## 2018 - 2019 Analyzing your affiliation networks at CUHK

There were 78 students who played the affiliation network game, where there were 17 who provided their names but indicated that they had not joined any of the societies/organizations.

| Total Number of joined student societies/organizations | Number of Students |
|--|--------------------|
| 10   | 1                  |
| 6  | 1                  |
| 5  | 1                  |
| 4  | 3                  |
| 3  | 5                  |
| 2  | 14                 |
| 1  | 36                 |
| 0  | 17                 |

There are 104 student societies/organizations. The following are the top 16 student societies/organizations.

| Societies/organizations     | Number of Participants |
|-----------------------------|------------------------|
| Astronomy Club              | 7                      |
| Game and Chess Society      | 7                      |
| Animation & Comic Society   | 5                      |
| Mandarin Drama Team of CUHK | 5                      |
| Three Heart Club            | 5                      |
| CUHK Bridge Club            | 4                      |
| Modern Dance Society        | 4                      |
| The Mahjong Study Society   | 4                      |
| AIESEC                      | 3                      |
| CUHK Dragon Boat Club       | 3                      |
| Shaw Band                   | 3                      |
| Society of Magic            | 3                      |
| 崇基學生會 CCSU                  | 3                      |
| 逸夫學生會 SCSU                  | 3                      |
| Mathematical Society        | 3                      |
| Computer Science Society    | 3                      |

For the sake of simplicity, we used the numbers for labelling the 78 students, while we used English letters for labelling the 104 student societies/organizations. The matching list file is shown below:

| A         AA         BA         Club         BA         Club         Club         Standing Standing           A         Ar Cadets         AB         Morning Running Club         BB         Association of CUHK (ISA)         CB           A nimation & Comic         Nano - NA Band Society         BC         Reclamation Standing         R  |    | AIESEC                    |      | Modern Dance Society      |     | The Iaido   |            | 逸夫學生會 SCSU   |
|---|----|---------------------------|------|---------------------------|-----|---|------------|--|
| Air Cadets         Aix Cadets         Aix Cadets         Aix Cadets         Morning Running Club         BA         Club         Club         Statute   |    |                           |      |                           | DA  | and Japanese Swordsmanship                          | <b>C 1</b> |  |
| At Calcels         Molining Culou         BB         Association of CUHK (LSA)         CB         部expectation of CUHK (LSA)         CB           Animation & Comic         Nano - NA Band Society         BC         The Japanese Cuture Society         C         Bed args and society         Bed args and society         Bed args and society         Bed args and society         C         Bed args and society         CF         C           Christian International         Arg         Outdoor Activity Society         Bed Cuture Society         CF         CG         UC Math           Internet and society         AI         ReadWhite         Bed The Wine Society of Psychology         Ithe Society of Psychology         Ite angineering boys club         Ite angineering boys club           Internet and society         AI         ReadWhite         Bed The Wine Society of CI         Rock Climbing Club         Ite Math Society of CI         Rock Climbing Club         Ite Math Society of CI         Rock Climbing Club         Ite Math Society of CI         Rock Clim   | A  | Air Cadata                | AA   | Morring Dunning Club      | BA  | Club<br>The International Student                   | CA         | <b>扩工的止合 114 011</b>   |
| D         Animation & Comic         AC         Nano - NA Band Society         Do         The Japanese Culture Society         CC         聯合書院專書辯論條           C         Society         AC         New Asia Drama Club         BC         The Mahjong Study Society         CD         聯合書院專書解論條           Astronomy Club, SU,<br>CUHK         AE         New Asia Drama Club         BC         The Mahjong Study Society         CD         聯合書院專書標書會           CUHK         AE         New Asia Drama Club         BC         The Mathyong Study Society         CD         Wex Asia Drama Club         The Mathyong Study Society         CE         #Jatificial Hitt           C         Curkers         AE         New Asia Kung Fu Society         The Society Of CLUB         The Society Of Psychology         E         E engineering boys club           C         Christian International         Phoenix Water Polo Club         BI         The Marinal Art Society Of CLUB         E engineering boys club         E engineering boys club           I         Chung Chi Drama Club         AI         Rock Climbing Club         BI         The Marinal Art Society Of CLUB         E engineering boys club         Central Asian Association           J         Curkers International         AL         Rock Climbing Club         BI         The Maring Club         Club Artific   | в  | All Cadets                | ΔB   | Monning Running Club      | BB  | Association of CUHK (ISA)                           | CB         | 新亞学生曾 NASU   |
| C         Society         AC         Not of Data Society         BC         Database Cutues Oction         CC         都et als dy-anymines           D         Acthery Club         AD         New Asia Drama Club         BD         The Malying Study Society         CD         #de alsky=de spesse           Astronomy Club, SU,         AE         New Asia Drama Club         BE         The Meterological Society         CE         #de alsky=de spesse           Campus YMCA of CUHK         AE         New Asia Kang Fu Society         The New-Century         Admagement         #de alsky=de spesse         CG           Chinese University         AF         Outdoor Activity Society         G         CG         Cinematography Society         CG         G           Chinese Society         AH         Phoenix Water Polo Club         BH         The Wine Society         CI         The Computer Science Society           Cosmopolitan Society         AH         Read White         B1         The Wine Society         CI         The Computer Science Society           CUG Grassroots Concern         A         Rock Climbing Club         Three Heart Club         C         Central Asian Association           CUHK Bridge Club         AL         Rowing Club y         BL         United College Band Society         CL <t< td=""><td>Б</td><td>Animation &amp; Comic</td><td>AD</td><td>Nano - NA Band Society</td><td>DD</td><td>The Japanese Culture Society</td><td>CD</td><td>聯合書院園語辯論隊</td></t<>  | Б  | Animation & Comic         | AD   | Nano - NA Band Society    | DD  | The Japanese Culture Society                        | CD         | 聯合書院園語辯論隊  |
| D         Archery Club         AD         New Asia Drama Club         BD         The Mahjong Study Society         CD         聯合書院学生會幹事會           Astronomy Club, SU,<br>CUHK         AE         New Asia Drama Club         BT         The Meteorological Society of<br>CUHK         音通话话刷社团           CuHK         AE         New Asia Drama Club         BT         The Meteorological Society of<br>CUHK         The New -Century         数型学系系會           F         AF         New Asia Stung Fu Society         The New -Century         Administration & Management<br>BF         Elite Society CF         CF           Christian International<br>H Interchange Society         AH         Phoenix Water Polo Club         The Sback College         CH         Read/White         BI         The Wine Society         CI         The Computer Science Society           J         AJ         Read/White         BI         The Wine Society         CI         Rotaract Club of New Asia           CU Grassroots Concern         Rotaract Club of Chung         The Chang Chi Dragon Boat Club         AL         Rowing Club y         BL         United College Band Society         CUHK Bradge Club         AL         Rowing Club y         BL         United College Band Society         CUHK Student Union         SCM Old Ghost         Youth Literary Awards         CHTA Sia Association         CUHK Kong Club  | С  | Society                   | AC   | Italio Itit Baild Society | BC  | The supariese Culture Society                       | CC         | 柳百首风亏而刑刑例  |
| Astronomy Club, SU,<br>E         Astronomy Club, SU,<br>Campus YMCA of CUHK         New Asia Drama Club<br>BE         The Meteorological Society of<br>CuHM control of CUHK         管通话语剧社团           Campus YMCA of CUHK<br>F         AF         New Asia Kung Fu Society         The New-Century<br>Administration & Management<br>Elite Society         The Shaw College         W         W           Christian International<br>Interchange Society         AF         Outdoor Activity Society         BT         The Society of Psychology         E engineering boys club           Interchange Society         AH         Phoenix Water Polo Club         BI         The Wine Society         CI         The Computer Science Society           Cosmopolitan Society         AH         ReadWhite         BI         The Wine Society         CI         The Computer Science Society           CUG Grassroots Concern         AK         Chi College         BK         United College Choir         CI MK Bridge Club         CHK Bridge Club         AL         Rowing Club y         BI         United College Choir         CH KB Bridge Club         CHK Chrong Chi         SL Ho Ving Tsu Society         CH         CHK Bridge Club         CHK Bridge Club         CHK Bridge Club <td>D</td> <td>Archery Club</td> <td>AD</td> <td>New Asia Drama Club</td> <td>BD</td> <td>The Mahjong Study Society</td> <td>CD</td> <td>聯合書院學生會幹事會</td>   | D  | Archery Club              | AD   | New Asia Drama Club       | BD  | The Mahjong Study Society                           | CD         | 聯合書院學生會幹事會   |
| E     CUHK     AE     BE     CUHK     CE       Campus YMCA of CUHK     New Asia Kung Fu Society     The New-Century<br>Administration & Management<br>Ellie Society     The New-Century<br>Administration & Management<br>Ellie Society     The Shaw College     WC Math       G     Christian International     Phoenix Water Polo Club     BG     The Shaw College     CF     UC Math       Christian International     Phoenix Water Polo Club     BH     Promotion     CH     Ell engineering boys club       I     Chung Christian International     Phoenix Water Polo Club     BH     Promotion     CH       I     Chung Christian International     Phoenix Water Polo Club     BI     The Marial Art Society     CI     The Computer Science Society       I     Chung Christian Society     AJ     Rock Climbing Club     BJ     The Marial Art Society of     CR     Central Asian Association       CU Grassroots Concern     Rotaract Club of Chung     The Varial Art Society     CL     State Act Naise Association     Christian Association       CUHK Kridge Club     AL     Rowing Club     BI     United College Choir     CL     State Act Naise Association       N     CUHK Kridge Club     AN     Sailing Clun     BN     Youth Empact     CM       N     CUHK Kridge Club     AN     Sailing Clun     B  |    | Astronomy Club, SU,       |      | New Asia Drama Club       |     | The Meteorological Society of                       |            | 普通话话剧社团  |
| Campus YMCA of CUHK         New Asia Kung Fu Society         The New-Century<br>Administration & Management         數學系系會           F         AF         BF         Elite Society         CF           Chinese University         Outdoor Activity Society         BG         Cineacy and Society         CG           Christian International         Phoenix Water Polo Club         BG         Cineacy and Society         CI         The Computer Science Society           I         Interchange Society         AI         ReadWhite         BI         The Martial Art Society OF         College         College           J         Cosmopolitan Society         AI         ReadWhite         BI         The Martial Art Society OF         College         ReadWhite           Group         AI         ReadClub of Chung         Three Heart Club         CL         Matarast Club of New Asia           Group         AI         Rowing Club y         BL         United College Band Society         CL         新亞天文           M         CUHK Bridge Club         AL         Rowing Club y         BA         Culter College         CH           VUHK Chang Chi         S.H. Ho Ving Tsun Society         Matarast Society         CL         新亞大文           M         Photography Society         AM         Sal   | Е  | CUHK                      | AE   |                           | BE  | СИНК  | CE         |  |
| F         AF         BF         Ethe Society         CF           Chinese University         Outdoor Activity Society         BG         Encentsociety         CF           Christian International         Phoenix Water Polo Club         The Society of Psychology         IE engineering boys club           Interchange Society         AH         Phoenix Water Polo Club         The Society of Psychology         IE engineering boys club           Chung Chi Drama Club         AI         ReadWhite         BI         The Wine Society of Club         Rotaract Club of New Asia           J         Cuu Grassroots Concern         Rotaract Club of Chung         Three Heart Club         Cuttral Asian Association           K         Group         AK         Chi Colege         BK         Cuttral Asian Association           CUHK Schage Club         AI         Rotaract Club of Chung         Three Heart Club         CUHK Boardgame Society           K         Group         AK         Chi Colege         BK         CutHK Colege Choir         CUHK Boardgame Society           V         Photography Society         AM         Saling Club         BN         Youth Literary Awards         P#2x2x9           CUHK Chung Chi         AN         Saling Club         BN         Youth Literary Awards         CP         #2   |    | Campus YMCA of CUHK       |      | New Asia Kung Fu Society  |     | The New-Century                                     |            | 數學系系會  |
| F         AF         BF         Elite Society         CF           G         Student Press         AG         Outdoor Activity Society         The Shaw College         UC Math           G         Student Press         AG         Phoenix Water Polo Club         BG         Cinematography Society         CG           H         Interchange Society         AH         ReadWhite         BI         The Wine Society         CH         Rotaract Club of New Asia           J         Cosmopolitan Society         AJ         Roka Climbing Club         BJ         Chung Chi Jorama Club         AI         ReadWhite         BI         The Wine Society         CI         The Computer Science Society           J         Curg Grastroots Concern         AJ         Rotaract Club of Chung         Three Heart Club         Cut K         Caraat Asian Association           CUHK Bridge Club         AL         Rowing Club y         BL         United College Band Society         CL KH Boardgame Society           M         Photography Society         AM         Saliling Clun         BN         Youth Literary Awards         CH # \$\varsiclus + \$\varsiclus  |    |                           |      |                           |     | Administration & Management                         |            |  |
| Chinese University         Outdor Activity Society         The Shaw College         UC Math           G         Student Press         AG         Proenix Water Polo Club         The Shaw College         CG         Ite engineering boys club           H         Interchang Society         AH         Proenix Water Polo Club         The Society of Psychology         CH         Ite engineering boys club           Chung Chi Drama Club         AI         ReadWhite         BI         The Wine Society of Club         Charact Club of New Asia           J         AJ         Rock Climbing Club of Chung         Three Heart Club         College         College           K         Group         AK         Roving Club y         BL         United College Band Society         CL         新型式文           L         CUHK Bridge Club         AL         Rowing Club y         BL         United College Choir         CUHK Boardgame Society           N         CUHK Dragon Boad Club         AN         Sailing Clun         BN         Youth Literary Awards         Preg x L Tä           CUHK Student Union         SCM Old Ghost         Youth Literary Awards         CP         Maziert/L Tä/säk           Q         Team AQ         Shaw Band         BP         Prick 2-4 Påt         CP         Maziert/L Tä/säk </td <td>F</td> <td></td> <td>AF</td> <td></td> <td>BF</td> <td>Elite Society</td> <td>CF</td> <td></td>   | F  |                           | AF   |                           | BF  | Elite Society                                       | CF         |  |
| G     Student Press     AC     Phoenix Water Polo Club     Phoenix Water Polo Club     He Society of Psychology     E engineering boys club       H     Interchange Society     AH     Phoenix Water Polo Club     BH     Promotion     CH       I     Chung Chi Drama Club     AI     ReadWhite     BI     The Wine Society     CI     The Computer Science Society       J     Cosmopolitan Society     AJ     Rock Climbing Club     BI     Three Martial Art Society of Cluge     College     College       K     Group     AK     Rotaract Club of Chung     Three Heart Club     Central Asian Association       K     Group     AK     Rotaract Club of Chung     Three Heart Club     CL     Cult K Boardgame Society       M     Potography Society     AM     St.H. Ho Ving Tsun Society     BM     United College Band Society     CL     ME Boardgame Society       M     Potography Society     AM     Sailing Clun     BN     Youth Empact     CN     Ke 4PRQ ±2ch     P#Q±R <sup>1</sup> O     CUHK Dragon Boat Club     AN     Sailing Clun     BN     Youth Empact     CN     ME 4PRQ ±2ch     P#Q±R <sup>1</sup> O     CUHK English Debate     SCM Old Ghost     Youth Literary Awards     P#Q±Q <sup>1</sup> R     P#Q±Q <sup>1</sup> R     Q     R     Custore  | C  | Chinese University        | 10   | Outdoor Activity Society  | DC  | The Shaw College                                    | 00         | UC Math  |
| Christian mernational       Probentx water Prob Club       In exponention       CH         I       Interchange Society       AH       BH       Promotion       CH         I       Chung Chi Drama Club       AI       ReadWhite       BI       The Wine Society       CI       The Computer Science Society         J       Cosmopolitan Society       AJ       Rock Climbing Club       The Martial Art Society of       College   | G  | Student Press             | AG   | Discourse Water Dala Chab | BC  | Cinematography Society                              | CG         | IE an aime anime have also   |
| Interchange Society     An     Bat     Promitorial     Chin     Chin       I     Chung Chi Drama Club     AI     ReadWhite     BI     The Wine Society     CI     The Computer Science Society       I     Chung Chi Drama Club     AJ     Rock Climbing Club     BI     The Marial Art Society of     Rotaract Club of New Asia       J     J     AJ     Rotaract Club of Chung     Three Heart Club     CJ     College       CU Grassroots Concern     Rotaract Club of Chung     Three Heart Club     CL     新亞天文       L     CUHK Bridge Club     AL     Rowing Club y     BL     United College Band Society     CL     新亞天文       CUHK Bradge Doat Club     AM     St.H. Ho Ving Tsun Society     BM     CM     CM     CUHK Boardgame Society       N     CUHK Student Union     SCM Old Ghost     Youth Literary Awards     中华文化节     中华文化节       O     CHK Forus     AP     Shaw Debate Team     P     中大素主學者     CP     独立时代电子索志社       Q     Team     AQ     BR     中大震豪發展台     Calification (YLAA)     CO       R     Custore     AR     Shaw Debate Team     P     P     Association (YLAA)     CO       R     Custore     AR     Shaw College Drama Club     BR     P  | TT | International             | ATT  | Phoenix water Polo Club   | DII | Promotion   | CII        | iE engineering boys club   |
| 1       Chang Clin Data Cub       Al       Read White       Bl       The Martial Art Society of Chang Chib BJ       Chang Chi Data Cub of New Asia         2       CU Grassroots Concern       AJ       Rock Climbing Club       BJ       The Martial Art Society of Chang Chi College       College       College       College         1       CU Grassroots Concern       AK       Rotaract Club of Chung       Three Heart Club       C       Rotaract Club of New Asia         1       CUHK Shidge Club       AL       Rowing Club y       BL       United College Band Society       CL       新亞天文         CUHK Chung Chi       AL       Rowing Club y       BL       United College Choir       CUHK Bridge Club       CUHK Bridge Club       CUHK Student Union       Sch Old Ghost       Youth Empact       CN       Rch Sch Weith Sch       CO         0       CUHK Chorus       AP       Shaw Band       BP       中大大工學社       CP       独立时代电子杂志社         0       CUHK Chorus       AP       Shaw Debate Team       P       中大国是學會       CQ       Statistics         0       Custore       AR       Shaw College Drama Club       BR       中大農業發展組       CR       Stategic Investment Society         1       Society of Magic       Society of Magic       Stategic Marketi   | п  | Chung Chi Drama Club      |      | <b>DoodWhite</b>          |     | The Wine Society                                    | СІ         | The Computer Science Society   |
| J     Cosmbonian Society     A     Kock Chinibing Child     Bit     Chung Chi College     CJ     Rodinate Child of Washa       K     Group     AK     Rotaract Club of Chung     Three Heart Club     College     College       L     CUHK Shidge Club     AL     Rowing Club y     BL     United College Band Society     CL     新亞天文       CUHK Chung Chi     S.H. Ho Ving Tsun Society     BM     United College Choir     CUHK Boardgame Society       M     Photography Society     AM     Sailing Clun     BN     Youth Empact     CN     联合书院学生会内地生联合会       O     CUHK Student Union     AO     SCM Old Ghost     Youth Literary Awards     CO     中华文化节       P     CUHK Chorus     AP     Shaw Band     BP     中大大型社     CP     独立时代电子杂志社       Q     Team     AQ     Society of Magic     BR     中大國是學會     CQ     Statistics       R     Custore     AR     Shaw College Drama Club     BR     中式農業發展組     CR     Statistics       S     Society of Magic     BT     HTR # Bait Public Plane     CI     Mathematics Society, CUSU       S     Softball Club     H     HTR # Bait Public Plane     CI     Mathematics Society, CUSU       S     Game and Chess Society     AS <t< td=""><td>1</td><td>Cosmopolitan Society</td><td>AI</td><td>Rock Climbing Club</td><td>DI</td><td>The Martial Art Society of</td><td>CI</td><td>Rotaract Club of New Asia</td></t<>  | 1  | Cosmopolitan Society      | AI   | Rock Climbing Club        | DI  | The Martial Art Society of                          | CI         | Rotaract Club of New Asia  |
| CU Grassroots Concern<br>K Group     Name     Rotaract Club of Chung<br>Chi College     Difference     Difference     Central Asian Association       L     CUHK Bridge Club     AL     Rowing Club y     BL     United College Band Society     CL     新亞天文       L     CUHK Chung Chi     AL     Rowing Club y     BL     United College Choir     CUHK Bardgame Society       M     Photography Society     AM     Saling Clun     BM     CUHK Chung Chi     CUHK Student Union     CUHK Student Union     SCM Old Ghost     Youth Enpact     CN     The 4 PER 2 Ap Au ± TK + 2 A ±  | T  | Cosmopolitan Society      | AI   | Rock Chinoing Club        | BI  | Chung Chi College                                   | CI         | College  |
| K       Group       AK       Chi College       BK       Inter Function       CRC       Statistics         L       CUHK Bridge Club       AL       Rowing Club y       BL       United College Band Society       CL       新亞天文         CUHK Chung Chi       S.H. Ho Ving Tsun Society       M       United College Choir       CUHK Bridge Club       CUHK Bridge Club       AN       Saling Clun       BN       Youth Empact       CN       Text Particle Choir       CUHK Bridge Club       CUHK Student Union       SCM Old Ghost       Youth Literary Awards       P#22K节       P#22K节         O       AO       Fellowship SCN       BO       Association (YLAA)       CO       P       ##22K节         Q       Team       AQ       Shaw Band       BP       中大大農業發展組       CP       独立时代电子杂志社         Q       Team       AQ       Society of Magic       Hage Page       Statistics       Statistics         Q       Team       AQ       Society of Magic       BS       College Student Union       CS       Statistics         S       Custore       AR       Shaw College Drama Club       BR       #T       #T       #T       BS       College Student Union       CS         T       Students       AT   |    | CU Grassroots Concern     | 115  | Rotaract Club of Chung    | 55  | Three Heart Club                                    | 0.5        | Central Asian Association  |
| L     CUHK Bridge Club     AL     Rowing Club y     BL     United College Band Society     CL     新亞天文       CUHK Chung Chi     S.H. Ho Ving Tsun Society     AM     BM     United College Choir     CM     CUHK Boardgame Society       M     Photography Society     AM     Sailing Clun     BN     Youth Empact     CN     联合书院学生会内地生联合会       O     CUHK Student Union     AO     SCM Old Ghost     Youth Literary Awards     中生文化节     中生文化节       Q     CUHK Chorus     AP     Shaw Band     BP     中大大國是學會     CQ     Statistics       Q     Team     AQ     Society of Magic     BR     中大國是學會     CQ     Statistics       S     Doujin Culture Society     AS     Society of Magic     BT     Hagi Rathematics Society, CUSU     Society, CUSU       S     Society of Magic     Society of Magic     BT     Hagi Rathematics Society, CUSU     Mathematics Society, CUSU       S     Society     AU     Society of     BT     Hagi Rathematics Society, CUSU     Magi Rathematics Society, CUSU       Game and Chess Society     AU     Society of     BU     The Band Society of     Athematics Are Cubu     AW     The Chinas Trade Society     BW     Athematics Are Cubu     AW     The Chinese Martial Arts     Society of United College </td <td>К</td> <td>Group</td> <td>AK</td> <td>Chi College</td> <td>вк</td> <td></td> <td>СК</td> <td></td>   | К  | Group                     | AK   | Chi College               | вк  |   | СК         |  |
| CUHK Chung Chi<br>Photography Society         AM         S.H. Ho Ving Tsun Society<br>AM         United College Choir         CUHK Boardgame Society<br>CM           N         CUHK Dragon Boat Club         AN         Sailing Clun         BN         Youth Empact         CM         W           CUHK Student Union         AO         ScM Old Ghost<br>Fellowship SCN         BN         Youth Literary Awards<br>Association (YLAA)         CO         #4文 U#           P         CUHK Chorus         AP         Shaw Band         BP         #7.km 2.4m         CP         独立时代电子杂志社           Q         Team         AQ         Shaw Debate Team         #7.km 2.4m         CP         独立时代电子杂志社           Q         Team         AQ         Society of Magic         mtxlistics         CQ         Q           R         Custore         AR         Shaw College Drama Club         BR         #7.km 2% 8 m 2 m 2 m 2 m 2 m 2 m 2 m 2 m 2 m 2 m   | L  | CUHK Bridge Club          | AL   | Rowing Club y             | BL  | United College Band Society                         | CL         | 新亞天文   |
| MPhotography SocietyAMAMBMCCMCMCMNCUHK Dragon Boat ClubANSailing ClunBNYouth EmpactCN联合书院学生会内地生联合会CUHK Student UnionAOFellowship SCNBOAssociation (YLAA)CO中华文化节OCUHK ChorusAPShaw BandBP中大本土學社CP独立时代电子杂志社CUHK English DebateAQShaw Debate Team中大國是學會CQStatisticsQTeamAQBQCQStatisticsBoujin Culture SocietySociety of MagicGa faishing College Student UnionCSMathematics Society, CUSUSASSoftball ClubBTCollege Student UnionCSWathematics Society, CUSUGame and Chess SocietyAUStrategic Marketing<br>Society of MagAPAPAPAPVAUChung Chi CollegeBVCUHK TSACUAPVAUStrategic Marketing<br>Society of<br>AUCUHK TSAAPAPAPVAUThe Band Society of<br>Society of Unite CollegeATAPAPAPVMandarin Drama Team of<br>YThe Chinase Martial Arts<br>Society Of United CollegeBXK基學生會 CCSU<br>Kurt SocietyAPAPModel United NationsAXSociety Of United CollegeBXK基學生會 CCSU<br>Kurt SocietyAPAPModel United NationsThe Chinese Martial Arts<br>Society Of United CollegeBXK基學生會 CCSU<br>Kurt SocietyAPAP<  |    | CUHK Chung Chi            |      | S.H. Ho Ving Tsun Society |     | United College Choir                                |            | CUHK Boardgame Society   |
| N       CUHK Dragon Boat Club       AN       Sailing Clun       BN       Youth Empact       CN       联合书院学生会内地生联合会         CUHK Student Union       AO       SCM Old Ghost<br>Fellowship SCN       BO       Youth Literary Awards<br>Association (YLAA)       P       中华文化节         P       CUHK Chorus       AP       Shaw Band       BP       中大本土學社       CP       独立时代电子杂志社         Q       Team       AQ       Shaw Debate Team       P       中大農業發展組       CR       Statistics         Q       Team       AQ       Society of Magic       P       中大農業發展組       CR       Strategic Investment Society         Doujin Culture Society       AS       Society of Magic       BR       中大農業發展組       CR       Strategic Investment Society         S       AS       Society of Magic       BS       College Student Union       CS       CS         Fellowship of Evangelical       AT       Society of       BT       P       Ref 港院学生會 WSSU       Mathematics Society, CUSU         U       AU       Society       BU       BU       P       Ref 港市文大学台灣學生會 CSU       Mathematics Society, CUSU         U       AU       Society of Chung Chi College       BV       CUHK TSA       CV       CU       Mathematics Society, CUHK <td>Μ</td> <td>Photography Society</td> <td>AM</td> <td></td> <td>BM</td> <td>e</td> <td>CM</td> <td>2 2</td>  | Μ  | Photography Society       | AM   |                           | BM  | e   | CM         | 2 2  |
| CUHK Student Union     SCM Old Ghost<br>Fellowship SCN     Youth Literary Awards<br>Association (YLAA)     中华文化节       P     CUHK Chorus     AP     Shaw Band     BP     中大本土學社     CP     独立时代电子杂志社       CUHK English Debate<br>Team     AQ     Shaw Debate Team     中大國是學會     CQ     CQ       R     Custore     AR     Shaw College Drama Club     BR     中大農業發展組     CR     Strategic Investment Society       S     AS     Society of Magic     Garage and Chess Society     Society of Magic     Garage and Chess Society, CUSU     Mathematics Society, CUSU       T     Students     AT     Softball Club     BT     College Student Union     CS       V     AU     Society     BU     Prespect and Chess Society, CUSU     CUHK TSA     Ad       Judo Club 素道部     AV     The Band Society of<br>Chung Chi College     BV     After 文大學台灣學生會     Adter and Chess       V     AU     Society     BU     Atter trade Society     Atter trade S   | Ν  | CUHK Dragon Boat Club     | AN   | Sailing Clun              | BN  | Youth Empact  | CN         | 联合书院学生会内地生联合会  |
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| P         CUHK Chorus         AP         Shaw Band         BP         中大本土學社         CP         独立时代电子杂志社           Q         Team         AQ         Shaw Debate Team         BQ         中大國是學會         Statistics           R         Custore         AR         Shaw College Drama Club         BR         中大農業發展組         CR         Strategic Investment Society           Doujin Culture Society         Society of Magic         HT         HT         Kathematics Society         Mathematics Society, CUSU           S         AS         Society of Magic         HT         HT         Mathematics Society, CUSU         Mathematics Society, CUSU           S         AS         Society of Magic         HT         HT         HT         Mathematics Society, CUSU           S         Society of Magic         BT         HT         Mathematics Society, CUSU         Mathematics Society, CUSU           T         Students         AT         Softball Club         HT         HT         Mathematics Society         Mt           U         Game and Chess Society         AT         Strategic Marketing         The Band Society of         Atten x         Mt         Mathematics Society         Mt           V         Judo Club 柔道部         AV         The Ch  | 0  |                           | AO   | Fellowship SCN            | BO  | Association (YLAA)                                  | CO         |  |
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| R       Custore       AR       Shaw College Drama Club       BR       中大農業發展組       CR       Strategic Investment Society         Doujin Culture Society       Society of Magic       街宜孫書院學生會 Wu Yee Sun<br>College Student Union       Mathematics Society, CUSU         S       AS       Softball Club       BS       College Student Union       CS         Fellowship of Evangelical<br>T       AT       Softball Club       HT       HT       BT       T         Game and Chess Society       AU       Strategic Marketing<br>Society       BU       和聲書院學生會 WSSU       和聲 choir       TU         Judo Club 柔道部       AU       Strategic Marketing<br>Society       BU       The Band Society of<br>Chung Chi College       香港中文大學台灣學生會       和甜         V       AV       The China Trade Society       BW       香港中文大學敬文書院學生會       AT       TH         W       Karate Club       AW       The Chinase Martial Arts<br>Society of United College       BX       Ex基學生會 CCSU       和聲扶青         X       CUHK       AX       Society of United College       BX       Email Elipse fee The Student<br>Union of Morningside College       CY       AT         Mandarin Drama Team of<br>Y       The Chinese Medicine<br>Y       BY       The Chinese Medicine<br>BY       BY       Union of Morningside College       CY  | Q  | Team                      | AQ   |                           | BQ  |   | CQ         |  |
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| Game and Chess Society     Strategic Marketing<br>Society     和聲書院學生會 WSSU     和聲 choir       U     AU     Society     BU     CU     CU       Judo Club 柔道部     The Band Society of<br>AV     The Band Society of<br>Chung Chi College     BV     CHK TSA     CV       W     Karate Club     AW     The China Trade Society     BW     香港中文大學敬文書院學生會<br>CCW     CW     Korea Cultural Society       Mandarin Debate Team of<br>X     The Chinese Martial Arts<br>CUHK     Society of United College     BX     CX     和聲扶青       Mandarin Drama Team of<br>Y     The Chinese Medicine<br>Promotion Society     The Chinese Medicine<br>BY     農興書院學生會 The Student<br>Union of Morningside College     The Aria Society     The Golden Z Club       Z     Club     AZ     The Golden Z Club     BZ     New Asia Chinese Music  | Т  | Students                  | AT   |                           | BT  | 10-四  | СТ         | To the second se |
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| I     Diff     Diff     Diff     Diff     Construction of Moningside Concect     Ci     建学院院曾       Model United Nations     The Golden Z Club        善者衡學生會幹事會     New Asia Chinese Music       Z     Club     AZ     BZ     CZ     Society  | v  | CUHK                      | AV   | Promotion Society         | DV  | 以六百九子王音 The Student<br>Union of Morningside College | CV         | 田間下入八子卿口百匹工问目  |
| R7     Club A7     A7     Club A7 | 1  | Model United Nations      | AI   | The Golden 7 Club         | DĬ  | 善衡學生命於軍會  | CI         | 生子 防防盲 New Asia Chinesa Musia  |
|   | Z  | Club                      | AZ.  |                           | BZ  | <b>音因子工冒针</b> 爭冒                                    | CZ         | Society  |

Let us study a few figures using R:

1. Loading and configuring two-mode data

```
# This loads the igraph package
install.packages('igraph')
library(igraph)
# Use the following affiliation csv file "affiliation.csv"
# choose an adjacency matrix from a .csv file
dat=read.csv(file.choose(),header=TRUE,row.names=1,check.names=FALSE)
# coerces the data set into a matrix
m=as.matrix(dat)
# this will create an 'igraph object'
g=graph.adjacency(m,mode="undirected",weighted=NULL)
```

2. Use the bipartite.mapping() R function

```
bipartite.mapping(g)
#Add the "type" attribute to the network.
V(g)$type <- bipartite mapping(g)$type</pre>
```

3. Plotting an affiliation (or a bipartite) network

```
V(g)$color <- ifelse(V(g)$type, "lightblue", "salmon")
V(g)$shape <- ifelse(V(g)$type, "circle", "square")
E(g)$color <- "lightgray"
V(g)$label.color <- "black"
V(g)$label.cex <- 1
V(g)$frame.color <- "gray"
V(g)$size <- 8
plot(g, layout = layout with graphopt)
```

This figure shows that students and students' organizations cluster together at the center, while no connected nodes between students and students' organizations are located in the periphery of the figure.



Alternatively, we can use the affiliation-specific (or bipartite-specific) layout.

plot(g, layout=layout.bipartite, vertex.size=7, vertex.label.cex=0.6)

Please notice that the tail of the set of red nodes means a set of disconnected nodes among students and students' organizations.

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4. Calculating centrality values:

```
types <- V(g)$type
deg <- degree(g)
bet <- betweenness(g)
clos <- closeness(g)
eig <- eigen_centrality(g)$vector
cent_df <- data.frame(types, deg, bet, clos, eig)
cent df[order(cent df$type, decreasing = TRUE),]
```

5. Sizing Vertices by Centrality:

```
V(g)$size <- degree(g)
V(g)$label.cex <- degree(g) * 0.2
plot(g, layout = layout with graphopt)</pre>
```

Can you find a few large nodes, like 64, E and U? What does the size of the node mean?



Thank you very much,

UGEC2532 Students & Jeff WONG