# MySQL command :

```
SELECT psg.Id, psg.headshotKills, psg.kills, psg.headshotRatio
FROM(
        SELECT psa.Id AS Id, psa.headshotKills AS headshotKills, psa.kills AS kills, psa.headshotKills / psa.kills AS headshotRatio
        FROM (
                SELECT ps.Id AS Id, SUM(ps.headshotKills) AS headshotKills, SUM(ps.kills) AS kills
                FROM player_statistic ps
                WHERE ps.kills >= 5
                GROUP BY ps.Id
        ) AS psa
        WHERE psa.kills >= 20
        ORDER BY psa.kills DESC
) AS psg
ORDER BY psg.headshotRatio DESC
LIMIT 100;
```

# Explanation :

For an online game developer, one of the most important things is to make players keep playing their game. To achieve this, the maintenance of players' experience is required. What damages users' experience the most could be the quality of connection, the game fluency, or the equality between players.

This days, some players start trying to win the games by using illegal programs. Therefore, I want to find the abnormal players through headshot kill ratio, which is the ratio of headshotKills and Kills from the player statistic.

Firstly, if the number of kills is too small, headshotKills might be coincident, so I only pick the data of number of kills being not less than 5.

Secondly, the players who use illegal program won't only play once, so I pick the players who kill not less than 20 people in total.

Lastly, I pick the players with top 100 headshotKills ratio, which might imply that those players may use illegal program.

# Result :

| Id | headshotKills | kills | headshotRatio |
|---|---|---|---|
| a6e443e4ec2a33 | 23 | 24 | 0.9583 |
| 15622257cb44e2 | 40 | 42 | 0.9524 |
| 3e28994fb2950b | 39 | 41 | 0.9512 |
| a7ad68271a7137 | 23 | 25 | 0.9200 |
| 8e9eb1ce0e0135 | 19 | 21 | 0.9048 |
| bccc10b09592d7 | 18 | 20 | 0.9000 |
| f5435398d61387 | 18 | 20 | 0.9000 |
| 06308c988bf0c2 | 64 | 72 | 0.8889 |
| 579949f753978c | 35 | 40 | 0.8750 |
| 9b5bcc3a3dd42a | 46 | 53 | 0.8679 |
| 4d75f7cd89c701 | 18 | 21 | 0.8571 |
| d3d8c5d4f6afa4 | 18 | 21 | 0.8571 |
| 0fd6a07c611647 | 34 | 40 | 0.8500 |
| 3ed16b919c586e | 17 | 20 | 0.8500 |
| 2d9b824a6d2954 | 21 | 25 | 0.8400 |
| c47bd86daa3de6 | 42 | 50 | 0.8400 |
| 265e23756baa0b | 27 | 33 | 0.8182 |
| 07fe3b58dbaae0 | 16 | 20 | 0.8000 |
| dc6354c35506bf | 16 | 20 | 0.8000 |
| 770c02791306c4 | 34 | 43 | 0.7907 |
| 7614924933b454 | 26 | 33 | 0.7879 |
| 16337808d95f87 | 18 | 23 | 0.7826 |
| e283dc795001b0 | 31 | 40 | 0.7750 |
| 44513e16340a63 | 17 | 22 | 0.7727 |
| 4b077ee58778e0 | 16 | 21 | 0.7619 |
| c65d6752bf5160 | 15 | 20 | 0.7500 |
| f83f0bfaafb7d8 | 41 | 55 | 0.7455 |
| a1e743ad460a9f | 26 | 35 | 0.7429 |
| a1c3c9645a7f43 | 16 | 22 | 0.7273 |
| e3f0e0d526f546 | 26 | 36 | 0.7222 |
| b7b8b07bfa9bfc | 23 | 32 | 0.7188 |
| 7243899435577f | 20 | 28 | 0.7143 |
| 96277c51174149 | 19 | 27 | 0.7037 |
| aedfb11a6660ef | 15 | 22 | 0.6818 |
| b2f165ddf89485 | 15 | 22 | 0.6818 |
| 18b7e6fdec2cff | 19 | 28 | 0.6786 |
| 59df1590389334 | 18 | 27 | 0.6667 |
| 640a9b98466c79 | 16 | 24 | 0.6667 |
| f362f59f0706f9 | 18 | 27 | 0.6667 |
| 125775b6f081e8 | 17 | 26 | 0.6538 |
| 35431ff92d2525 | 13 | 20 | 0.6500 |
| 930d8316b0eff9 | 13 | 20 | 0.6500 |
| 44aef47f05ceca | 16 | 25 | 0.6400 |
| 58ada568ab859e | 16 | 25 | 0.6400 |
| be58e6454cbb8f | 14 | 22 | 0.6364 |
| ec348a616941b9 | 14 | 22 | 0.6364 |
| e0772fdf8fe2cc | 15 | 24 | 0.6250 |
| 61b7ffd5ef237d | 13 | 21 | 0.6190 |
| b73e588c0cc91c | 13 | 21 | 0.6190 |
| d284d439d70972 | 13 | 21 | 0.6190 |
| e00a2d5190392a | 13 | 21 | 0.6190 |
| be3de011801fc2 | 16 | 26 | 0.6154 |
| f9d14251d99ecf | 14 | 23 | 0.6087 |
| bbdda255b45bf3 | 17 | 28 | 0.6071 |
| f699c842c5dfab | 20 | 33 | 0.6061 |
| 7547b44c1975e6 | 15 | 25 | 0.6000 |
| 2495dc2d59b029 | 16 | 27 | 0.5926 |
| 56fe157ad7cfbf | 17 | 29 | 0.5862 |
| 6fe3eebc04ed37 | 17 | 29 | 0.5862 |
| 436d1530e9eb00 | 31 | 53 | 0.5849 |
| a651c19d213b79 | 14 | 24 | 0.5833 |
| f3ccc601923ab3 | 18 | 31 | 0.5806 |
| 3508e4fc29403c | 12 | 21 | 0.5714 |
| 863b053fe59905 | 12 | 21 | 0.5714 |
| 9e90367d8522cd | 12 | 21 | 0.5714 |
| 42ad11ece3454a | 13 | 23 | 0.5652 |
| 73b784070b5f29 | 13 | 23 | 0.5652 |
| 71134acd8ad996 | 14 | 25 | 0.5600 |
| f38176120520c8 | 20 | 36 | 0.5556 |
| d10322b281014b | 27 | 49 | 0.5510 |
| 25873d36944d64 | 11 | 20 | 0.5500 |
| dbc9a9d26a186b | 13 | 24 | 0.5417 |
| 57087b13f55f11 | 14 | 26 | 0.5385 |
| 998f3a2f5d846e | 11 | 21 | 0.5238 |
| db0ec554bf955e | 11 | 21 | 0.5238 |
| 66e345df54e3a4 | 13 | 25 | 0.5200 |
| 079ebcb640112d | 11 | 22 | 0.5000 |
| 0b8fd055a3a088 | 10 | 20 | 0.5000 |
| 0eda52b588c06f | 10 | 20 | 0.5000 |
| 3a489345016400 | 10 | 20 | 0.5000 |
| 6bca1a3e221b2c | 11 | 22 | 0.5000 |
| b4cc6c3804657c | 15 | 30 | 0.5000 |
| acf8cdf5607908 | 18 | 37 | 0.4865 |
| 060c413d0e2379 | 15 | 31 | 0.4839 |
| e4c109ce8a4baa | 12 | 25 | 0.4800 |
| 0b2608c87c746a | 10 | 21 | 0.4762 |
| 1b7a2e34bb32af | 10 | 21 | 0.4762 |
| e3a6e0276de089 | 10 | 21 | 0.4762 |
| 8e6d4816114eab | 13 | 28 | 0.4643 |
| 7936aa34c9b6a3 | 12 | 26 | 0.4615 |
| e3b805bb54df1d | 12 | 26 | 0.4615 |
| 01c111bb670948 | 10 | 22 | 0.4545 |
| 1e0ac46c9ac0ae | 10 | 22 | 0.4545 |
| 661a67b8f78f66 | 10 | 22 | 0.4545 |
| 4dae6b5b873ceb | 9 | 20 | 0.4500 |
| 5636124b176d54 | 11 | 25 | 0.4400 |
| bcfe7f21eb47cb | 17 | 39 | 0.4359 |
| ad9fafac58c95b | 10 | 23 | 0.4348 |
| 405dc99e21822f | 13 | 30 | 0.4333 |
| 0c9626ffd14e1c | 9 | 21 | 0.4286 |

Looking at the top few statistics, the first player killed 24 people with 23 headshots, and the second one killed 42 people with 40 headshots, which is pretty suspicious. Therefore, this data might show several suspicious players, which could be provided to the game developer to decide further actions.