|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No | Picture | Cycle ที่เพิ่ม | จำนวนโหนด | จำนวนกิ่ง | ค่า Difference Density |
| 1 |  | [23,8,30] | 3 | 3 | 1 |
| 2 |  | [21,8,30] | 4 | 5 | 0.83 |
| 3 |  | [1,8,30] | 5 | 7 | 0.7 |
| 4 |  | [21,29,8] | 6 | 9 | 0.6 |
| 5 |  | [1,29,8] | 6 | 10 | 0.67 |
| 6 |  | [23,29,8] | 6 | 11 | 0.73 |
| 7 |  | [23,1,30] | 6 | 12 | 0.8 |
| 8 |  | [22,23,30] | 7 | 14 | 0.67 |
| 9 |  | [49,8,30] | 8 | 16 | 0.57 |
| 10 |  | [50,8,30] | 9 | 18 | 0.5 |
| 11 |  | [49,29,8] | 9 | 19 | 0.53 |
| 12 |  | [21,49,30] | 9 | 20 | 0.56 |
| 13 |  | <type 'list'>: [u'22', u'49', u'30'] | 9 | 21 | 0.58 |
| 14 |  | <type 'list'>: [u'23', u'49', u'30'] | 9 | 22 | 0.61 |
| 15 |  | <type 'list'>: [u'1', u'49', u'30'] | 9 | 23 | 0.64 |
| 16 |  | <type 'list'>: [u'22', u'7', u'30'] | 10 | 25 | 0.56 |
| 17 |  | <type 'list'>: [u'50', u'1', u'30'] | 10 | 26 | 0.58 |
| 18 |  | <type 'list'>: [u'35', u'1', u'30'] | 11 | 28 | 0.51 |
| 19 |  | <type 'list'>: [u'21', u'50', u'30'] | 11 | 29 | 0.53 |
|  | 193 |  |  |  |  |
| 1 |  | <type 'list'>: [u'23', u'8', u'30'] | 3 | 3 | 1 |
| 2 |  | <type 'list'>: [u'21', u'8', u'30'] | 4 | 5 | 0.83 |
| 3 |  | <type 'list'>: [u'1', u'8', u'30'] | 5 | 7 | 0.7 |
| 4 |  | <type 'list'>: [u'21', u'29', u'8'] | 6 | 9 | 0.6 |
| 5 |  | <type 'list'>: [u'1', u'29', u'8'] | 6 | 10 | 0.67 |
| 6 |  | <type 'list'>: [u'31', u'29', u'8'] | 7 | 12 | 0.57 |
| 7 |  | <type 'list'>: [u'23', u'29', u'8'] | 7 | 13 | 0.62 |
| 8 |  | <type 'list'>: [u'23', u'31', u'8'] | 7 | 14 | 0.67 |
| 9 |  | <type 'list'>: [u'23', u'1', u'30'] | 7 | 15 | 0.71 |
| 10 |  | <type 'list'>: [u'22', u'23', u'30'] | 8 | 17 | 0.61 |
| 11 |  | <type 'list'>: [u'49', u'8', u'30'] | 9 | 19 | 0.53 |
| 12 |  | <type 'list'>: [u'49', u'29', u'8'] | 9 | 20 | 0.56 |
| 13 |  | <type 'list'>: [u'49', u'31', u'8'] | 9 | 21 | 0.58 |
| 14 |  | <type 'list'>: [u'21', u'18', u'8'] | 10 | 23 | 0.51 |
| 15 |  | <type 'list'>: [u'21', u'49', u'30'] | 10 | 24 | 0.53 |
| 16 |  | <type 'list'>: [u'22', u'49', u'30'] | 10 | 25 | 0.56 |
| 17 |  | <type 'list'>: [u'23', u'49', u'30'] | 10 | 26 | 0.58 |
| 18 |  | <type 'list'>: [u'1', u'49', u'30'] | 10 | 27 | 0.6 |
| 19 |  | <type 'list'>: [u'22', u'7', u'30'] | 11 | 29 | 0.53 |
|  | หากิ่งเพิ่ม X Bad |  |  |  |  |
| 1 |  | <type 'list'>: [u'23', u'8', u'30'] | 3 | 3 | 1 |
| 2 |  | <type 'list'>: [u'21', u'8', u'30'] | 4 | 5 | 0.83 |
| 3 |  | <type 'list'>: [u'49', u'8', u'30'] | 5 | 7 | 0.7 |
| 4 |  | <type 'list'>: [u'1', u'8', u'30'] | 6 | 9 | 0.6 |
| 5 |  | <type 'list'>: [u'7', u'8', u'30'] | 7 | 11 | 0.52 |
| 6 |  | <type 'list'>: [u'21', u'49', u'30'] | 7 | 12 | 0.57 |
| 7 |  | <type 'list'>: [u'22', u'49', u'30'] | 8 | 14 | 0.5 |
| 8 |  | <type 'list'>: [u'23', u'49', u'30'] | 8 | 15 | 0.54 |
| 9 |  | <type 'list'>: [u'1', u'49', u'30'] | 8 | 16 | 0.57 |
| 10 |  | <type 'list'>: [u'7', u'49', u'30'] | 8 | 17 | 0.61 |
| 11 |  | <type 'list'>: [u'22', u'7', u'30'] | 8 | 18 | 0.64 |
| 12 |  | <type 'list'>: [u'23', u'1', u'30'] | 8 | 19 | 0.68 |
| 13 |  | <type 'list'>: [u'22', u'23', u'30'] | 8 | 20 | 0.71 |
|  | TRY |  |  |  |  |
| 1 |  | <type 'list'>: [u'23', u'8', u'30'] | 3 | 3 | 1 |
| 2 |  | <type 'list'>: [u'21', u'8', u'30'] | 4 | 5 | 0.83 |
| 3 |  | <type 'list'>: [u'1', u'8', u'30'] | 5 | 7 | 0.7 |
| 4 |  | <type 'list'>: [u'21', u'29', u'8'] | 6 | 9 | 0.6 |
| 5 |  | <type 'list'>: [u'1', u'29', u'8'] | 6 | 10 | 0.67 |
| 6 |  | <type 'list'>: [u'31', u'29', u'8'] | 7 | 12 | 0.57 |
| 7 |  | <type 'list'>: [u'23', u'29', u'8'] | 7 | 13 | 0.62 |
| 8 |  | <type 'list'>: [u'23', u'31', u'8'] | 7 | 14 | 0.67 |
| 9 |  | <type 'list'>: [u'23', u'1', u'30'] | 7 | 15 | 0.71 |
| 10 |  | <type 'list'>: [u'22', u'23', u'30'] | 8 | 17 | 0.61 |
| 11 |  | <type 'list'>: [u'49', u'8', u'30'] | 9 | 19 | 0.53 |
| 12 |  | <type 'list'>: [u'49', u'29', u'8'] | 9 | 20 | 0.56 |
| 13 |  | <type 'list'>: [u'49', u'31', u'8'] | 9 | 21 | 0.58 |
| 14 |  | <type 'list'>: [u'21', u'18', u'8'] | 10 | 23 | 0.51 |
| 15 |  | <type 'list'>: [u'21', u'49', u'30'] | 10 | 24 | 0.53 |
| 16 |  | <type 'list'>: [u'22', u'49', u'30'] | 10 | 25 | 0.56 |
| 17 |  | <type 'list'>: [u'23', u'49', u'30'] | 10 | 26 | 0.58 |
| 18 |  | <type 'list'>: [u'1', u'49', u'30'] | 10 | 27 | 0.6 |
| 19 |  | <type 'list'>: [u'22', u'7', u'30'] | 11 | 29 | 0.53 |
| 20 |  | <type 'list'>: [u'7', u'8', u'30'] | 11 | 30 | 0.55 |
| 21 |  | <type 'list'>: [u'7', u'29', u'8'] | 11 | 31 | 0.56 |
| 22 |  | <type 'list'>: [u'18', u'29', u'8'] | 11 | 32 | 0.58 |
| 23 |  | <type 'list'>: [u'49', u'18', u'8'] | 11 | 33 | 0.6 |
| 24 |  | <type 'list'>: [u'7', u'49', u'30'] | 11 | 34 | 0.62 |
|  | ต่ออีกรอบที่ 3 |  |  |  |  |
| 25 |  | <type 'list'>: [u'50', u'8', u'30'] | 12 | 36 | 0.55 |
| 26 |  | <type 'list'>: [u'31', u'5', u'8'] | 13 | 39 | 0.5 |
| 27 |  | <type 'list'>: [u'49', u'5', u'8'] | 13 | 40 | 0.51 |
| 28 |  | <type 'list'>: [u'7', u'5', u'8'] | 13 | 41 | 0.53 |
| 29 |  | <type 'list'>: [u'18', u'5', u'8'] | 13 | 42 | 0.54 |
| 30 |  | <type 'list'>: [u'50', u'18', u'8'] | 13 | 43 | 0.55 |
| 31 |  | <type 'list'>: [u'50', u'49', u'30'] | 13 | 44 | 0.56 |
| 32 |  | <type 'list'>: [u'11', u'7', u'30'] | 14 | 46 | 0.51 |
| 33 |  | <type 'list'>: [u'11', u'1', u'30'] | 14 | 47 | 0.52 |
| 34 |  | <type 'list'>: [u'50', u'1', u'30'] | 14 | 48 | 0.53 |
| 35 |  | <type 'list'>: [u'21', u'50', u'30'] | 14 | 49 | 0.54 |
|  | รอบที่ 4 |  |  |  |  |
| 36 |  | <type 'list'>: [u'11', u'49', u'30'] | 14 | 50 | 0.55 |
| 37 |  | <type 'list'>: [u'2', u'5', u'8'] |  |  |  |
| 37 |  | <type 'list'>: [u'49', u'2', u'8'] | 15 | 54 | 0.51 |
| 38 |  | <type 'list'>: [u'1', u'2', u'8'] | 15 | 55 | 0.52 |
| 39 |  | <type 'list'>: [u'7', u'2', u'8'] | 15 | 56 | 0.53 |
| 40 |  | <type 'list'>: [u'18', u'2', u'8'] | 15 | 57 | 0.54 |
| 41 |  | <type 'list'>: [u'31', u'2', u'8'] | 15 | 58 | 0.55 |
| 42 |  | <type 'list'>: [u'21', u'45', u'8'] | 16 | 60 | 0.5 |
| 43 |  | <type 'list'>: [u'18', u'45', u'8'] | 16 | 61 | 0.51 |
| 44 |  | <type 'list'>: [u'31', u'45', u'8'] | 16 | 62 | 0.52 |
| 45 |  | <type 'list'>: [u'49', u'45', u'8'] | 16 | 63 | 0.53 |
| 46 |  | <type 'list'>: [u'50', u'45', u'8'] | 16 | 64 | 0.53 |
|  | เริ่มรอบที่ 4 |  |  |  |  |
| 47 |  | <type 'list'>: [u'45', u'2', u'8'] | 16 | 65 | 0.54 |
| 48 |  | <type 'list'>: [u'49', u'34', u'5'] | 17 | 68 | 0.5 |
| 49 |  | <type 'list'>: [u'22', u'34', u'5'] | 17 | 70 | 0.51 |
| 50 | จบ 1 ครัสเตอร์ที่ 0.5 |  |  |  |  |
|  |  | | | | |
|  | เริ่ม ก้อนที่ 2 | 162 Cycle |  |  |  |
| 1 |  | <type 'list'>: [u'26', u'34', u'5'] | 3 | 3 | 1 |
| 2 |  | <type 'list'>: [u'20', u'34', u'5'] | 4 | 5 | 0.83 |
| 3 |  | <type 'list'>: [u'35', u'34', u'5'] | 5 | 7 | 0.7 |
| 4 |  | <type 'list'>: [u'20', u'32', u'34'] | 6 | 9 | 0.6 |
| 5 |  | <type 'list'>: [u'26', u'32', u'34'] | 6 | 10 | 0.67 |
| 6 |  | <type 'list'>: [u'38', u'26', u'5'] | 7 | 12 | 0.57 |
| 7 |  | <type 'list'>: [u'20', u'26', u'5'] | 7 | 13 | 0.62 |
| 8 |  | <type 'list'>: [u'33', u'26', u'5'] | 8 | 15 | 0.54 |
| 9 |  | <type 'list'>: [u'35', u'33', u'5'] | 8 | 16 | 0.57 |
| 10 |  | <type 'list'>: [u'48', u'34', u'5'] | 9 | 18 | 0.5 |
| 11 |  | <type 'list'>: [u'48', u'26', u'5'] | 9 | 19 | 0.53 |
| 12 |  | <type 'list'>: [u'48', u'33', u'5'] | 9 | 20 | 0.56 |
| 13 |  | <type 'list'>: [u'22', u'38', u'5'] | 10 | 23 | 0.51 |
|  | เริ่มก้อนที่ 3 | 149 |  |  |  |
| 1 |  | <type 'list'>: [u'43', u'34', u'5'] | 3 | 3 | 1 |
| 2 |  | <type 'list'>: [u'41', u'34', u'5'] | 4 | 5 | 0.83 |
| 3 |  | <type 'list'>: [u'43', u'6', u'34'] | 5 | 7 | 0.7 |
| 4 |  | <type 'list'>: [u'49', u'6', u'34'] | 6 | 9 | 0.6 |
| 5 |  | <type 'list'>: [u'41', u'6', u'34'] | 6 | 10 | 0.67 |
| 6 |  | <type 'list'>: [u'27', u'43', u'5'] | 7 | 7 | 0.57 |
| 7 |  | <type 'list'>: [u'49', u'43', u'5'] | 7 | 14 | 0.67 |
| 8 |  | <type 'list'>: [u'1', u'6', u'34'] | 8 | 16 | 0.57 |
| 9 |  | <type 'list'>: [u'32', u'6', u'34'] | 9 | 18 | 0.5 |
| 10 |  | <type 'list'>: [u'49', u'32', u'34'] | 9 | 19 | 0.53 |
|  |  | | | | |
|  |  |  | 9 | 19 | 0.53 |
|  | ก้อน 2 ใหม่ |  |  |  |  |
|  | <type 'list'>: [u'26', u'34', u'5', u'26', u'34', u'5', u'20', u'34', u'5', u'35', u'34', u'5', u'20', u'32', u'34', u'26', u'32', u'34', u'38', u'26', u'5', u'20', u'26', u'5', u'33', u'26', u'5', u'35', u'33', u'5'] | | | | |
|  |  | | | | |
|  | <type 'list'>: [u'26', u'34', u'5', u'26', u'34', u'5', u'20', u'34', u'5', u'35', u'34', u'5', u'20', u'32', u'34', u'26', u'32', u'34', u'38', u'26', u'5', u'20', u'26', u'5', u'33', u'26', u'5', u'35', u'33', u'5', u'48', u'34', u'5', u'48', u'26', u'5', u'48', u'33', u'5', u'22', u'38', u'5'] | | | | |
|  |  | | | | |
|  | <type 'list'>: [u'26', u'34', u'5', u'26', u'34', u'5', u'20', u'34', u'5', u'35', u'34', u'5', u'20', u'32', u'34', u'26', u'32', u'34', u'38', u'26', u'5', u'20', u'26', u'5', u'33', u'26', u'5', u'35', u'33', u'5', u'48', u'34', u'5', u'48', u'26', u'5', u'48', u'33', u'5', u'22', u'38', u'5'] | | | | |
|  | <type 'list'>: [u'26', u'34', u'5', u'26', u'34', u'5', u'20', u'34', u'5', u'35', u'34', u'5', u'20', u'32', u'34', u'26', u'32', u'34', u'38', u'26', u'5', u'20', u'26', u'5', u'33', u'26', u'5', u'35', u'33', u'5', u'48', u'34', u'5', u'48', u'26', u'5', u'48', u'33', u'5', u'22', u'38', u'5'] | | | | |
|  |  | 10 | 23 | 0.51 |  |
|  | ก้อนที่ 3 |  |  |  |  |
|  | <type 'list'>: [[u'23', u'8', u'30'], [u'21', u'8', u'30'], [u'1', u'8', u'30'], [u'21', u'29', u'8'], [u'1', u'29', u'8'], [u'31', u'29', u'8'], [u'23', u'29', u'8'], [u'23', u'31', u'8'], [u'23', u'1', u'30'], [u'22', u'23', u'30']] | | | | |
|  | <type 'list'>: [[u'23', u'8', u'30'], [u'21', u'8', u'30'], [u'1', u'8', u'30'], [u'21', u'29', u'8'], [u'1', u'29', u'8'], [u'31', u'29', u'8'], [u'23', u'29', u'8'], [u'23', u'31', u'8'], [u'23', u'1', u'30'], [u'22', u'23', u'30'], [u'49', u'8', u'30'], [u'49', u'29', u'8'], [u'49', u'31', u'8'], [u'21', u'18', u'8'], [u'21', u'49', u'30'], [u'22', u'49', u'30'], [u'23', u'49', u'30'], [u'1', u'49', u'30'], [u'22', u'7', u'30']] | | | | |
|  | <type 'list'>: [[u'23', u'8', u'30'], [u'21', u'8', u'30'], [u'1', u'8', u'30'], [u'21', u'29', u'8'], [u'1', u'29', u'8'], [u'31', u'29', u'8'], [u'23', u'29', u'8'], [u'23', u'31', u'8'], [u'23', u'1', u'30'], [u'22', u'23', u'30'], [u'49', u'8', u'30'], [u'49', u'29', u'8'], [u'49', u'31', u'8'], [u'21', u'18', u'8'], [u'21', u'49', u'30'], [u'22', u'49', u'30'], [u'23', u'49', u'30'], [u'1', u'49', u'30'], [u'22', u'7', u'30'], [u'7', u'8', u'30'], [u'7', u'29', u'8'], [u'18', u'29', u'8'], [u'49', u'18', u'8'], [u'7', u'49', u'30'], [u'50', u'8', u'30'], [u'31', u'5', u'8'], [u'49', u'5', u'8'], [u'7', u'5', u'8'], [u'18', u'5', u'8'], [u'50', u'18', u'8'], [u'50', u'49', u'30'], [u'11', u'7', u'30'], [u'11', u'1', u'30'], [u'50', u'1', u'30'], [u'21', u'50', u'30']] | | | | |
|  | <type 'list'>: [[u'23', u'8', u'30'], [u'21', u'8', u'30'], [u'1', u'8', u'30'], [u'21', u'29', u'8'], [u'1', u'29', u'8'], [u'31', u'29', u'8'], [u'23', u'29', u'8'], [u'23', u'31', u'8'], [u'23', u'1', u'30'], [u'22', u'23', u'30'], [u'49', u'8', u'30'], [u'49', u'29', u'8'], [u'49', u'31', u'8'], [u'21', u'18', u'8'], [u'21', u'49', u'30'], [u'22', u'49', u'30'], [u'23', u'49', u'30'], [u'1', u'49', u'30'], [u'22', u'7', u'30'], [u'7', u'8', u'30'], [u'7', u'29', u'8'], [u'18', u'29', u'8'], [u'49', u'18', u'8'], [u'7', u'49', u'30'], [u'50', u'8', u'30'], [u'31', u'5', u'8'], [u'49', u'5', u'8'], [u'7', u'5', u'8'], [u'18', u'5', u'8'], [u'50', u'18', u'8'], [u'50', u'49', u'30'], [u'11', u'7', u'30'], [u'11', u'1', u'30'], [u'50', u'1', u'30'], [u'21', u'50', u'30'], [u'11', u'49', u'30']] | | | | |
|  |  | 14 | 50 | 0.55 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |