

Alif Albiruni
Dong Shin
CSE 4701
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Project 2

The following uses JDBC on Java, and was compiled in an Eclipse IDE.

This second project involves some data mining from a genetic dataset. In particular, we were assigned to find these particular details: for any sets in the Query table and in the Gene tables that have genes in common, we display the number of genes that they share, as well as the number of genes that each individual set has in total. Once those details were obtained, they would be printed as a table.

To implement this project, I took advantage of Java's object oriented structure to organize the information retrieved from SQL queries. In particular, I created a data structure that stored each identifying gene set being compared to, the number of genes that set has in common with one of the query sets, and the amount of time calculated comparing those two sets in a compact manner. I also created multiple methods to organize several other queries and placed them in their own data structures. After gathering all of these elements in a table, the results are shown.

An interesting observation I made was that JDBC did not feature LIMIT, which would have made it significantly advantageous to isolate the five rows where gene sets and query sets share the most seats. Although I used the number of rows to try and limit this, as well as using ORDER BY, it did not turn the expected results. To overcome this, I decided instead to retrieve the entire inner join of the query and gene sets by their gene id's. As a result, the computation for every query set is significantly higher.

The following is my table for Gene Set 1 and Gene Set 2:

Part A

Table for G1

| Query Set ID | Q Size | Gene Set ID | G Size | O CNT | Time |
|--------------|--------|-------------|--------|-------|-------|
| 1 | 258 | 4790 | 1991 | 37 | 657.0 |
| 1 | 258 | 5855 | 1800 | 34 | 657.0 |
| 1 | 258 | 1902 | 1994 | 34 | 657.0 |
| 1 | 258 | 1989 | 1480 | 33 | 657.0 |
| 1 | 258 | 1172 | 1690 | 32 | 657.0 |
| 2 | 465 | 3665 | 1835 | 55 | 632.0 |
| 2 | 465 | 5667 | 1880 | 55 | 632.0 |
| 2 | 465 | 4139 | 1852 | 53 | 632.0 |
| 2 | 465 | 4631 | 1771 | 53 | 632.0 |
| 2 | 465 | 5946 | 1974 | 52 | 632.0 |
| 3 | 382 | 5673 | 1969 | 50 | 629.0 |
| 3 | 382 | 3167 | 1992 | 50 | 629.0 |
| 3 | 382 | 2254 | 1984 | 49 | 629.0 |
| 3 | 382 | 2486 | 1959 | 46 | 629.0 |
| 3 | 382 | 3428 | 1791 | 46 | 629.0 |
| 4 | 389 | 3475 | 1984 | 54 | 626.0 |
| 4 | 389 | 5385 | 1883 | 45 | 626.0 |
| 4 | 389 | 1112 | 1860 | 45 | 626.0 |
| 4 | 389 | 2137 | 1703 | 45 | 626.0 |
| 4 | 389 | 2443 | 1837 | 45 | 626.0 |
| 5 | 491 | 3650 | 1755 | 59 | 639.0 |
| 5 | 491 | 3512 | 1966 | 58 | 639.0 |
| 5 | 491 | 1250 | 1984 | 57 | 639.0 |
| 5 | 491 | 4940 | 1922 | 56 | 639.0 |
| 5 | 491 | 2496 | 1998 | 56 | 639.0 |
| 6 | 181 | 5049 | 1702 | 26 | 612.0 |
| 6 | 181 | 4559 | 1799 | 26 | 612.0 |
| 6 | 181 | 1283 | 1998 | 25 | 612.0 |
| 6 | 181 | 1430 | 1677 | 25 | 612.0 |
| 6 | 181 | 4191 | 1803 | 25 | 612.0 |
| 7 | 392 | 4896 | 1996 | 50 | 626.0 |
| 7 | 392 | 1952 | 1970 | 48 | 626.0 |
| 7 | 392 | 3969 | 1960 | 48 | 626.0 |
| 7 | 392 | 4799 | 1885 | 47 | 626.0 |
| 7 | 392 | 1280 | 1968 | 46 | 626.0 |
| 8 | 392 | 3741 | 1978 | 50 | 632.0 |
| 8 | 392 | 4907 | 1996 | 49 | 632.0 |
| 8 | 392 | 5212 | 1957 | 48 | 632.0 |
| 8 | 392 | 1688 | 1978 | 47 | 632.0 |
| 8 | 392 | 2802 | 1982 | 47 | 632.0 |
| 9 | 467 | 3214 | 1923 | 56 | 637.0 |
| 9 | 467 | 4343 | 1942 | 56 | 637.0 |
| 9 | 467 | 2550 | 1972 | 54 | 637.0 |
| 9 | 467 | 4121 | 1992 | 54 | 637.0 |
| 9 | 467 | 1773 | 1992 | 53 | 637.0 |
| 10 | 468 | 2972 | 1892 | 59 | 638.0 |
| 10 | 468 | 3499 | 1876 | 56 | 638.0 |
| 10 | 468 | 1429 | 1787 | 56 | 638.0 |
| 10 | 468 | 1332 | 1943 | 55 | 638.0 |
| 10 | 468 | 4452 | 1811 | 55 | 638.0 |
| 11 | 178 | 1850 | 1609 | 27 | 613.0 |
| 11 | 178 | 4799 | 1885 | 26 | 613.0 |
| 11 | 178 | 3833 | 1835 | 25 | 613.0 |
| 11 | 178 | 2025 | 1843 | 24 | 613.0 |
| 11 | 178 | 2756 | 1908 | 24 | 613.0 |
| 12 | 485 | 5526 | 1890 | 63 | 664.0 |
| 12 | 485 | 3185 | 1930 | 60 | 664.0 |
| 12 | 485 | 2159 | 1966 | 58 | 664.0 |
| 12 | 485 | 2209 | 1910 | 56 | 664.0 |
| 12 | 485 | 5750 | 1993 | 55 | 664.0 |
| 13 | 138 | 3897 | 1675 | 20 | 630.0 |
| 13 | 138 | 1318 | 1899 | 20 | 630.0 |
| 13 | 138 | 4962 | 1669 | 20 | 630.0 |
| 13 | 138 | 2880 | 1953 | 19 | 630.0 |
| 13 | 138 | 5416 | 1996 | 19 | 630.0 |

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|----|-----|------|------|----|-------|
| 14 | 417 | 2796 | 1982 | 52 | 632.0 |
| 14 | 417 | 3042 | 1823 | 48 | 632.0 |
| 14 | 417 | 4134 | 1704 | 48 | 632.0 |
| 14 | 417 | 4907 | 1996 | 48 | 632.0 |
| 14 | 417 | 4065 | 1963 | 48 | 632.0 |
| 15 | 286 | 1920 | 1997 | 41 | 624.0 |
| 15 | 286 | 1091 | 1874 | 38 | 624.0 |
| 15 | 286 | 5521 | 1996 | 37 | 624.0 |
| 15 | 286 | 2913 | 1896 | 37 | 624.0 |
| 15 | 286 | 5215 | 1998 | 36 | 624.0 |
| 16 | 154 | 3923 | 1557 | 24 | 620.0 |
| 16 | 154 | 3427 | 1820 | 24 | 620.0 |
| 16 | 154 | 5998 | 1962 | 23 | 620.0 |
| 16 | 154 | 4569 | 1833 | 22 | 620.0 |
| 16 | 154 | 2699 | 1485 | 22 | 620.0 |
| 17 | 230 | 3457 | 1951 | 35 | 633.0 |
| 17 | 230 | 5557 | 1869 | 30 | 633.0 |
| 17 | 230 | 1291 | 1997 | 30 | 633.0 |
| 17 | 230 | 2502 | 1906 | 30 | 633.0 |
| 17 | 230 | 2839 | 1977 | 30 | 633.0 |
| 18 | 144 | 5044 | 1949 | 23 | 615.0 |
| 18 | 144 | 2672 | 1986 | 22 | 615.0 |
| 18 | 144 | 5416 | 1996 | 21 | 615.0 |
| 18 | 144 | 4898 | 1665 | 21 | 615.0 |
| 18 | 144 | 1939 | 1974 | 20 | 615.0 |
| 19 | 108 | 4234 | 1516 | 17 | 609.0 |
| 19 | 108 | 2854 | 1955 | 17 | 609.0 |
| 19 | 108 | 5521 | 1996 | 17 | 609.0 |
| 19 | 108 | 5946 | 1974 | 17 | 609.0 |
| 19 | 108 | 4140 | 1515 | 17 | 609.0 |
| 20 | 263 | 2256 | 1778 | 34 | 661.0 |
| 20 | 263 | 5595 | 1988 | 34 | 661.0 |
| 20 | 263 | 3896 | 1716 | 34 | 661.0 |
| 20 | 263 | 5046 | 1825 | 34 | 661.0 |
| 20 | 263 | 3145 | 1751 | 34 | 661.0 |
| 21 | 81 | 4709 | 1823 | 14 | 610.0 |
| 21 | 81 | 4017 | 1825 | 14 | 610.0 |
| 21 | 81 | 3274 | 1794 | 14 | 610.0 |
| 21 | 81 | 5493 | 1989 | 13 | 610.0 |
| 21 | 81 | 2944 | 1625 | 13 | 610.0 |
| 22 | 115 | 5774 | 1943 | 20 | 620.0 |
| 22 | 115 | 4506 | 1818 | 19 | 620.0 |
| 22 | 115 | 5981 | 1975 | 18 | 620.0 |
| 22 | 115 | 2197 | 1990 | 18 | 620.0 |
| 22 | 115 | 1419 | 1764 | 18 | 620.0 |
| 23 | 434 | 1672 | 1967 | 59 | 634.0 |
| 23 | 434 | 4151 | 1887 | 52 | 634.0 |
| 23 | 434 | 1119 | 1969 | 52 | 634.0 |
| 23 | 434 | 1177 | 1762 | 50 | 634.0 |
| 23 | 434 | 4013 | 1959 | 50 | 634.0 |
| 24 | 293 | 2315 | 1970 | 36 | 624.0 |
| 24 | 293 | 4052 | 1801 | 36 | 624.0 |
| 24 | 293 | 1298 | 1685 | 35 | 624.0 |
| 24 | 293 | 1453 | 1827 | 35 | 624.0 |
| 24 | 293 | 1891 | 1974 | 35 | 624.0 |
| 25 | 319 | 2538 | 1855 | 40 | 623.0 |
| 25 | 319 | 4157 | 1926 | 39 | 623.0 |
| 25 | 319 | 3479 | 1861 | 39 | 623.0 |
| 25 | 319 | 2025 | 1843 | 39 | 623.0 |
| 25 | 319 | 1140 | 1969 | 38 | 623.0 |
| 26 | 188 | 5464 | 1865 | 27 | 610.0 |
| 26 | 188 | 2160 | 1646 | 27 | 610.0 |
| 26 | 188 | 5603 | 1819 | 27 | 610.0 |
| 26 | 188 | 3582 | 1786 | 26 | 610.0 |
| 26 | 188 | 5507 | 1802 | 26 | 610.0 |
| 27 | 410 | 2496 | 1998 | 52 | 632.0 |
| 27 | 410 | 1222 | 1905 | 49 | 632.0 |
| 27 | 410 | 5758 | 1974 | 49 | 632.0 |
| 27 | 410 | 1645 | 1947 | 48 | 632.0 |

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|----|-----|------|------|----|-------|
| 27 | 410 | 2959 | 1528 | 47 | 632.0 |
| 28 | 173 | 2918 | 1939 | 27 | 624.0 |
| 28 | 173 | 4041 | 1960 | 26 | 624.0 |
| 28 | 173 | 5998 | 1962 | 26 | 624.0 |
| 28 | 173 | 1908 | 1970 | 25 | 624.0 |
| 28 | 173 | 5545 | 1852 | 25 | 624.0 |
| 29 | 455 | 1586 | 1931 | 58 | 636.0 |
| 29 | 455 | 4725 | 1784 | 57 | 636.0 |
| 29 | 455 | 2976 | 1911 | 54 | 636.0 |
| 29 | 455 | 2880 | 1953 | 53 | 636.0 |
| 29 | 455 | 4141 | 1929 | 52 | 636.0 |
| 30 | 295 | 1465 | 1955 | 37 | 649.0 |
| 30 | 295 | 1679 | 1935 | 36 | 649.0 |
| 30 | 295 | 2651 | 1663 | 36 | 649.0 |
| 30 | 295 | 2946 | 1963 | 35 | 649.0 |
| 30 | 295 | 5981 | 1975 | 35 | 649.0 |
| 31 | 474 | 1653 | 1951 | 57 | 633.0 |
| 31 | 474 | 4410 | 1658 | 57 | 633.0 |
| 31 | 474 | 5383 | 1818 | 56 | 633.0 |
| 31 | 474 | 5585 | 1934 | 55 | 633.0 |
| 31 | 474 | 1585 | 1988 | 53 | 633.0 |
| 32 | 78 | 3877 | 1634 | 15 | 604.0 |
| 32 | 78 | 4608 | 1879 | 15 | 604.0 |
| 32 | 78 | 3934 | 1986 | 15 | 604.0 |
| 32 | 78 | 3844 | 1870 | 14 | 604.0 |
| 32 | 78 | 1974 | 1969 | 14 | 604.0 |
| 33 | 438 | 4560 | 1731 | 53 | 652.0 |
| 33 | 438 | 1690 | 1847 | 53 | 652.0 |
| 33 | 438 | 5199 | 1967 | 53 | 652.0 |
| 33 | 438 | 1902 | 1994 | 52 | 652.0 |
| 33 | 438 | 3199 | 1989 | 51 | 652.0 |
| 34 | 55 | 1719 | 1990 | 13 | 605.0 |
| 34 | 55 | 1010 | 1951 | 13 | 605.0 |
| 34 | 55 | 1517 | 1705 | 12 | 605.0 |
| 34 | 55 | 5293 | 1865 | 12 | 605.0 |
| 34 | 55 | 3634 | 1519 | 11 | 605.0 |
| 35 | 64 | 2923 | 1837 | 13 | 610.0 |
| 35 | 64 | 3143 | 1958 | 12 | 610.0 |
| 35 | 64 | 4649 | 1752 | 12 | 610.0 |
| 35 | 64 | 4310 | 1671 | 11 | 610.0 |
| 35 | 64 | 5507 | 1802 | 11 | 610.0 |
| 36 | 146 | 1496 | 1940 | 25 | 614.0 |
| 36 | 146 | 4115 | 1945 | 25 | 614.0 |
| 36 | 146 | 3929 | 1975 | 23 | 614.0 |
| 36 | 146 | 1307 | 1493 | 23 | 614.0 |
| 36 | 146 | 3752 | 1703 | 23 | 614.0 |
| 37 | 263 | 5396 | 1674 | 35 | 615.0 |
| 37 | 263 | 5595 | 1988 | 34 | 615.0 |
| 37 | 263 | 6000 | 1919 | 34 | 615.0 |
| 37 | 263 | 3569 | 1906 | 34 | 615.0 |
| 37 | 263 | 2452 | 1941 | 33 | 615.0 |
| 38 | 223 | 4610 | 1993 | 30 | 613.0 |
| 38 | 223 | 3622 | 1959 | 30 | 613.0 |
| 38 | 223 | 2650 | 1763 | 30 | 613.0 |
| 38 | 223 | 3910 | 1888 | 29 | 613.0 |
| 38 | 223 | 5319 | 1946 | 29 | 613.0 |
| 39 | 346 | 1330 | 1992 | 45 | 630.0 |
| 39 | 346 | 4940 | 1922 | 45 | 630.0 |
| 39 | 346 | 5534 | 1898 | 42 | 630.0 |
| 39 | 346 | 1492 | 1932 | 42 | 630.0 |
| 39 | 346 | 2753 | 1848 | 41 | 630.0 |
| 40 | 118 | 3764 | 1892 | 24 | 607.0 |
| 40 | 118 | 1205 | 1958 | 20 | 607.0 |
| 40 | 118 | 5925 | 1937 | 19 | 607.0 |
| 40 | 118 | 2769 | 1785 | 19 | 607.0 |
| 40 | 118 | 5507 | 1802 | 19 | 607.0 |
| 41 | 368 | 4995 | 1949 | 47 | 632.0 |
| 41 | 368 | 1222 | 1905 | 47 | 632.0 |
| 41 | 368 | 1274 | 1911 | 46 | 632.0 |

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|----|-----|------|------|----|-------|
| 41 | 368 | 5184 | 1954 | 44 | 632.0 |
| 41 | 368 | 3963 | 1951 | 44 | 632.0 |
| 42 | 445 | 5150 | 1913 | 54 | 632.0 |
| 42 | 445 | 1797 | 1989 | 54 | 632.0 |
| 42 | 445 | 4204 | 1734 | 53 | 632.0 |
| 42 | 445 | 2115 | 1964 | 52 | 632.0 |
| 42 | 445 | 1866 | 1955 | 52 | 632.0 |
| 43 | 184 | 1330 | 1992 | 30 | 612.0 |
| 43 | 184 | 2300 | 1922 | 26 | 612.0 |
| 43 | 184 | 4774 | 1982 | 26 | 612.0 |
| 43 | 184 | 4782 | 1669 | 26 | 612.0 |
| 43 | 184 | 1797 | 1989 | 25 | 612.0 |
| 44 | 179 | 1585 | 1988 | 31 | 665.0 |
| 44 | 179 | 5860 | 1982 | 30 | 665.0 |
| 44 | 179 | 2800 | 1734 | 25 | 665.0 |
| 44 | 179 | 4774 | 1982 | 25 | 665.0 |
| 44 | 179 | 2672 | 1986 | 24 | 665.0 |
| 45 | 218 | 4543 | 1846 | 33 | 618.0 |
| 45 | 218 | 5207 | 1839 | 29 | 618.0 |
| 45 | 218 | 3204 | 1855 | 29 | 618.0 |
| 45 | 218 | 3641 | 1824 | 29 | 618.0 |
| 45 | 218 | 2917 | 1611 | 29 | 618.0 |
| 46 | 375 | 2640 | 1952 | 47 | 935.0 |
| 46 | 375 | 4614 | 1957 | 46 | 935.0 |
| 46 | 375 | 2109 | 1832 | 46 | 935.0 |
| 46 | 375 | 4217 | 1904 | 45 | 935.0 |
| 46 | 375 | 3934 | 1986 | 45 | 935.0 |
| 47 | 351 | 4693 | 1869 | 50 | 635.0 |
| 47 | 351 | 3963 | 1951 | 49 | 635.0 |
| 47 | 351 | 1893 | 1977 | 45 | 635.0 |
| 47 | 351 | 3376 | 1882 | 44 | 635.0 |
| 47 | 351 | 4326 | 1986 | 43 | 635.0 |
| 48 | 260 | 3262 | 1800 | 35 | 629.0 |
| 48 | 260 | 3360 | 1868 | 34 | 629.0 |
| 48 | 260 | 5233 | 1986 | 34 | 629.0 |
| 48 | 260 | 5140 | 1880 | 33 | 629.0 |
| 48 | 260 | 5327 | 1809 | 32 | 629.0 |
| 49 | 448 | 4858 | 1947 | 56 | 638.0 |
| 49 | 448 | 5070 | 1765 | 55 | 638.0 |
| 49 | 448 | 2308 | 1915 | 53 | 638.0 |
| 49 | 448 | 2120 | 1979 | 53 | 638.0 |
| 49 | 448 | 4664 | 1862 | 52 | 638.0 |
| 50 | 303 | 3870 | 1826 | 40 | 625.0 |
| 50 | 303 | 1275 | 1899 | 40 | 625.0 |
| 50 | 303 | 5703 | 1966 | 39 | 625.0 |
| 50 | 303 | 4305 | 1772 | 37 | 625.0 |
| 50 | 303 | 4457 | 1926 | 36 | 625.0 |

Part B

Table for G2

| Query Set ID | Q Size | Gene Set ID | G Size | O CNT | Time |
|--------------|--------|-------------|--------|-------|-------|
| 1 | 258 | 8629 | 383 | 13 | 123.0 |
| 1 | 258 | 7776 | 495 | 12 | 123.0 |
| 1 | 258 | 8394 | 381 | 12 | 123.0 |
| 1 | 258 | 9919 | 450 | 12 | 123.0 |
| 1 | 258 | 10084 | 463 | 12 | 123.0 |
| 2 | 465 | 8200 | 488 | 20 | 122.0 |
| 2 | 465 | 9984 | 471 | 19 | 122.0 |
| 2 | 465 | 7892 | 470 | 18 | 122.0 |
| 2 | 465 | 6156 | 482 | 18 | 122.0 |
| 2 | 465 | 7489 | 492 | 18 | 122.0 |
| 3 | 382 | 10395 | 397 | 19 | 154.0 |
| 3 | 382 | 10567 | 352 | 18 | 154.0 |
| 3 | 382 | 7044 | 478 | 16 | 154.0 |
| 3 | 382 | 6946 | 379 | 16 | 154.0 |
| 3 | 382 | 6372 | 465 | 15 | 154.0 |
| 4 | 389 | 9990 | 376 | 17 | 124.0 |
| 4 | 389 | 6300 | 498 | 17 | 124.0 |

| | | | | | |
|----|-----|-------|-----|----|-------|
| 4 | 389 | 9522 | 452 | 16 | 124.0 |
| 4 | 389 | 6297 | 473 | 15 | 124.0 |
| 4 | 389 | 9959 | 480 | 15 | 124.0 |
| 5 | 491 | 8953 | 492 | 20 | 122.0 |
| 5 | 491 | 7100 | 429 | 19 | 122.0 |
| 5 | 491 | 8688 | 456 | 18 | 122.0 |
| 5 | 491 | 9034 | 444 | 17 | 122.0 |
| 5 | 491 | 6593 | 447 | 17 | 122.0 |
| 6 | 181 | 6542 | 359 | 11 | 117.0 |
| 6 | 181 | 6811 | 295 | 11 | 117.0 |
| 6 | 181 | 10604 | 489 | 10 | 117.0 |
| 6 | 181 | 10637 | 488 | 9 | 117.0 |
| 6 | 181 | 7687 | 480 | 9 | 117.0 |
| 7 | 392 | 6387 | 442 | 17 | 121.0 |
| 7 | 392 | 8058 | 459 | 17 | 121.0 |
| 7 | 392 | 9498 | 486 | 17 | 121.0 |
| 7 | 392 | 9623 | 492 | 17 | 121.0 |
| 7 | 392 | 9658 | 477 | 16 | 121.0 |
| 8 | 392 | 10637 | 488 | 16 | 123.0 |
| 8 | 392 | 7505 | 354 | 16 | 123.0 |
| 8 | 392 | 10990 | 497 | 16 | 123.0 |
| 8 | 392 | 8469 | 302 | 15 | 123.0 |
| 8 | 392 | 7084 | 481 | 15 | 123.0 |
| 9 | 467 | 7010 | 490 | 20 | 121.0 |
| 9 | 467 | 8857 | 418 | 18 | 121.0 |
| 9 | 467 | 7897 | 458 | 17 | 121.0 |
| 9 | 467 | 6887 | 499 | 17 | 121.0 |
| 9 | 467 | 9098 | 452 | 17 | 121.0 |
| 10 | 468 | 10516 | 499 | 18 | 123.0 |
| 10 | 468 | 10831 | 451 | 17 | 123.0 |
| 10 | 468 | 8137 | 424 | 17 | 123.0 |
| 10 | 468 | 9608 | 448 | 17 | 123.0 |
| 10 | 468 | 8674 | 436 | 17 | 123.0 |
| 11 | 178 | 6400 | 452 | 11 | 118.0 |
| 11 | 178 | 8313 | 328 | 9 | 118.0 |
| 11 | 178 | 9664 | 471 | 9 | 118.0 |
| 11 | 178 | 8510 | 447 | 9 | 118.0 |
| 11 | 178 | 10398 | 494 | 9 | 118.0 |
| 12 | 485 | 6665 | 495 | 20 | 133.0 |
| 12 | 485 | 8137 | 424 | 20 | 133.0 |
| 12 | 485 | 8972 | 461 | 19 | 133.0 |
| 12 | 485 | 9727 | 458 | 19 | 133.0 |
| 12 | 485 | 7463 | 460 | 19 | 133.0 |
| 13 | 138 | 7787 | 402 | 10 | 119.0 |
| 13 | 138 | 6871 | 428 | 9 | 119.0 |
| 13 | 138 | 9886 | 490 | 8 | 119.0 |
| 13 | 138 | 8581 | 497 | 8 | 119.0 |
| 13 | 138 | 7495 | 328 | 7 | 119.0 |
| 14 | 417 | 9189 | 432 | 20 | 121.0 |
| 14 | 417 | 7153 | 419 | 17 | 121.0 |
| 14 | 417 | 7892 | 470 | 17 | 121.0 |
| 14 | 417 | 10190 | 472 | 16 | 121.0 |
| 14 | 417 | 8282 | 380 | 16 | 121.0 |
| 15 | 286 | 7606 | 496 | 16 | 121.0 |
| 15 | 286 | 10072 | 383 | 15 | 121.0 |
| 15 | 286 | 10881 | 408 | 15 | 121.0 |
| 15 | 286 | 9745 | 481 | 14 | 121.0 |
| 15 | 286 | 10702 | 435 | 14 | 121.0 |
| 16 | 154 | 10100 | 486 | 10 | 116.0 |
| 16 | 154 | 7903 | 433 | 9 | 116.0 |
| 16 | 154 | 8585 | 347 | 9 | 116.0 |
| 16 | 154 | 8795 | 446 | 8 | 116.0 |
| 16 | 154 | 9776 | 494 | 8 | 116.0 |
| 17 | 230 | 6429 | 489 | 12 | 126.0 |
| 17 | 230 | 10459 | 499 | 12 | 126.0 |
| 17 | 230 | 7879 | 499 | 12 | 126.0 |
| 17 | 230 | 9322 | 457 | 11 | 126.0 |
| 17 | 230 | 7110 | 423 | 11 | 126.0 |
| 18 | 144 | 7934 | 469 | 9 | 118.0 |

| | | | | | |
|----|-----|-------|-----|----|-------|
| 18 | 144 | 7027 | 470 | 9 | 118.0 |
| 18 | 144 | 7901 | 490 | 8 | 118.0 |
| 18 | 144 | 10375 | 422 | 8 | 118.0 |
| 18 | 144 | 10256 | 422 | 8 | 118.0 |
| 19 | 108 | 7343 | 298 | 8 | 116.0 |
| 19 | 108 | 9783 | 430 | 8 | 116.0 |
| 19 | 108 | 9797 | 460 | 8 | 116.0 |
| 19 | 108 | 8955 | 463 | 7 | 116.0 |
| 19 | 108 | 6067 | 490 | 7 | 116.0 |
| 20 | 263 | 7968 | 358 | 14 | 120.0 |
| 20 | 263 | 7743 | 363 | 13 | 120.0 |
| 20 | 263 | 10700 | 486 | 12 | 120.0 |
| 20 | 263 | 10109 | 480 | 12 | 120.0 |
| 20 | 263 | 9559 | 479 | 12 | 120.0 |
| 21 | 81 | 6962 | 491 | 8 | 116.0 |
| 21 | 81 | 8392 | 441 | 7 | 116.0 |
| 21 | 81 | 10028 | 231 | 6 | 116.0 |
| 21 | 81 | 10214 | 403 | 6 | 116.0 |
| 21 | 81 | 9029 | 395 | 6 | 116.0 |
| 22 | 115 | 8862 | 390 | 7 | 118.0 |
| 22 | 115 | 9669 | 372 | 7 | 118.0 |
| 22 | 115 | 10414 | 480 | 7 | 118.0 |
| 22 | 115 | 6605 | 302 | 7 | 118.0 |
| 22 | 115 | 9831 | 254 | 7 | 118.0 |
| 23 | 434 | 9900 | 403 | 18 | 121.0 |
| 23 | 434 | 7140 | 386 | 17 | 121.0 |
| 23 | 434 | 6831 | 499 | 17 | 121.0 |
| 23 | 434 | 6697 | 468 | 16 | 121.0 |
| 23 | 434 | 7144 | 496 | 16 | 121.0 |
| 24 | 293 | 8291 | 438 | 17 | 127.0 |
| 24 | 293 | 9288 | 486 | 14 | 127.0 |
| 24 | 293 | 9449 | 436 | 14 | 127.0 |
| 24 | 293 | 9812 | 475 | 14 | 127.0 |
| 24 | 293 | 7608 | 419 | 13 | 127.0 |
| 25 | 319 | 8924 | 466 | 15 | 123.0 |
| 25 | 319 | 7000 | 436 | 14 | 123.0 |
| 25 | 319 | 6769 | 461 | 14 | 123.0 |
| 25 | 319 | 10420 | 415 | 13 | 123.0 |
| 25 | 319 | 6631 | 447 | 13 | 123.0 |
| 26 | 188 | 6682 | 493 | 11 | 120.0 |
| 26 | 188 | 7083 | 481 | 10 | 120.0 |
| 26 | 188 | 8446 | 467 | 10 | 120.0 |
| 26 | 188 | 8532 | 478 | 9 | 120.0 |
| 26 | 188 | 7584 | 491 | 9 | 120.0 |
| 27 | 410 | 7632 | 444 | 19 | 121.0 |
| 27 | 410 | 10990 | 497 | 18 | 121.0 |
| 27 | 410 | 8615 | 435 | 17 | 121.0 |
| 27 | 410 | 10448 | 496 | 17 | 121.0 |
| 27 | 410 | 8381 | 394 | 16 | 121.0 |
| 28 | 173 | 7010 | 490 | 10 | 119.0 |
| 28 | 173 | 7606 | 496 | 10 | 119.0 |
| 28 | 173 | 9004 | 390 | 9 | 119.0 |
| 28 | 173 | 7183 | 456 | 9 | 119.0 |
| 28 | 173 | 10245 | 422 | 9 | 119.0 |
| 29 | 455 | 8581 | 497 | 18 | 121.0 |
| 29 | 455 | 7850 | 493 | 18 | 121.0 |
| 29 | 455 | 6297 | 473 | 18 | 121.0 |
| 29 | 455 | 9072 | 430 | 17 | 121.0 |
| 29 | 455 | 9240 | 486 | 17 | 121.0 |
| 30 | 295 | 9153 | 479 | 15 | 122.0 |
| 30 | 295 | 6802 | 423 | 14 | 122.0 |
| 30 | 295 | 7861 | 468 | 14 | 122.0 |
| 30 | 295 | 8140 | 447 | 14 | 122.0 |
| 30 | 295 | 6440 | 415 | 13 | 122.0 |
| 31 | 474 | 9252 | 483 | 22 | 123.0 |
| 31 | 474 | 10091 | 466 | 20 | 123.0 |
| 31 | 474 | 9908 | 487 | 20 | 123.0 |
| 31 | 474 | 9547 | 412 | 19 | 123.0 |
| 31 | 474 | 7014 | 489 | 18 | 123.0 |

| | | | | | |
|----|-----|-------|-----|----|-------|
| 32 | 78 | 6539 | 477 | 6 | 115.0 |
| 32 | 78 | 6460 | 409 | 6 | 115.0 |
| 32 | 78 | 10516 | 499 | 6 | 115.0 |
| 32 | 78 | 6125 | 240 | 6 | 115.0 |
| 32 | 78 | 6703 | 414 | 6 | 115.0 |
| 33 | 438 | 10870 | 495 | 19 | 123.0 |
| 33 | 438 | 6560 | 476 | 19 | 123.0 |
| 33 | 438 | 9617 | 433 | 17 | 123.0 |
| 33 | 438 | 9477 | 494 | 17 | 123.0 |
| 33 | 438 | 9638 | 394 | 17 | 123.0 |
| 34 | 55 | 9959 | 480 | 6 | 123.0 |
| 34 | 55 | 10599 | 448 | 5 | 123.0 |
| 34 | 55 | 9784 | 344 | 5 | 123.0 |
| 34 | 55 | 6783 | 218 | 4 | 123.0 |
| 34 | 55 | 9172 | 357 | 4 | 123.0 |
| 35 | 64 | 9731 | 470 | 6 | 169.0 |
| 35 | 64 | 7902 | 304 | 5 | 169.0 |
| 35 | 64 | 7879 | 499 | 5 | 169.0 |
| 35 | 64 | 6910 | 444 | 5 | 169.0 |
| 35 | 64 | 8070 | 491 | 5 | 169.0 |
| 36 | 146 | 8863 | 470 | 10 | 127.0 |
| 36 | 146 | 8081 | 496 | 9 | 127.0 |
| 36 | 146 | 8144 | 361 | 9 | 127.0 |
| 36 | 146 | 7031 | 453 | 9 | 127.0 |
| 36 | 146 | 10102 | 481 | 9 | 127.0 |
| 37 | 263 | 8277 | 451 | 13 | 119.0 |
| 37 | 263 | 8658 | 428 | 13 | 119.0 |
| 37 | 263 | 9546 | 472 | 12 | 119.0 |
| 37 | 263 | 7078 | 378 | 12 | 119.0 |
| 37 | 263 | 10797 | 414 | 12 | 119.0 |
| 38 | 223 | 8737 | 419 | 12 | 121.0 |
| 38 | 223 | 7762 | 494 | 11 | 121.0 |
| 38 | 223 | 10604 | 489 | 11 | 121.0 |
| 38 | 223 | 10833 | 494 | 11 | 121.0 |
| 38 | 223 | 9890 | 469 | 11 | 121.0 |
| 39 | 346 | 8140 | 447 | 16 | 122.0 |
| 39 | 346 | 6134 | 369 | 15 | 122.0 |
| 39 | 346 | 9190 | 475 | 15 | 122.0 |
| 39 | 346 | 7850 | 493 | 15 | 122.0 |
| 39 | 346 | 10130 | 407 | 14 | 122.0 |
| 40 | 118 | 7606 | 496 | 8 | 122.0 |
| 40 | 118 | 9776 | 494 | 8 | 122.0 |
| 40 | 118 | 7262 | 456 | 8 | 122.0 |
| 40 | 118 | 10765 | 465 | 8 | 122.0 |
| 40 | 118 | 10877 | 396 | 8 | 122.0 |
| 41 | 368 | 9002 | 452 | 20 | 122.0 |
| 41 | 368 | 6578 | 443 | 16 | 122.0 |
| 41 | 368 | 9080 | 393 | 15 | 122.0 |
| 41 | 368 | 6879 | 473 | 15 | 122.0 |
| 41 | 368 | 7362 | 397 | 14 | 122.0 |
| 42 | 445 | 8651 | 438 | 18 | 133.0 |
| 42 | 445 | 9672 | 489 | 18 | 133.0 |
| 42 | 445 | 9301 | 476 | 18 | 133.0 |
| 42 | 445 | 9393 | 447 | 17 | 133.0 |
| 42 | 445 | 6372 | 465 | 17 | 133.0 |
| 43 | 184 | 9794 | 392 | 10 | 117.0 |
| 43 | 184 | 7408 | 380 | 9 | 117.0 |
| 43 | 184 | 9499 | 496 | 9 | 117.0 |
| 43 | 184 | 10599 | 448 | 9 | 117.0 |
| 43 | 184 | 7379 | 493 | 9 | 117.0 |
| 44 | 179 | 6884 | 471 | 11 | 119.0 |
| 44 | 179 | 10988 | 451 | 10 | 119.0 |
| 44 | 179 | 6002 | 440 | 10 | 119.0 |
| 44 | 179 | 6208 | 484 | 10 | 119.0 |
| 44 | 179 | 9499 | 496 | 9 | 119.0 |
| 45 | 218 | 6682 | 493 | 12 | 118.0 |
| 45 | 218 | 8685 | 403 | 11 | 118.0 |
| 45 | 218 | 7395 | 450 | 10 | 118.0 |
| 45 | 218 | 7984 | 487 | 10 | 118.0 |

| | | | | | |
|----|-----|-------|-----|----|-------|
| 45 | 218 | 6912 | 428 | 10 | 118.0 |
| 46 | 375 | 9189 | 432 | 17 | 129.0 |
| 46 | 375 | 6762 | 463 | 16 | 129.0 |
| 46 | 375 | 10999 | 492 | 16 | 129.0 |
| 46 | 375 | 8013 | 493 | 16 | 129.0 |
| 46 | 375 | 8315 | 459 | 16 | 129.0 |
| 47 | 351 | 10516 | 499 | 16 | 122.0 |
| 47 | 351 | 10722 | 452 | 15 | 122.0 |
| 47 | 351 | 6632 | 454 | 15 | 122.0 |
| 47 | 351 | 10974 | 445 | 14 | 122.0 |
| 47 | 351 | 6701 | 400 | 14 | 122.0 |
| 48 | 260 | 9337 | 478 | 13 | 119.0 |
| 48 | 260 | 6325 | 482 | 13 | 119.0 |
| 48 | 260 | 10097 | 397 | 12 | 119.0 |
| 48 | 260 | 8912 | 463 | 12 | 119.0 |
| 48 | 260 | 9640 | 463 | 12 | 119.0 |
| 49 | 448 | 6243 | 461 | 20 | 123.0 |
| 49 | 448 | 7661 | 481 | 18 | 123.0 |
| 49 | 448 | 10220 | 471 | 18 | 123.0 |
| 49 | 448 | 8132 | 483 | 18 | 123.0 |
| 49 | 448 | 6262 | 456 | 18 | 123.0 |
| 50 | 303 | 10560 | 495 | 14 | 122.0 |
| 50 | 303 | 10996 | 447 | 14 | 122.0 |
| 50 | 303 | 9727 | 458 | 13 | 122.0 |
| 50 | 303 | 10906 | 402 | 13 | 122.0 |
| 50 | 303 | 8055 | 499 | 13 | 122.0 |