# Laboratory 2

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[Running Network X and Python 1](#_Toc489728521)

[ Installed Network X and Python and got started with the Assignment. Downloaded the Facebook\_combined.txt to analyse the computational network theories. 1](#_Toc489728522)

[ The dataset consists of 'circles' (or 'friends lists') from Facebook. Facebook data was collected from survey participants using this Facebook app. The dataset includes node features (profiles), circles, and ego networks. 1](#_Toc489728523)

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## **Git hub :** <https://github.com/sajevk/Computational-Social-Network-Analysis>

# Edge Cut Count

Count the number of edges cut by the partition. For this directed network of Amazon was used to evaluate the number of edges cut by the partition.

The Facebook combined data set from SNAP site was downloaded to evaluate the Edge cut count.

Please find the result below. The detection of the communities was

Number of nodes: 4039

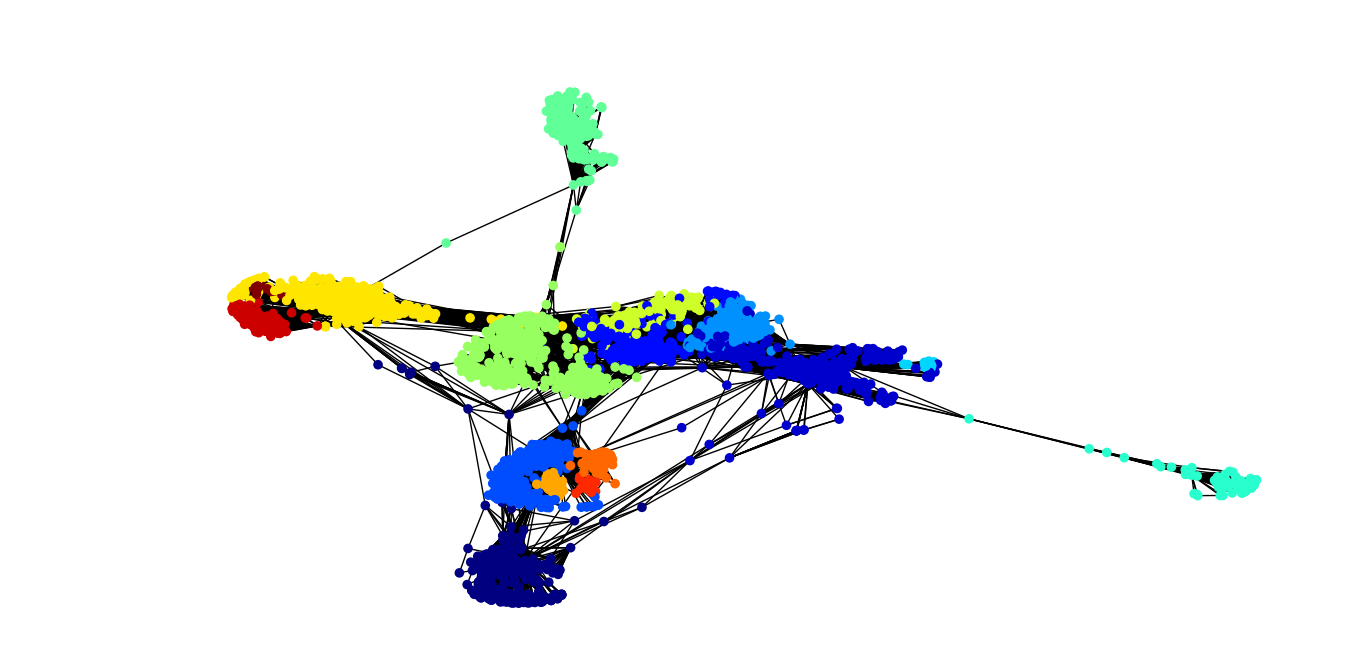
Number of edges: 88234

Average degree: 43.6910

Community algorithm

Lovain has been used in order to analyse the Facebook community graph. The community was detected. The below diagram depicts the detected communities. Distinct colour code was applied in-order to distinguish the various communities in the network graph. The lovain community algorithm was modified for this case study purpose.

(Run lovain.py)



# New Man’s Modularity and Partition (own community algorithm modifying Louvain )

The Newman’s modularity and Partitions is calculated through the Louvain’s algorithm for the Facebook graph. The results is presented below:

**Louvain Modularity:** 0.83497475803

**Louvain Partition:**  {0: 0, 1: 0, 2: 0, 3: 0, 4: 0, 5: 0, 6: 0, 7: 0, 8: 0, 9: 0, 10: 0, 11: 0, 12: 0, 13: 0, 14: 0, 15: 0, 16: 0, 17: 0, 18: 0, 19: 0, 20: 0, 21: 0, 22: 0, 23: 0, 24: 0, 25: 0, 26: 0, 27: 0, 28: 0, 29: 0, 30: 0, 31: 0, 32: 0, 33: 0, 34: 1, 35: 0, 36: 0, 37: 0, 38: 0, 39: 0, 40: 0, 41: 0, 42: 0, 43: 0, 44: 0, 45: 0, 46: 0, 47: 0, 48: 0, 49: 0, 50: 0, 51: 0, 52: 0, 53: 0, 54: 0, 55: 0, 56: 0, 57: 0, 58: 0, 59: 0, 60: 0, 61: 0, 62: 0, 63: 0, 64: 0, 65: 0, 66: 0, 67: 0, 68: 0, 69: 0, 70: 0, 71: 0, 72: 0, 73: 0, 74: 0, 75: 0, 76: 0, 77: 0, 78: 0, 79: 0, 80: 0, 81: 0, 82: 0, 83: 0, 84: 0, 85: 0, 86: 0, 87: 0, 88: 0, 89: 0, 90: 0, 91: 0, 92: 0, 93: 0, 94: 0, 95: 0, 96: 0, 97: 0, 98: 0, 99: 0, 100: 0, 101: 0, 102: 0, 103: 0, 104: 0, 105: 0, 106: 0, 107: 2, 108: 0, 109: 0, 110: 0, 111: 0, 112: 0, 113: 0, 114: 0, 115: 0, 116: 0, 117: 0, 118: 0, 119: 0, 120: 0, 121: 0, 122: 0, 123: 0, 124: 0, 125: 0, 126: 0, 127: 0, 128: 0, 129: 0, 130: 0, 131: 0, 132: 0, 133: 0, 134: 0, 135: 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