## New Zealand Programming Contest 2023

## Contest Statistics

## Teams

There were 76 teams who made at least 1 submission.

| School | Tertiary Junior | Tertiary Int | Tertiary Open | Open |
| :---: | :---: | :---: | :---: | :---: |
| 49 | 1 | 7 | 10 | 9 |

As usual there were more school teams than any other category, but this year they outnumbered all the other categories combined.

## Problems

|  |  | A | B | C | D | E | F | G | H | I | J | K | L | M | N | 0 | P |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| School | Solved | 41 | 42 | 17 | 14 | 23 | 25 | 13 | 5 | 5 | 1 | 2 | 3 | 0 | 0 | 0 | 0 |
|  | Errors | 18 | 43 | 48 | 101 | 61 | 74 | 4 | 30 | 70 | 10 | 19 | 6 | 3 | 52 | 2 | 7 |
|  | Attempts | 59 | 85 | 65 | 115 | 84 | 99 | 17 | 35 | 75 | 11 | 21 | 9 | 3 | 52 | 2 | 7 |
| Tertiary Junior | Solved | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|  | Errors | 0 | 1 | 1 | 4 | 2 | 1 | 0 | 15 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|  | Attempts | 1 | 2 | 2 | 5 | 3 | 2 | 1 | 16 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Tertiary Int | Solved | 7 | 7 | 4 | 2 | 2 | 5 | 2 | 3 | 3 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
|  | Errors | 5 | 4 | 6 | 12 | 3 | 17 | 2 | 3 | 11 | 0 | 1 | 1 | 1 | 1 | 0 | 0 |
|  | Attempts | 12 | 11 | 10 | 14 | 5 | 22 | 4 | 6 | 14 | 1 | 2 | 2 | 1 | 1 | 0 | 0 |
| Tertiary Open | Solved | 10 | 9 | 5 | 4 | 9 | 9 | 8 | 8 | 4 | 3 | 3 | 3 | 1 | 3 | 0 | 0 |
|  | Errors | 0 | 4 | 9 | 15 | 6 | 16 | 4 | 19 | 18 | 9 | 9 | 2 | 2 | 17 | 3 | 0 |
|  | Attempts | 10 | 13 | 14 | 19 | 15 | 25 | 12 | 27 | 22 | 12 | 12 | 5 | 3 | 20 | 3 | 0 |
| Open | Solved | 8 | 7 | 3 | 4 | 6 | 5 | 2 | 4 | 3 | 2 | 1 | 1 | 0 | 0 | 0 | 0 |
|  | Errors | 5 | 3 | 0 | 9 | 7 | 4 | 0 | 9 | 14 | 0 | 4 | 4 | 5 | 15 | 0 | 2 |
|  | Attempts | 13 | 10 | 3 | 13 | 13 | 9 | 2 | 13 | 17 | 2 | 5 | 5 | 5 | 15 | 0 | 2 |
| TOTAL | Solved | 67 | 66 | 30 | 25 | 41 | 45 | 26 | 21 | 15 | 7 | 7 | 8 | 1 | 3 | 0 | 0 |
|  | Errors | 28 | 55 | 64 | 141 | 79 | 112 | 10 | 76 | 115 | 19 | 33 | 13 | 11 | 85 | 5 | 9 |
|  | Attempts | 95 | 121 | 94 | 166 | 120 | 157 | 36 | 97 | 130 | 26 | 40 | 21 | 12 | 88 | 5 | 9 |
| \% Solved |  | 71\% | 55\% | 32\% | 15\% | 34\% | 29\% | 72\% | 22\% | 12\% | 27\% | 18\% | 38\% | 8\% | 3\% | 0\% | 0\% |

As expected, problems $A$ and $B$ were the easiest to solve, the only 2 problems to have more correct submissions than incorrect. D seemed to be harder than expected with more wrong answers than any other problem.

None of the 30 point problems had more correct answers than any of the 3 or 10 pointers, and only 4 correctly solved a 100 point problem. N attracted 88 attempts, but only 3 were correct.

## Languages

The 1314 submissions used 5 different languages, with Python 3 being the most popular by a long way.

| Python 3 C++ | Java | C\# | C |  |
| :---: | :---: | :---: | :---: | :---: |
| 1066 | 140 | 67 | 40 | 1 |

## Results

The most frequent result was WRONG_ANSWER as usual, with CORRECT quite a way behind.

| CORRECT | WRONG <br> ANSWER | TIME <br> LIMIT | RUN <br> ERROR | NO <br> OUTPUT | COMPILER <br> ERROR |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 402 | 667 | 51 | 158 | 15 | 21 |

## Clarifications

The error in the spec for Problem K was sent to all teams as a clarification at the start. An error in the checker for Problem I was fixed in the second hour - DOMjudge was being upset by trailing spaces.

There were 27 clarification requests which were not shared with all teams. Most just wanted to confirm what was said in the problem descriptions, but there were quite a few which basically said "my code gives the right answer so why is it marked wrong". Some were quite emphatic that their code was correct, claiming to have tested "all possible cases"! This was despite a section of the Welcome Video demonstrating why this can happen.

