.iloc[-1]]
cnn_valid = [valid4.iloc[-1], valid4.iloc[-1], valid4.iloc[-1], valid4.iloc[-1]]
cnn_test = [test4.iloc[-1], test4.iloc[-1], test4.iloc[-1], test4.iloc[-1]]

x=[1,2,3,4]

```

```

In [8]: #plt.title('K-hop Comparison')
plt.plot(x, sage_train, label='SAGE-train', linewidth =1, color='lightblue', marker='o')
plt.plot(x, sage_valid, label='SAGE-valid', linewidth =1, color='steelblue', marker='o')
plt.plot(x, sage_test, label='SAGE-test', linewidth =1, color='lightslategrey', marker='o')
plt.plot(x, gcn_train, label='GCN-train', linewidth =1, color='lightgreen', marker='o')
plt.plot(x, gcn_valid, label='GCN-valid', linewidth =1, color='yellowgreen', marker='o')
plt.plot(x, gcn_test, label='GCN-test', linewidth =1, color='g', marker='o')
plt.plot(x, diff_train, label='DIFF-train', linewidth =1, color='orange', marker='o')
plt.plot(x, diff_valid, label='DIFF-valid', linewidth =1, color='coral', marker='o')
plt.plot(x, diff_test, label='DIFF-test', linewidth =1, color='maroon', marker='o')
plt.xlabel('K-hop')
plt.xticks(x,x)
plt.ylabel('Accuracy')
plt.legend(prop={'size': 6})
plt.savefig('k_hop_Comparison.png')
plt.show()

```

