

# Sylvan Crossword Report - Edition 6

12/8/21 - 6/5/24

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June 6, 2024

## 1) Introduction



I'm still upset about losing in Catch Phrase

What's up party people. I would say I miss you all but I now live in Chicago, so I'm not sure I technically miss y'all as much as I previously did, but nonetheless I still love you all.

Regardless, nearly a year has passed since my last crossword report, and so I figured I should give this fandom what they are craving for: more crossword graphs, now with over 330 more puzzles than the 5th report!!

This installment covers from 12/8/21 - 6/5/24 (910 puzzles), with the first report covering up to 12/28/21, the second report covering up to 2/14/22, the third report covering up to 7/23/22, the fourth report covering up to 2/4/23, and the fifth report covering up to 7/8/23. As mentioned in the Introduction of the 4th edition, the 12/8/22 puzzle was skipped for data collection purposes, as it coincided with [1,100 New York Times Union employees striking](#), and this is officially a pro-labor data analysis project.

This report will be structured as follows:

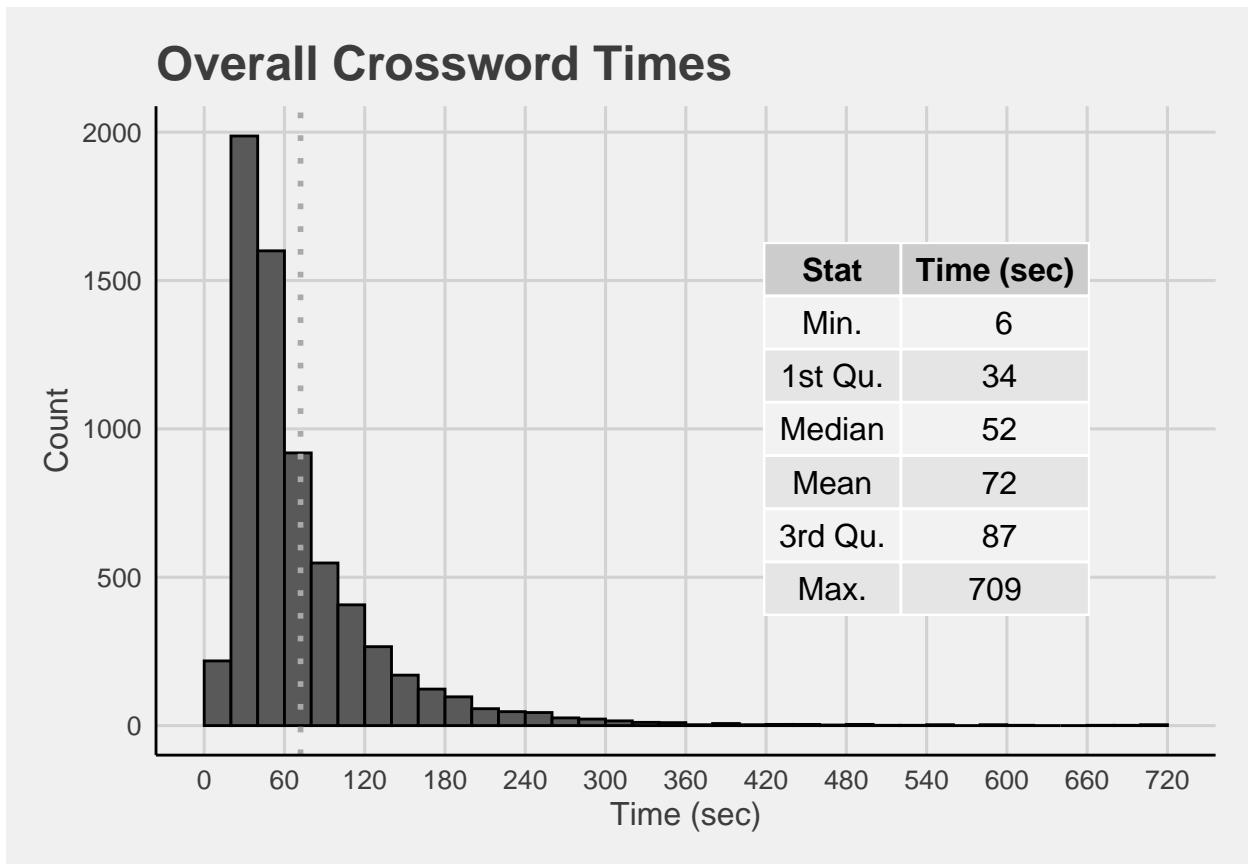
1. Introduction
2. Methodology
3. Summary
4. Profiles
5. Declarations of Funding and Competing Interests
6. Acknowledgements
7. Appendix: Z-Score Explanation, Summary Stats, and Graphs for Each Weekday

## 2) Methodology

No methodological updates have been made since the first two reports, so go look there if you're really that interested. Or check out [my GitHub](#) if you wanna see the super amazing sick code.

### 3) Summary

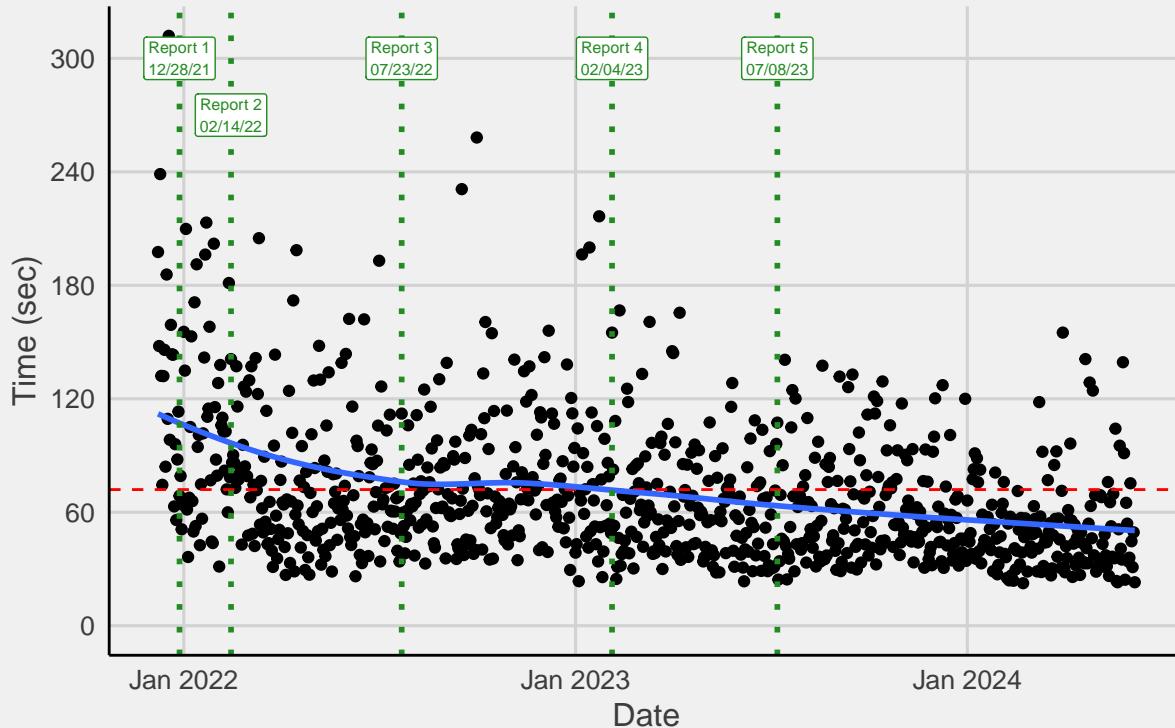
#### 3.1) Overall Trends



Our group's crossword times have continued to improve in this most recent interval, with the median improving from 57 to 52 seconds, the mean dropping from 78.6 to 72.0 seconds, and the lower and upper quartiles dipping from 37 to 34 seconds and 97 to 87 seconds, respectively.

jakewal99 and liam continue to own the record for the quickest puzzle solve with their 6-second solves on 1/5/22 and 9/18/22, respectively.

## Overall Crossword Times by Date



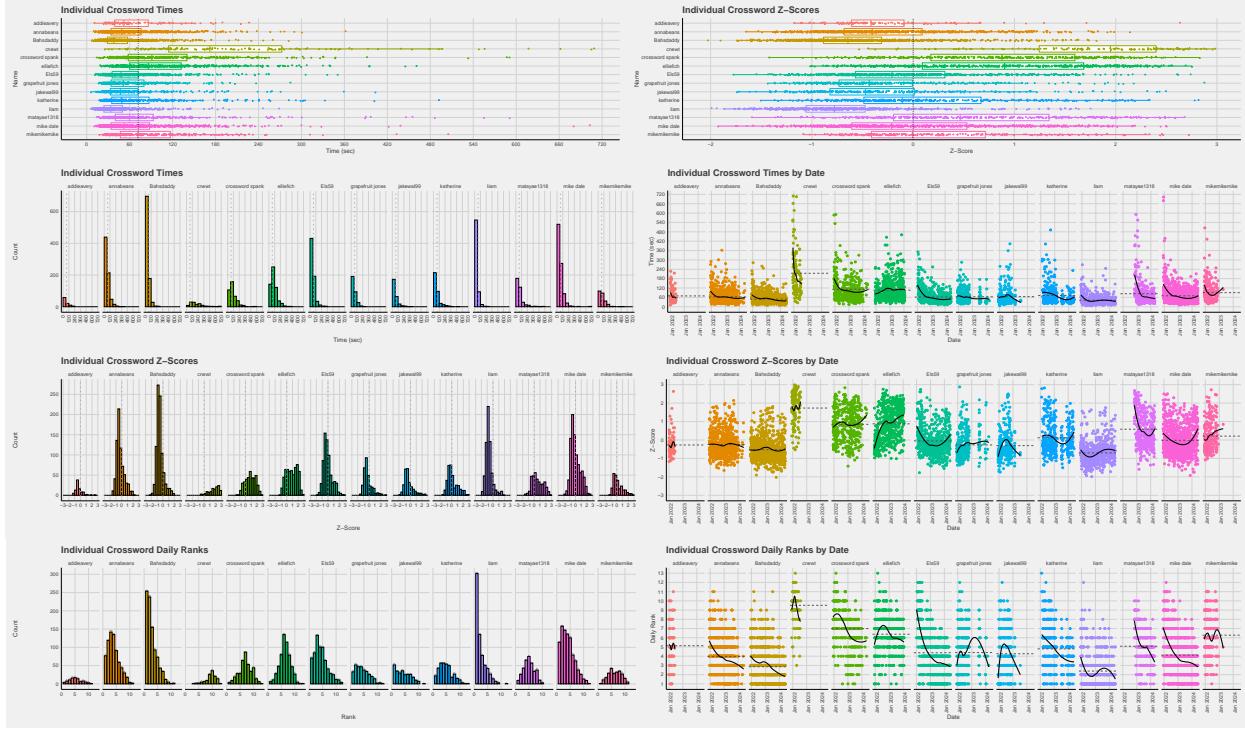
This is objective, quantitative proof that I have smart friends. I mean just look at how that loess line continues to trend downward!!!!

### Overall Best Week - Average Time: 39.6 Seconds

|                     | Weekday   | Time |
|---------------------|-----------|------|
| <b>Feb 11, 2024</b> | Sunday    | 26.6 |
| <b>Feb 12, 2024</b> | Monday    | 56.3 |
| <b>Feb 13, 2024</b> | Tuesday   | 23.8 |
| <b>Feb 14, 2024</b> | Wednesday | 41.0 |
| <b>Feb 15, 2024</b> | Thursday  | 29.8 |
| <b>Feb 16, 2024</b> | Friday    | 39.7 |
| <b>Feb 17, 2024</b> | Saturday  | 71.2 |

We set a new best week record hell yeah. I assume since it was over Valentine's Day week we were all just inspired by our deep eternal love for one another.

### 3.2) Individuals' Scores



Note that in the above boxplots and histograms, the dotted lines represent the overall average, while in the scatterplots, the dashed lines represent each participant's personal average.

Rankings of Each Player

|                  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8  | 9  | 10 | 11 | 12 | 13 | 14 | N/A | Total Score |
|------------------|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|-----|-------------|
| Bahsdaddy        | 254 | 238 | 155 | 93  | 73  | 43  | 34  | 12 | 5  | 1  | 2  | 0  | 0  | 0  | 0   | 11049       |
| mike dale        | 114 | 158 | 147 | 136 | 126 | 79  | 63  | 38 | 26 | 13 | 9  | 1  | 0  | 0  | 0   | 9911        |
| liam             | 302 | 135 | 78  | 51  | 42  | 27  | 14  | 7  | 3  | 0  | 0  | 1  | 0  | 0  | 250 | 8325        |
| annabeans        | 77  | 119 | 142 | 135 | 91  | 59  | 44  | 30 | 18 | 4  | 2  | 0  | 0  | 0  | 189 | 7953        |
| Els59            | 71  | 85  | 133 | 101 | 100 | 64  | 41  | 28 | 25 | 12 | 11 | 4  | 0  | 0  | 235 | 7172        |
| elliefich        | 6   | 11  | 28  | 48  | 80  | 135 | 114 | 79 | 47 | 27 | 5  | 1  | 1  | 0  | 328 | 5013        |
| katherine        | 22  | 43  | 57  | 57  | 54  | 50  | 18  | 27 | 15 | 11 | 3  | 1  | 1  | 0  | 551 | 3663        |
| matayae1318      | 9   | 26  | 43  | 65  | 75  | 57  | 34  | 38 | 10 | 3  | 0  | 0  | 0  | 0  | 550 | 3571        |
| grapefruit jones | 33  | 52  | 47  | 47  | 38  | 34  | 26  | 20 | 14 | 2  | 3  | 1  | 0  | 0  | 593 | 3362        |
| crossword spank  | 4   | 9   | 19  | 28  | 28  | 64  | 87  | 53 | 34 | 44 | 14 | 6  | 1  | 0  | 519 | 3132        |
| jakewal99        | 52  | 35  | 30  | 36  | 25  | 26  | 26  | 18 | 10 | 7  | 0  | 1  | 0  | 0  | 644 | 2855        |
| mikemikemike     | 1   | 11  | 17  | 29  | 42  | 28  | 32  | 35 | 27 | 15 | 5  | 0  | 0  | 0  | 668 | 2110        |
| addieavery       | 4   | 8   | 11  | 16  | 17  | 14  | 6   | 8  | 5  | 3  | 1  | 0  | 0  | 0  | 817 | 917         |
| cnewt            | 0   | 0   | 1   | 2   | 2   | 5   | 6   | 9  | 26 | 36 | 21 | 14 | 1  | 0  | 787 | 674         |

The above table displays the number of times each player has finished at each rank, with the **Total Score** column being the sum of points if a 1st-place finish gets 14 points, 2nd-place gets 13, ..., 14th-place gets 1 point. Not completing a puzzle accrues 0 points. Note that there exists the 14th-place column despite no one occupying a spot in this column because there are 14 possible ranks, due to there being 14 competitors. There just has not been a single day where all 14 competitors completed a puzzle.

With his persistent and admirable dedication to data completion, Bahsdaddy has climbed to the summit of the Sylvan Crossword Report. This is truly an inspiring story of hard work and dedication, only rivaled by perhaps the Miracle on Ice.

### 3.3) Individual Rankings by Number of Players Beaten per Puzzle

As discussed in Edition 4, I have created an alternative ranking system to give a different perspective on the leaderboard, by instead scoring players per puzzle based on how many fellow competitors they beat on a given puzzle, as opposed to the typical ranking system, which ranks solves based on how many other players bested a given person's solve time. For example, my 1st-place solve on 6/9/22 would be worth 5 points, as I beat 4 other competitors, and liam's 1st-place solve on 3/12/22 would be worth 12 points, as he beat 11 other competitors. This alternative ranking system is designed to reward players who achieved higher ranks in puzzles in which there were more competitors, and hurts players like myself who have racked up high finishes through puzzles with lower overall participation.

The following tables displays the number of times each player beat a given number of fellow competitors, ranging from 13, indicating a player bested 13 other players, to 0, indicating a player bested no other players (i.e., finished last), with the **Total Score** column being the sum of points if beating 13 other players gets 14 points, beating 12 other players gets 13 points, ..., beating 0 other players gets 1 point. Not completing a puzzle accrues 0 points.

**Number of Competitors Bested for Each Player**

|                  | 13 | 12 | 11 | 10 | 9  | 8  | 7  | 6   | 5   | 4   | 3   | 2   | 1   | 0   | N/A | Total Score |
|------------------|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-------------|
| Bahsdaddy        | 0  | 0  | 4  | 10 | 42 | 40 | 76 | 114 | 130 | 148 | 142 | 103 | 76  | 25  | 0   | 4918        |
| liam             | 0  | 0  | 15 | 33 | 46 | 64 | 77 | 103 | 84  | 80  | 72  | 51  | 23  | 12  | 250 | 4319        |
| mike dale        | 0  | 0  | 1  | 4  | 17 | 27 | 40 | 63  | 88  | 130 | 142 | 132 | 142 | 124 | 0   | 3780        |
| annabeans        | 0  | 0  | 1  | 4  | 17 | 34 | 55 | 77  | 96  | 117 | 107 | 95  | 87  | 31  | 189 | 3590        |
| Els59            | 0  | 0  | 0  | 1  | 3  | 6  | 24 | 69  | 75  | 95  | 114 | 124 | 103 | 61  | 235 | 2790        |
| grapefruit jones | 0  | 4  | 2  | 6  | 19 | 32 | 42 | 31  | 44  | 41  | 26  | 33  | 26  | 11  | 593 | 1908        |
| jakewal99        | 0  | 1  | 3  | 15 | 23 | 31 | 27 | 23  | 32  | 23  | 32  | 23  | 18  | 15  | 644 | 1655        |
| elliefich        | 0  | 0  | 1  | 0  | 3  | 6  | 15 | 20  | 23  | 30  | 44  | 93  | 119 | 228 | 328 | 1565        |
| katherine        | 0  | 0  | 0  | 3  | 6  | 12 | 19 | 26  | 33  | 55  | 46  | 58  | 51  | 50  | 551 | 1518        |
| mikemikemike     | 0  | 0  | 2  | 0  | 4  | 8  | 15 | 25  | 29  | 37  | 31  | 33  | 30  | 28  | 668 | 1101        |
| crossword spank  | 0  | 0  | 0  | 0  | 1  | 1  | 7  | 9   | 20  | 21  | 40  | 57  | 106 | 129 | 519 | 1035        |
| matayae1318      | 0  | 0  | 0  | 0  | 0  | 2  | 3  | 7   | 16  | 21  | 48  | 72  | 88  | 103 | 550 | 979         |
| addieavery       | 0  | 0  | 2  | 2  | 9  | 9  | 12 | 18  | 11  | 7   | 13  | 5   | 4   | 1   | 817 | 616         |
| cnewt            | 0  | 0  | 0  | 0  | 1  | 0  | 2  | 0   | 3   | 1   | 5   | 11  | 24  | 76  | 787 | 226         |

As with the previously discussed scoring system, Bahsdaddy has officially claimed top spot in this scoring system as well.

Note that the rest of the report will continue with using raw ranks, as opposed to number of competitors beaten, due to ease of interpretability, and due to the fact that this scoring system is also imperfect. For example, if a person finishes 1st out of 3 one day, and then finishes 1st out of 8 the next day, their total number of competitors beaten will have dropped by 5, which seems awfully variable for a player who finished 1st in back-to-back days.

### 3.4) Improvements in Most Recent Period

This section will explore performance before (inclusive) and after 07/08/23, which is the final date in which data was included for Edition 4.

**Change in Average Time**

|                         | Avg Time<br>Pre-07/08 | Avg Time<br>Post-07/08 | Change<br>In Time |
|-------------------------|-----------------------|------------------------|-------------------|
| <b>addieavery</b>       | 69.3                  |                        |                   |
| <b>annabeans</b>        | 65.3                  | 54.7                   | -10.6             |
| <b>Bahsdaddy</b>        | 54.0                  | 38.7                   | -15.3             |
| <b>cnewt</b>            | 214.3                 |                        |                   |
| <b>crossword spank</b>  | 116.5                 | 92.8                   | -23.8             |
| <b>elliefich</b>        | 102.5                 | 115.4                  | 13.0              |
| <b>Els59</b>            | 69.7                  | 47.7                   | -22.0             |
| <b>grapefruit jones</b> | 64.5                  | 57.7                   | -6.8              |
| <b>jakewal99</b>        | 64.8                  | 38.5                   | -26.3             |
| <b>katherine</b>        | 83.9                  | 49.4                   | -34.5             |
| <b>liam</b>             | 42.8                  | 40.1                   | -2.7              |
| <b>matayae1318</b>      | 109.2                 | 58.2                   | -51.0             |
| <b>mike dale</b>        | 76.8                  | 57.7                   | -19.0             |
| <b>mikemikemike</b>     | 90.1                  |                        |                   |

The biggest improvement in times again goes to matayae1318, with an average 51-second improvement in this 6th period.

Change in Average Z-Score

|                  | Avg Z-Score<br>Pre-07/08 | Avg Z-Score<br>Post-07/08 | Change<br>In Z-Score |
|------------------|--------------------------|---------------------------|----------------------|
| addieavery       | -0.27                    |                           |                      |
| annabeans        | -0.25                    | -0.23                     | 0.01                 |
| Bahsdaddy        | -0.49                    | -0.59                     | -0.10                |
| cnewt            | 1.73                     |                           |                      |
| crossword spank  | 0.84                     | 0.89                      | 0.05                 |
| elliefich        | 0.70                     | 1.33                      | 0.63                 |
| Els59            | -0.02                    | -0.10                     | -0.07                |
| grapefruit jones | -0.31                    | 0.03                      | 0.34                 |
| jakewal99        | -0.30                    | -0.75                     | -0.45                |
| katherine        | 0.19                     | -0.01                     | -0.20                |
| liam             | -0.78                    | -0.53                     | 0.25                 |
| matayae1318      | 0.84                     | 0.34                      | -0.50                |
| mike dale        | -0.06                    | 0.05                      | 0.11                 |
| mikemikemike     | 0.21                     |                           |                      |

matayae1318 also holds the biggest improvement in z-scores, with an average of a 0.5 z-score improvement per puzzle.

Change in Average Rank

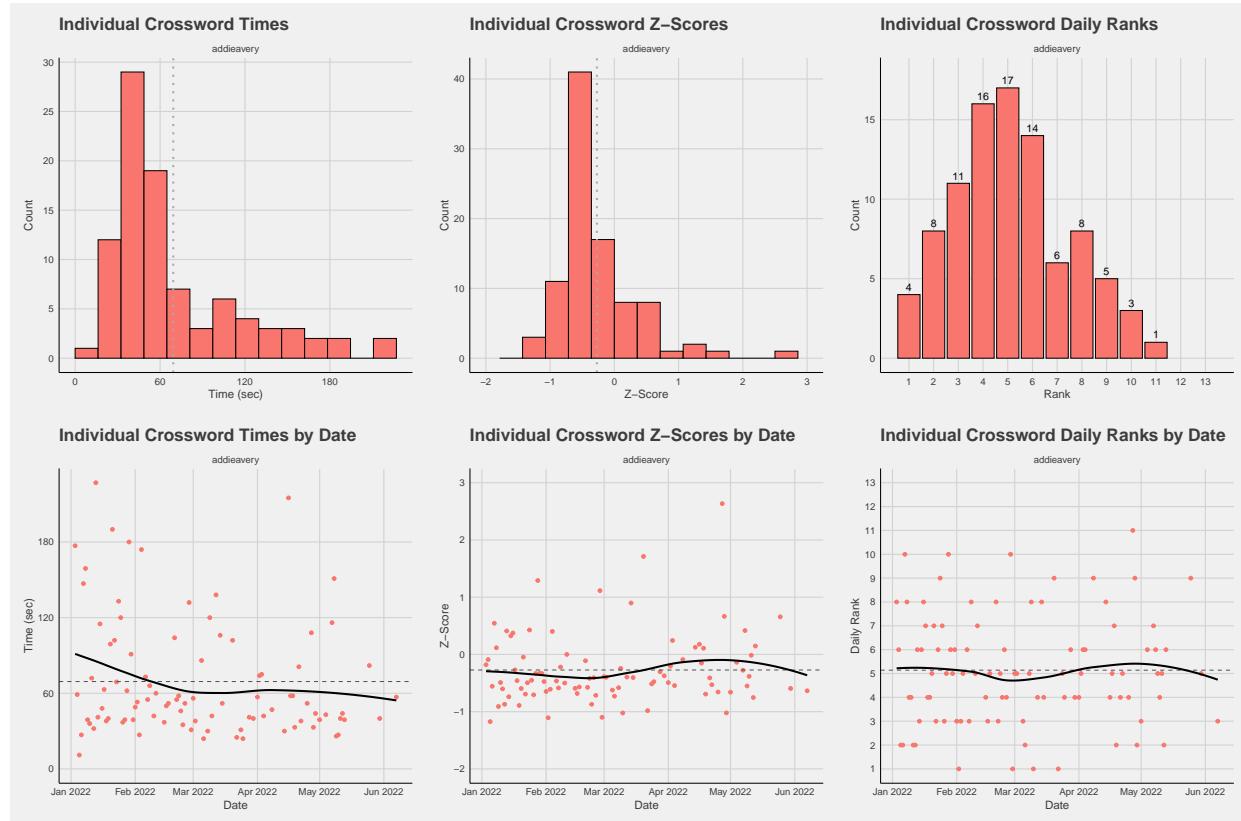
|                  | Avg Rank<br>Pre-07/08 | Avg Rank<br>Post-07/08 | Change<br>In Rank |
|------------------|-----------------------|------------------------|-------------------|
| addieavery       | 5.1                   |                        |                   |
| annabeans        | 4.1                   | 3.4                    | -0.7              |
| Bahsdaddy        | 3.3                   | 2.2                    | -1.1              |
| cnewt            | 9.5                   |                        |                   |
| crossword spank  | 7.3                   | 5.9                    | -1.4              |
| elliefich        | 6.5                   | 6.0                    | -0.5              |
| Els59            | 5.0                   | 3.2                    | -1.7              |
| grapefruit jones | 4.4                   | 4.6                    | 0.2               |
| jakewal99        | 4.3                   | 2.0                    | -2.3              |
| katherine        | 5.4                   | 3.5                    | -1.9              |
| liam             | 2.4                   | 2.4                    | 0.0               |
| matayae1318      | 5.8                   | 4.4                    | -1.3              |
| mike dale        | 4.6                   | 3.3                    | -1.2              |
| mikemikemike     | 6.3                   |                        |                   |

In terms of rank, jakewal99 showed the biggest average movement up the standings, with an average improvement per day of 2.3.

## 4) Profiles

As with previous editions, everyone has their own page with statistics and graphs. Note that in all the plots in this section, the dotted and dashed lines represent the person's personal average. The *Personal Best Week by Average Z-Score* tables refer to an individual's best week in which they completed a puzzle every day (Sunday through Saturday), and is the week in which their average z-score per puzzle was their lowest.

## 4.1) addieavery



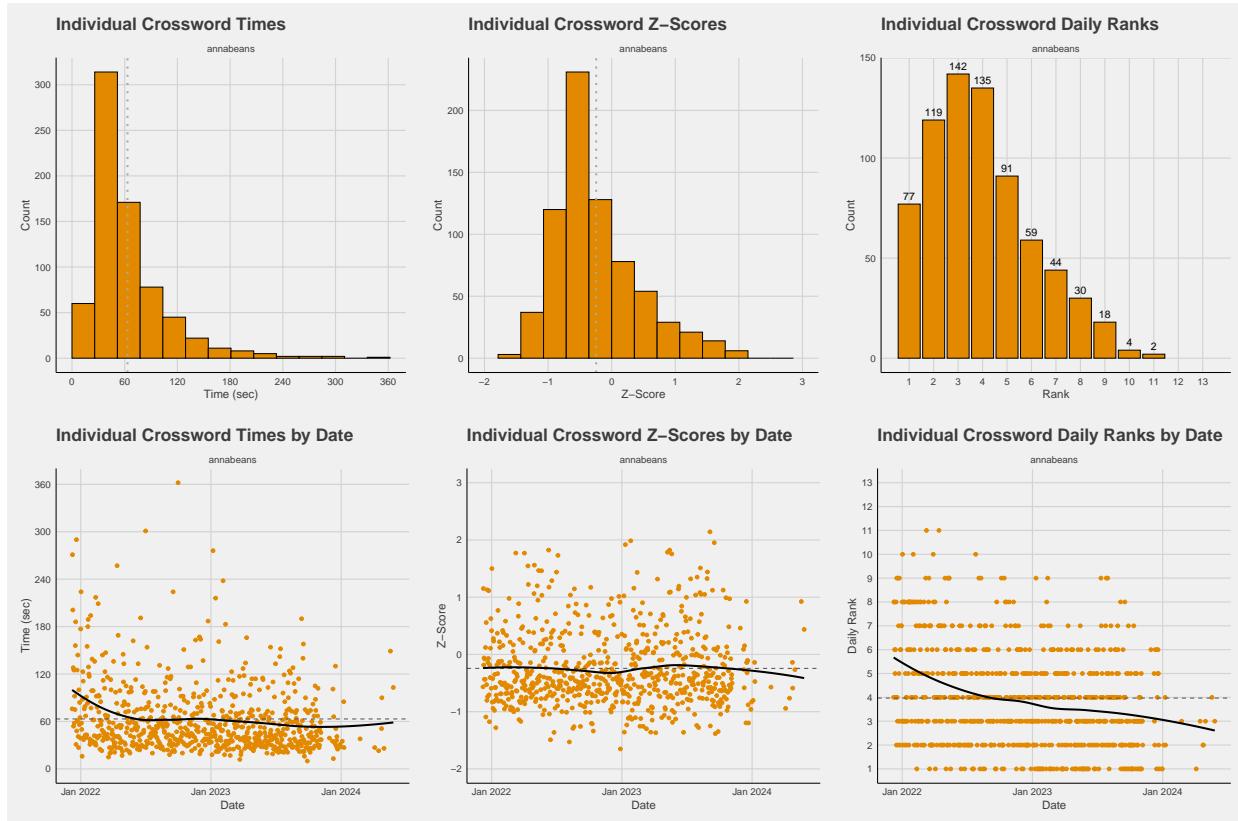
### Summary Statistics

|                | Min.  | 1st Qu. | Median | Mean  | Trimmed Mean | 3rd Qu. | Max.   |
|----------------|-------|---------|--------|-------|--------------|---------|--------|
| <b>Time</b>    | 11.00 | 39.00   | 52.00  | 69.32 | 65.31        | 86.00   | 227.00 |
| <b>Z-Score</b> | -1.17 | -0.61   | -0.42  | -0.27 | -0.33        | -0.09   | 2.63   |
| <b>Rank</b>    | 1.00  | 4.00    | 5.00   | 5.14  |              | 6.00    | 11.00  |

### Personal Best Week by Average Z-Score

|                     | Weekday   | Time<br>(Week Avg: 80.3) | Z-Score<br>(Week Avg: -0.4) | Rank<br>(Week Avg: 3.9) |
|---------------------|-----------|--------------------------|-----------------------------|-------------------------|
| <b>Jan 09, 2022</b> | Sunday    | 39                       | -0.91                       | 4                       |
| <b>Jan 10, 2022</b> | Monday    | 36                       | -0.49                       | 4                       |
| <b>Jan 11, 2022</b> | Tuesday   | 72                       | -0.60                       | 2                       |
| <b>Jan 12, 2022</b> | Wednesday | 32                       | -0.87                       | 2                       |
| <b>Jan 13, 2022</b> | Thursday  | 227                      | 0.41                        | 6                       |
| <b>Jan 14, 2022</b> | Friday    | 41                       | -0.74                       | 3                       |
| <b>Jan 15, 2022</b> | Saturday  | 115                      | 0.32                        | 6                       |

## 4.2) annabeans



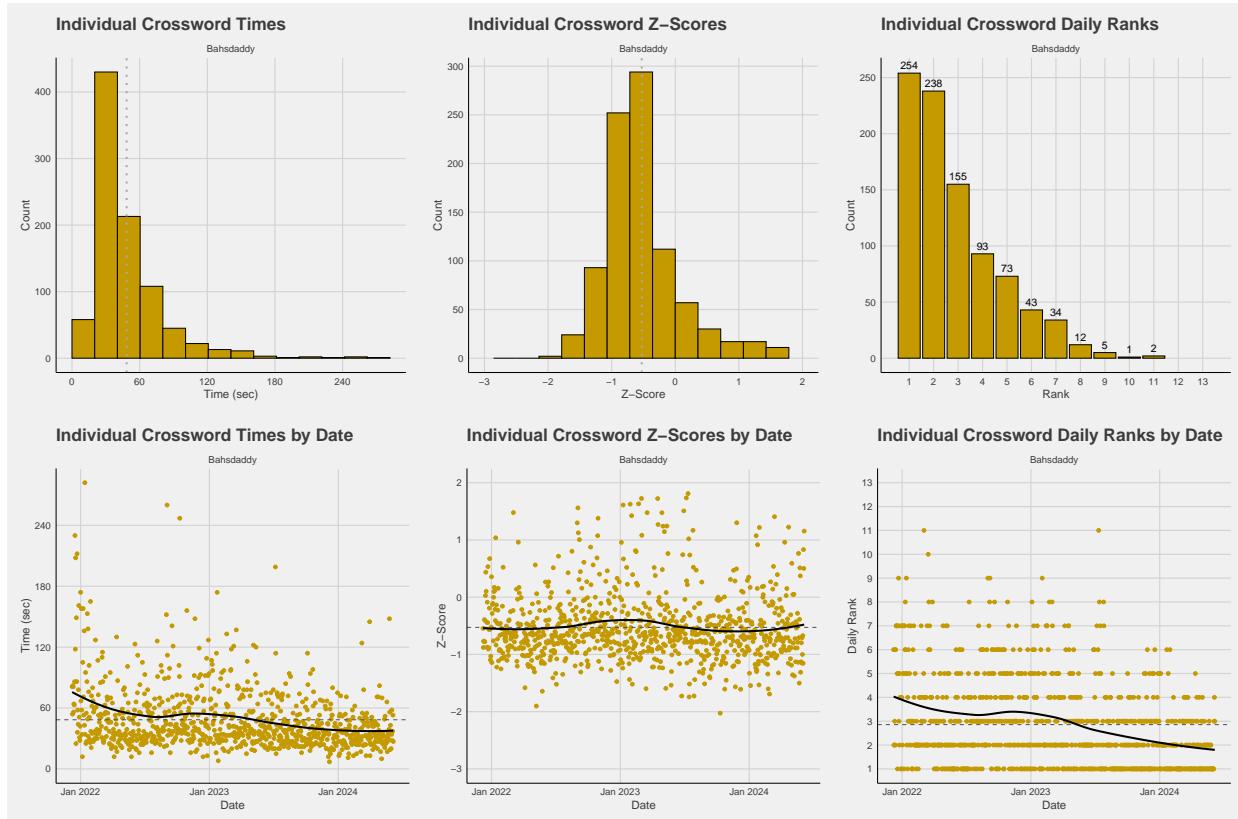
### Summary Statistics

|                | Min.  | 1st Qu. | Median | Mean  | Trimmed Mean | 3rd Qu. | Max.   |
|----------------|-------|---------|--------|-------|--------------|---------|--------|
| <b>Time</b>    | 10.00 | 34.00   | 49.0   | 63.18 | 58.04        | 76.00   | 362.00 |
| <b>Z-Score</b> | -1.65 | -0.68   | -0.4   | -0.24 | -0.28        | 0.09    | 2.14   |
| <b>Rank</b>    | 1.00  | 2.00    | 4.0    | 3.97  |              | 5.00    | 11.00  |

### Personal Best Week by Average Z-Score

|                     | Weekday   | Time<br>(Week Avg: 45.4) | Z-Score<br>(Week Avg: -0.8) | Rank<br>(Week Avg: 3.3) |
|---------------------|-----------|--------------------------|-----------------------------|-------------------------|
| <b>Aug 14, 2022</b> | Sunday    | 26                       | -0.63                       | 4                       |
| <b>Aug 15, 2022</b> | Monday    | 28                       | -0.93                       | 1                       |
| <b>Aug 16, 2022</b> | Tuesday   | 61                       | -0.41                       | 5                       |
| <b>Aug 17, 2022</b> | Wednesday | 28                       | -1.29                       | 2                       |
| <b>Aug 18, 2022</b> | Thursday  | 57                       | -0.30                       | 6                       |
| <b>Aug 19, 2022</b> | Friday    | 65                       | -0.59                       | 4                       |
| <b>Aug 20, 2022</b> | Saturday  | 53                       | -1.26                       | 1                       |

### 4.3) Bahsdaddy



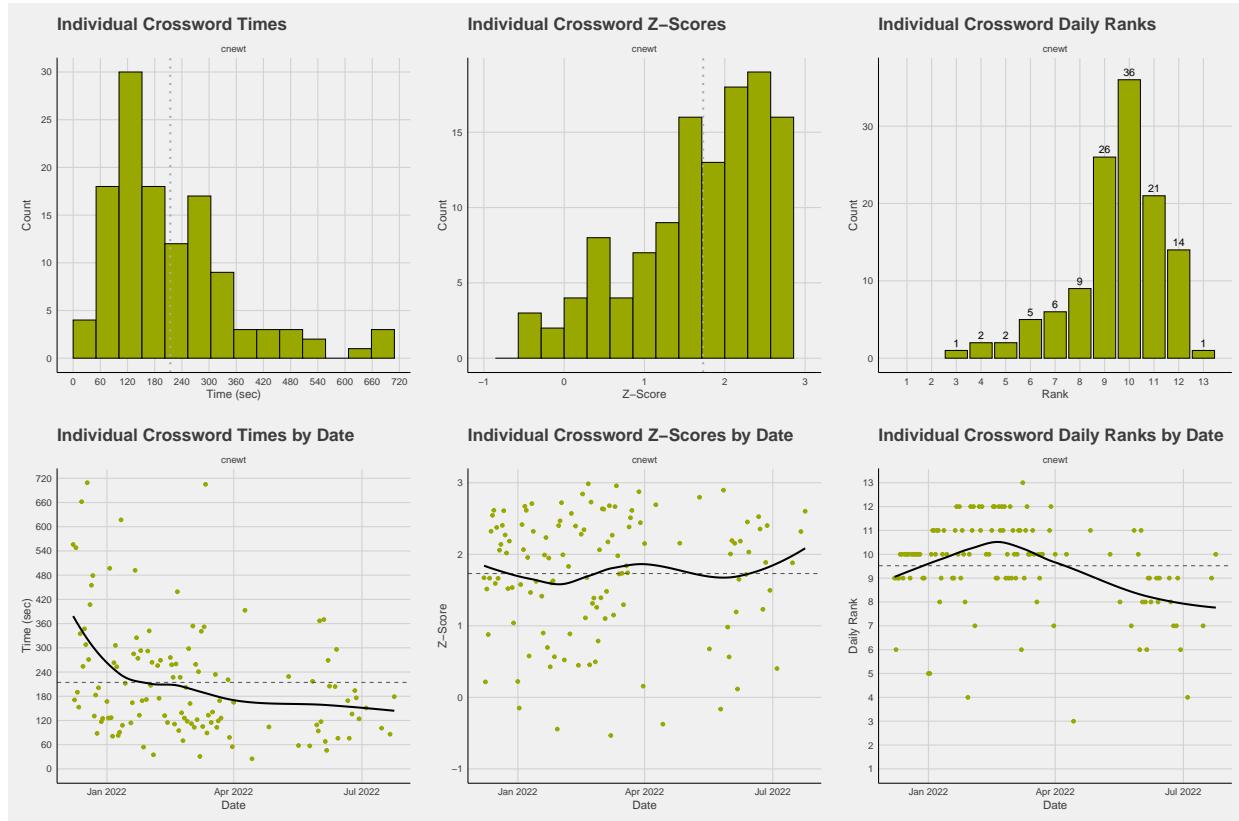
### Summary Statistics

|                | Min.  | 1st Qu. | Median | Mean  | Trimmed Mean | 3rd Qu. | Max.   |
|----------------|-------|---------|--------|-------|--------------|---------|--------|
| <b>Time</b>    | 7.00  | 29.00   | 38.00  | 48.44 | 44.68        | 57.00   | 282.00 |
| <b>Z-Score</b> | -2.03 | -0.88   | -0.64  | -0.53 | -0.57        | -0.31   | 1.81   |
| <b>Rank</b>    | 1.00  | 1.00    | 2.00   | 2.86  |              | 4.00    | 11.00  |

### Personal Best Week by Average Z-Score

|                     | Weekday   | Time<br>(Week Avg: 28.4) | Z-Score<br>(Week Avg: -1.1) | Rank<br>(Week Avg: 1.1) |
|---------------------|-----------|--------------------------|-----------------------------|-------------------------|
| <b>Feb 18, 2024</b> | Sunday    | 41                       | -0.68                       | 2                       |
| <b>Feb 19, 2024</b> | Monday    | 25                       | -1.06                       | 1                       |
| <b>Feb 20, 2024</b> | Tuesday   | 32                       | -0.84                       | 1                       |
| <b>Feb 21, 2024</b> | Wednesday | 24                       | -1.07                       | 1                       |
| <b>Feb 22, 2024</b> | Thursday  | 15                       | -1.18                       | 1                       |
| <b>Feb 23, 2024</b> | Friday    | 26                       | -1.34                       | 1                       |
| <b>Feb 24, 2024</b> | Saturday  | 36                       | -1.60                       | 1                       |

#### 4.4) cnewt



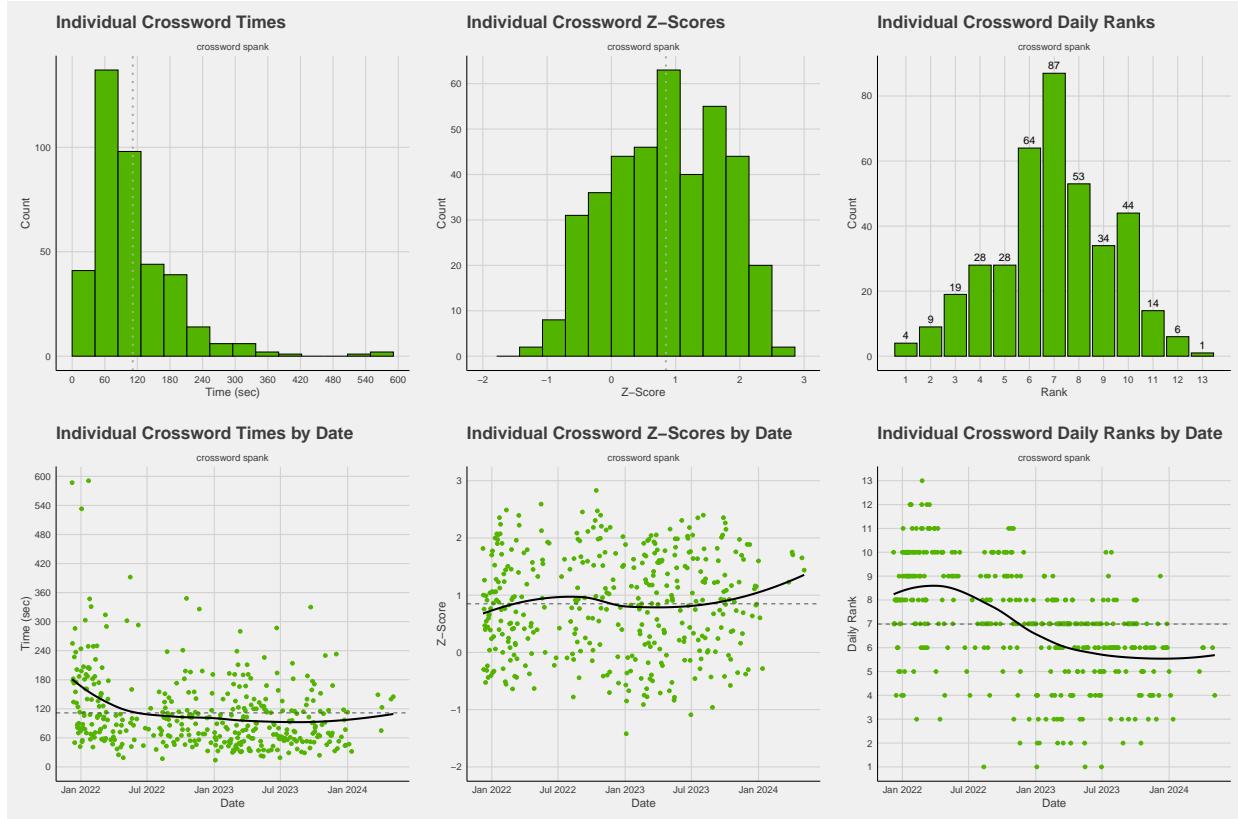
#### Summary Statistics

|                | Min.  | 1st Qu. | Median | Mean   | Trimmed Mean | 3rd Qu. | Max.   |
|----------------|-------|---------|--------|--------|--------------|---------|--------|
| <b>Time</b>    | 25.00 | 114.50  | 172.00 | 214.31 | 201.05       | 272.5   | 709.00 |
| <b>Z-Score</b> | -0.53 | 1.24    | 1.95   | 1.73   | 1.78         | 2.4     | 2.99   |
| <b>Rank</b>    | 3.00  | 9.00    | 10.00  | 9.52   |              | 11.0    | 13.00  |

#### Personal Best Week by Average Z-Score

|                     | Weekday   | Time<br>(Week Avg: 185.4) | Z-Score<br>(Week Avg: 1.5) | Rank<br>(Week Avg: 11) |
|---------------------|-----------|---------------------------|----------------------------|------------------------|
| <b>Feb 20, 2022</b> | Sunday    | 439                       | 2.99                       | 12                     |
| <b>Feb 21, 2022</b> | Monday    | 95                        | 0.46                       | 11                     |
| <b>Feb 22, 2022</b> | Tuesday   | 227                       | 2.73                       | 12                     |
| <b>Feb 23, 2022</b> | Wednesday | 139                       | 1.31                       | 11                     |
| <b>Feb 24, 2022</b> | Thursday  | 70                        | 1.39                       | 12                     |
| <b>Feb 25, 2022</b> | Friday    | 126                       | 0.50                       | 9                      |
| <b>Feb 26, 2022</b> | Saturday  | 202                       | 1.26                       | 10                     |

## 4.5) crossword spank



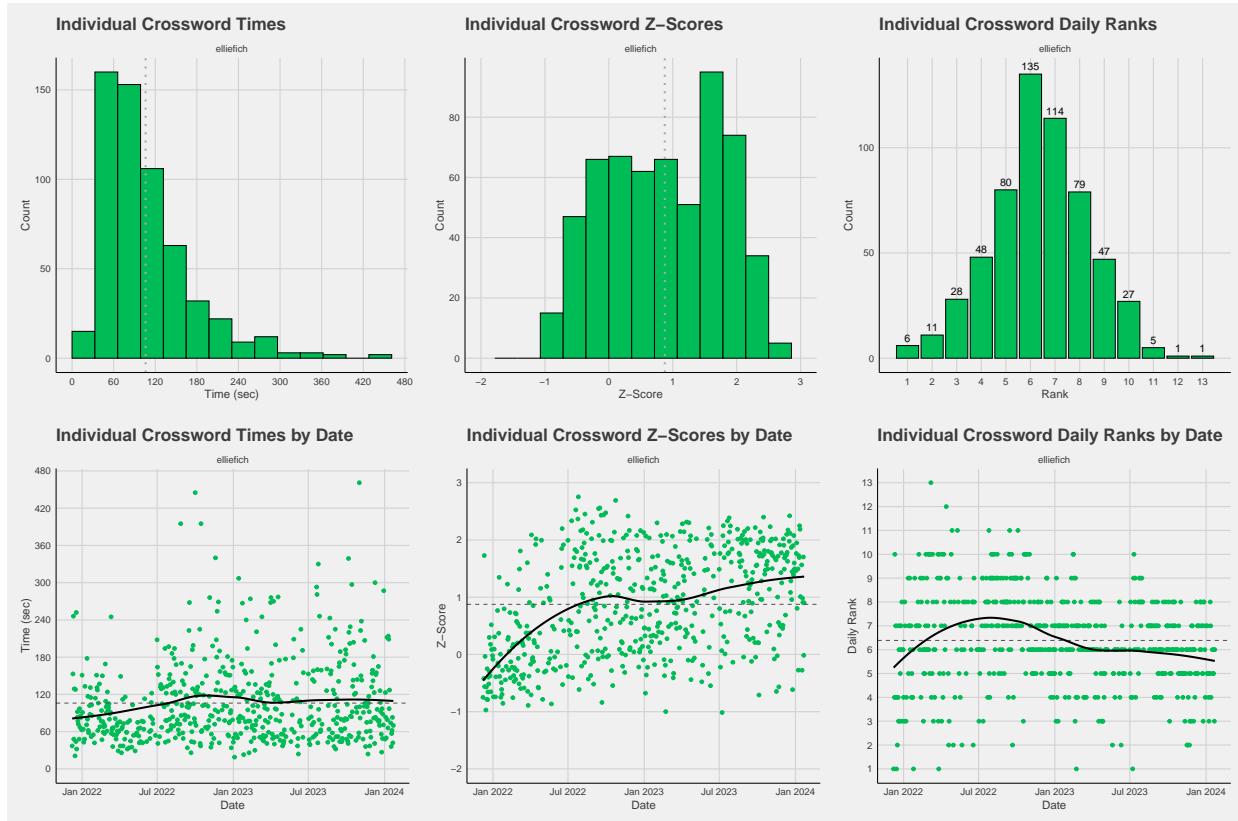
### Summary Statistics

|                | Min.  | 1st Qu. | Median | Mean   | Trimmed Mean | 3rd Qu. | Max.   |
|----------------|-------|---------|--------|--------|--------------|---------|--------|
| <b>Time</b>    | 14.00 | 58.00   | 91.00  | 111.55 | 103.30       | 140.0   | 591.00 |
| <b>Z-Score</b> | -1.42 | 0.17    | 0.88   | 0.85   | 0.86         | 1.6     | 2.83   |
| <b>Rank</b>    | 1.00  | 6.00    | 7.00   | 6.99   |              | 9.0     | 13.00  |

### Personal Best Week by Average Z-Score

|                     | Weekday   | Time<br>(Week Avg: 124.3) | Z-Score<br>(Week Avg: 0.4) | Rank<br>(Week Avg: 7.3) |
|---------------------|-----------|---------------------------|----------------------------|-------------------------|
| <b>Dec 19, 2021</b> | Sunday    | 175                       | 0.91                       | 8                       |
| <b>Dec 20, 2021</b> | Monday    | 132                       | -0.23                      | 6                       |
| <b>Dec 21, 2021</b> | Tuesday   | 201                       | 0.44                       | 8                       |
| <b>Dec 22, 2021</b> | Wednesday | 87                        | -0.44                      | 5                       |
| <b>Dec 23, 2021</b> | Thursday  | 81                        | 0.60                       | 9                       |
| <b>Dec 24, 2021</b> | Friday    | 124                       | 0.65                       | 8                       |
| <b>Dec 25, 2021</b> | Saturday  | 70                        | 0.67                       | 7                       |

## 4.6) elliefich



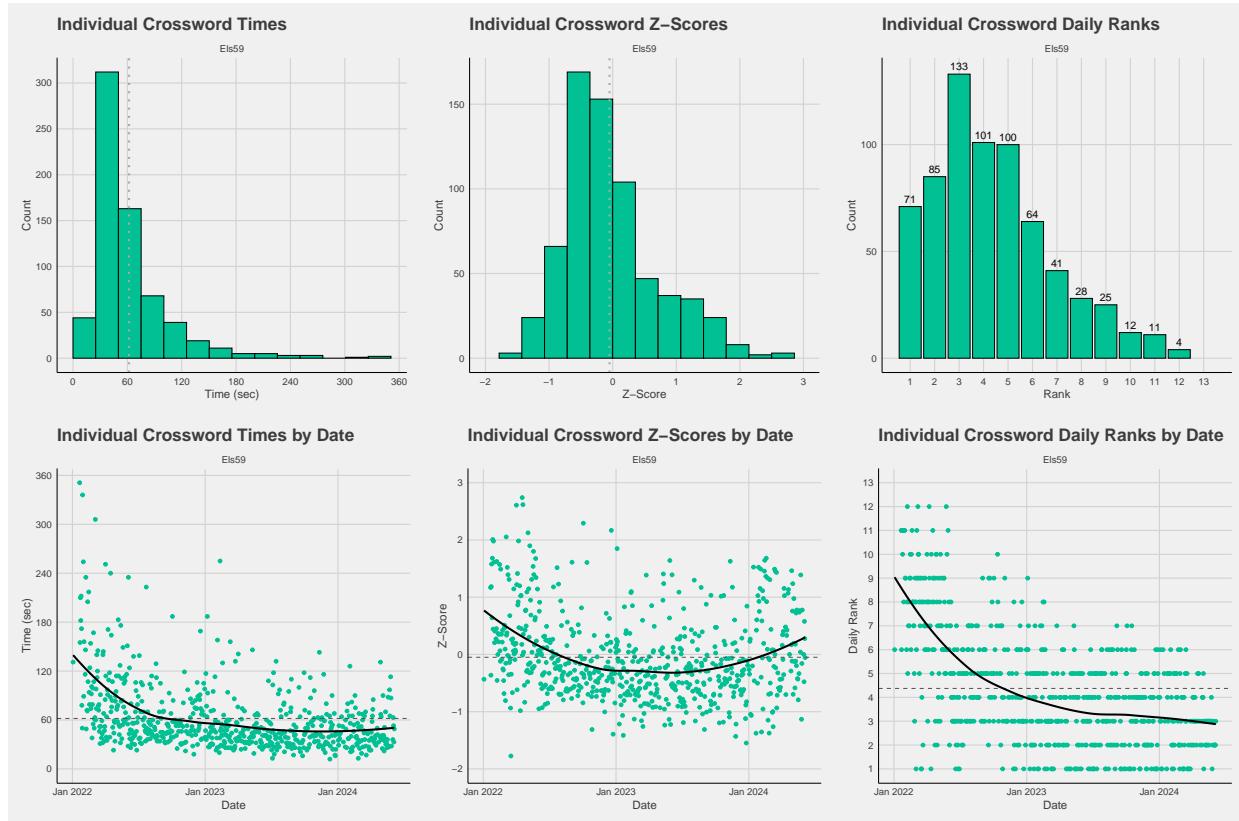
## Summary Statistics

|                | Min.  | 1st Qu. | Median | Mean   | Trimmed Mean | 3rd Qu. | Max.   |
|----------------|-------|---------|--------|--------|--------------|---------|--------|
| <b>Time</b>    | 19.00 | 60.00   | 86.0   | 106.02 | 99.54        | 132.00  | 461.00 |
| <b>Z-Score</b> | -1.01 | 0.09    | 0.9    | 0.88   | 0.88         | 1.68    | 2.75   |
| <b>Rank</b>    | 1.00  | 5.00    | 6.0    | 6.39   |              | 8.00    | 13.00  |

## Personal Best Week by Average Z-Score

|                     | Weekday   | Time<br>(Week Avg: 69.6) | Z-Score<br>(Week Avg: -0.4) | Rank<br>(Week Avg: 4.9) |
|---------------------|-----------|--------------------------|-----------------------------|-------------------------|
| <b>Dec 19, 2021</b> | Sunday    | 32                       | -0.79                       | 4                       |
| <b>Dec 20, 2021</b> | Monday    | 83                       | -0.66                       | 3                       |
| <b>Dec 21, 2021</b> | Tuesday   | 92                       | -0.40                       | 6                       |
| <b>Dec 22, 2021</b> | Wednesday | 77                       | -0.52                       | 3                       |
| <b>Dec 23, 2021</b> | Thursday  | 72                       | 0.30                        | 7                       |
| <b>Dec 24, 2021</b> | Friday    | 83                       | -0.30                       | 5                       |
| <b>Dec 25, 2021</b> | Saturday  | 48                       | -0.37                       | 6                       |

## 4.7) Els59



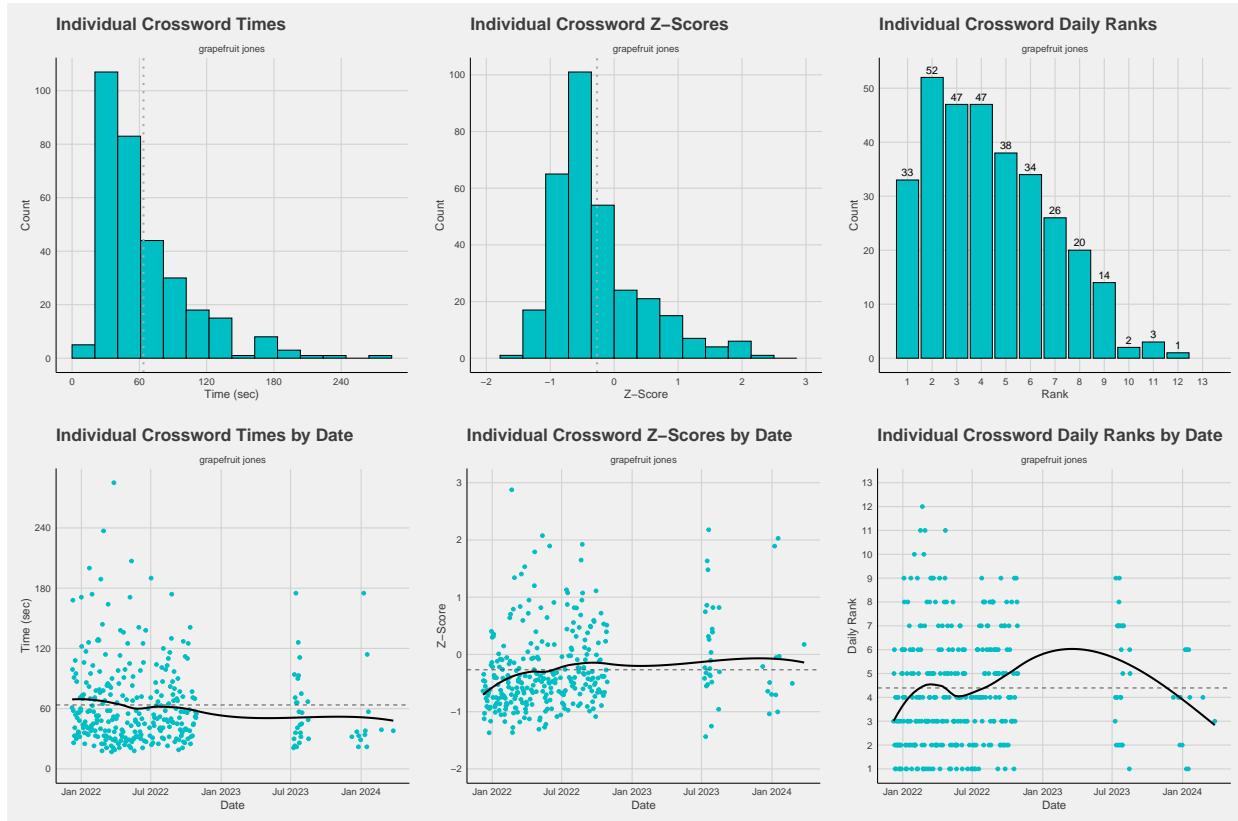
### Summary Statistics

|                | Min.  | 1st Qu. | Median | Mean  | Trimmed Mean | 3rd Qu. | Max.   |
|----------------|-------|---------|--------|-------|--------------|---------|--------|
| <b>Time</b>    | 12.00 | 35.50   | 48.00  | 61.88 | 56.56        | 72.00   | 351.00 |
| <b>Z-Score</b> | -1.77 | -0.57   | -0.21  | -0.05 | -0.09        | 0.31    | 2.74   |
| <b>Rank</b>    | 1.00  | 3.00    | 4.00   | 4.37  |              | 6.00    | 12.00  |

### Personal Best Week by Average Z-Score

|                     | Weekday   | Time<br>(Week Avg: 45.7) | Z-Score<br>(Week Avg: -0.7) | Rank<br>(Week Avg: 3.1) |
|---------------------|-----------|--------------------------|-----------------------------|-------------------------|
| <b>Jan 15, 2023</b> | Sunday    | 30                       | -0.88                       | 2                       |
| <b>Jan 16, 2023</b> | Monday    | 51                       | -0.40                       | 3                       |
| <b>Jan 17, 2023</b> | Tuesday   | 71                       | -0.12                       | 5                       |
| <b>Jan 18, 2023</b> | Wednesday | 46                       | -0.56                       | 4                       |
| <b>Jan 19, 2023</b> | Thursday  | 31                       | -1.07                       | 2                       |
| <b>Jan 20, 2023</b> | Friday    | 38                       | -0.15                       | 5                       |
| <b>Jan 21, 2023</b> | Saturday  | 53                       | -1.41                       | 1                       |

## 4.8) grapefruit jones



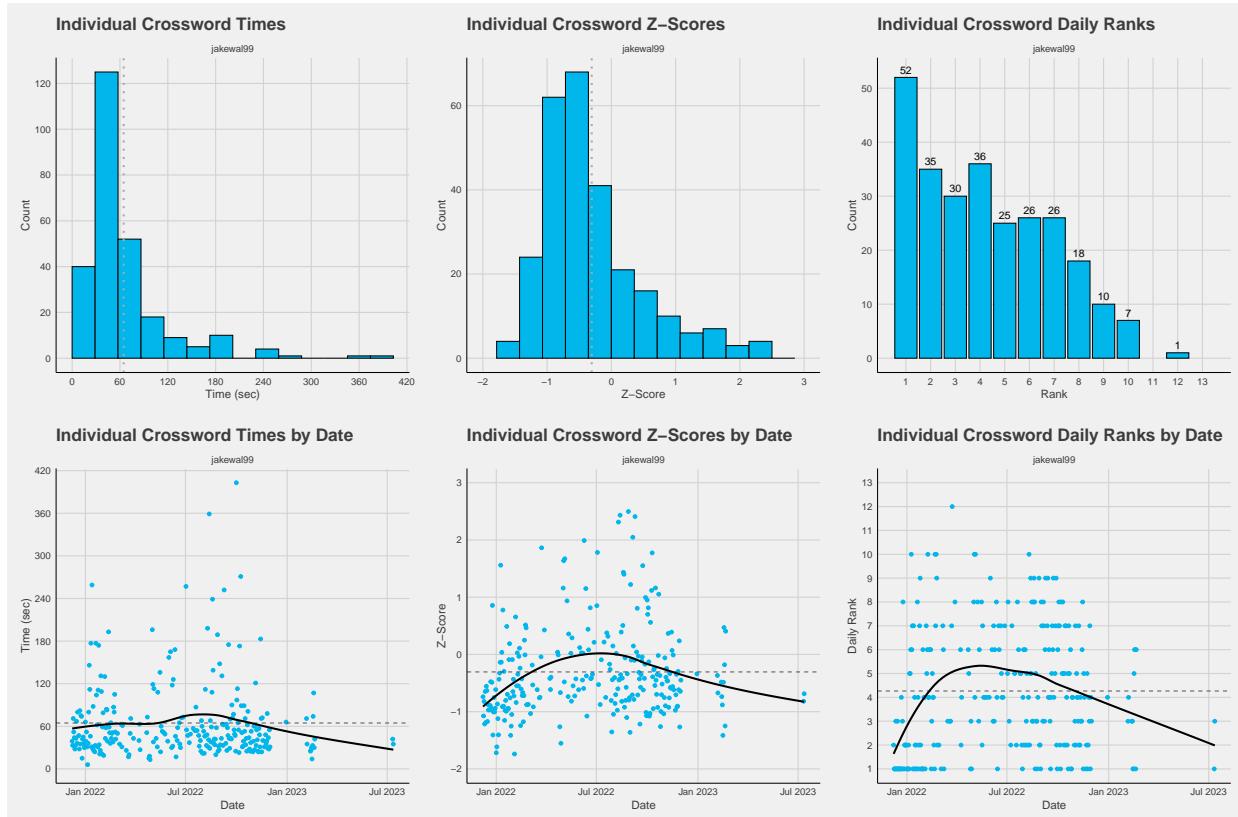
### Summary Statistics

|                | Min.  | 1st Qu. | Median | Mean  | Trimmed Mean | 3rd Qu. | Max.   |
|----------------|-------|---------|--------|-------|--------------|---------|--------|
| <b>Time</b>    | 17.00 | 34.00   | 51.00  | 63.68 | 59.44        | 80.00   | 285.00 |
| <b>Z-Score</b> | -1.44 | -0.73   | -0.43  | -0.27 | -0.33        | -0.01   | 2.88   |
| <b>Rank</b>    | 1.00  | 2.00    | 4.00   | 4.39  |              | 6.00    | 12.00  |

### Personal Best Week by Average Z-Score

|                     | Weekday   | Time<br>(Week Avg: 47.4) | Z-Score<br>(Week Avg: -0.9) | Rank<br>(Week Avg: 2.1) |
|---------------------|-----------|--------------------------|-----------------------------|-------------------------|
| <b>Dec 19, 2021</b> | Sunday    | 30                       | -0.81                       | 2                       |
| <b>Dec 20, 2021</b> | Monday    | 87                       | -0.62                       | 4                       |
| <b>Dec 21, 2021</b> | Tuesday   | 51                       | -0.71                       | 3                       |
| <b>Dec 22, 2021</b> | Wednesday | 56                       | -0.68                       | 2                       |
| <b>Dec 23, 2021</b> | Thursday  | 35                       | -0.94                       | 1                       |
| <b>Dec 24, 2021</b> | Friday    | 37                       | -1.37                       | 1                       |
| <b>Dec 25, 2021</b> | Saturday  | 36                       | -0.94                       | 2                       |

## 4.9) jakewal99



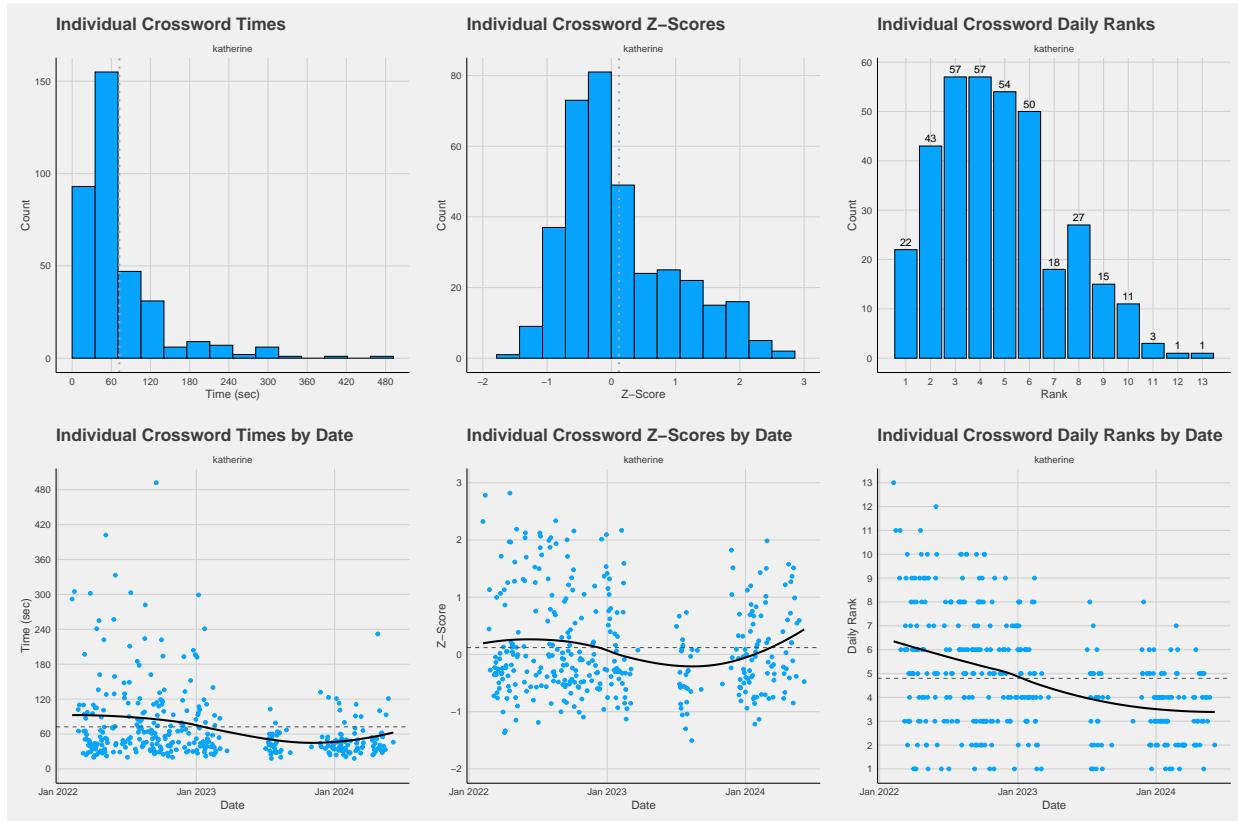
## Summary Statistics

|                | Min.  | 1st Qu. | Median | Mean  | Trimmed Mean | 3rd Qu. | Max.  |
|----------------|-------|---------|--------|-------|--------------|---------|-------|
| <b>Time</b>    | 6.00  | 33.00   | 47.00  | 64.63 | 57.50        | 71.75   | 403.0 |
| <b>Z-Score</b> | -1.74 | -0.82   | -0.47  | -0.31 | -0.37        | 0.01    | 2.5   |
| <b>Rank</b>    | 1.00  | 2.00    | 4.00   | 4.27  |              | 6.00    | 12.0  |

## Personal Best Week by Average Z-Score

|                     | Weekday   | Time<br>(Week Avg: 38.7) | Z-Score<br>(Week Avg: -1.1) | Rank<br>(Week Avg: 1.6) |
|---------------------|-----------|--------------------------|-----------------------------|-------------------------|
| <b>Dec 26, 2021</b> | Sunday    | 15                       | -1.41                       | 1                       |
| <b>Dec 27, 2021</b> | Monday    | 42                       | -1.01                       | 1                       |
| <b>Dec 28, 2021</b> | Tuesday   | 45                       | -0.75                       | 2                       |
| <b>Dec 29, 2021</b> | Wednesday | 35                       | -1.00                       | 2                       |
| <b>Dec 30, 2021</b> | Thursday  | 30                       | -0.94                       | 2                       |
| <b>Dec 31, 2021</b> | Friday    | 38                       | -0.62                       | 2                       |
| <b>Jan 01, 2022</b> | Saturday  | 66                       | -1.72                       | 1                       |

## 4.10) katherine



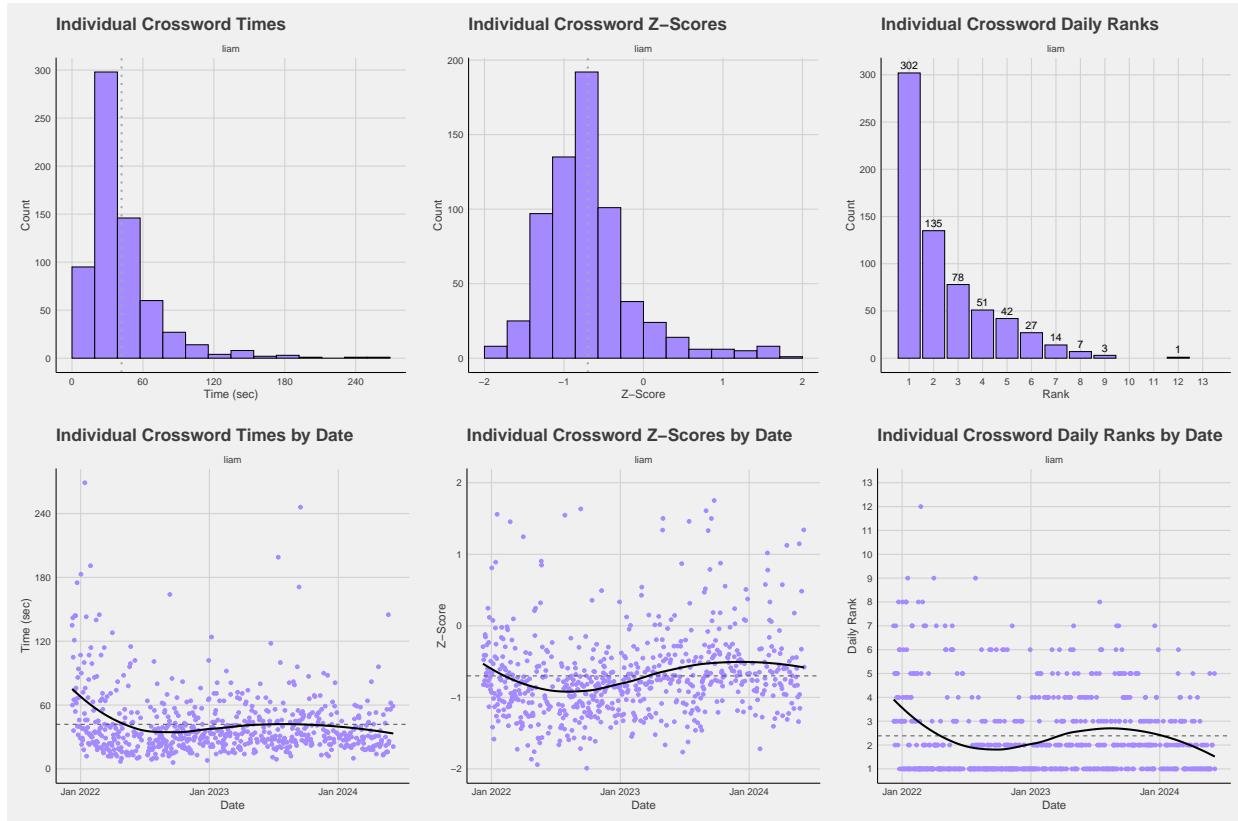
### Summary Statistics

|                | Min. | 1st Qu. | Median | Mean  | Trimmed Mean | 3rd Qu. | Max.   |
|----------------|------|---------|--------|-------|--------------|---------|--------|
| <b>Time</b>    | 18.0 | 35.00   | 49.00  | 72.31 | 63.64        | 87.00   | 492.00 |
| <b>Z-Score</b> | -1.5 | -0.49   | -0.11  | 0.12  | 0.08         | 0.67    | 2.82   |
| <b>Rank</b>    | 1.0  | 3.00    | 5.00   | 4.80  |              | 6.00    | 13.00  |

### Personal Best Week by Average Z-Score

|                     | Weekday   | Time<br>(Week Avg: 42.9) | Z-Score<br>(Week Avg: -0.3) | Rank<br>(Week Avg: 2.9) |
|---------------------|-----------|--------------------------|-----------------------------|-------------------------|
| <b>Jan 21, 2024</b> | Sunday    | 48                       | 0.53                        | 4                       |
| <b>Jan 22, 2024</b> | Monday    | 35                       | -0.77                       | 3                       |
| <b>Jan 23, 2024</b> | Tuesday   | 50                       | 0.67                        | 5                       |
| <b>Jan 24, 2024</b> | Wednesday | 30                       | -0.74                       | 2                       |
| <b>Jan 25, 2024</b> | Thursday  | 24                       | -0.86                       | 2                       |
| <b>Jan 26, 2024</b> | Friday    | 33                       | -1.22                       | 1                       |
| <b>Jan 27, 2024</b> | Saturday  | 80                       | -0.04                       | 3                       |

## 4.11) liam



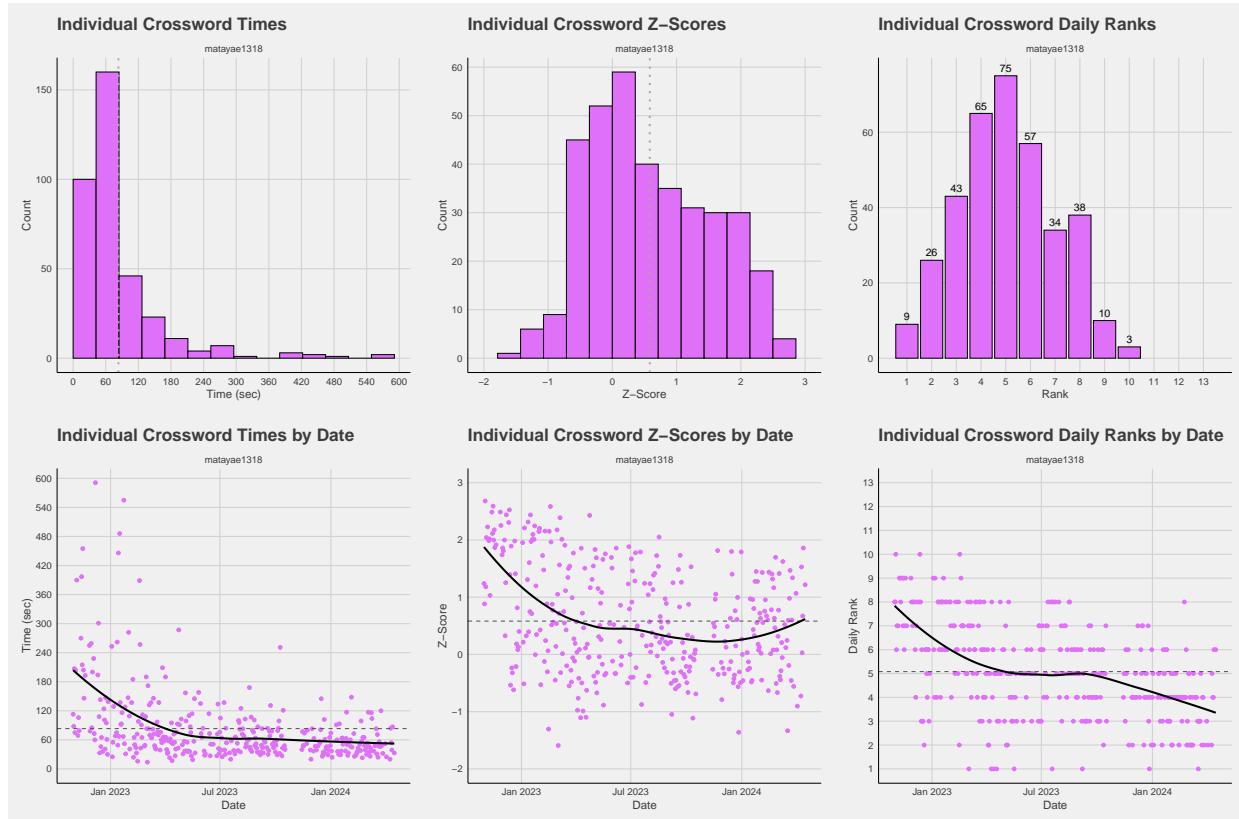
### Summary Statistics

|                | Min.  | 1st Qu. | Median | Mean  | Trimmed Mean | 3rd Qu. | Max.   |
|----------------|-------|---------|--------|-------|--------------|---------|--------|
| <b>Time</b>    | 6.00  | 24.00   | 33.50  | 41.92 | 38.19        | 50.00   | 269.00 |
| <b>Z-Score</b> | -1.99 | -1.06   | -0.78  | -0.70 | -0.74        | -0.47   | 1.75   |
| <b>Rank</b>    | 1.00  | 1.00    | 2.00   | 2.39  |              | 3.00    | 12.00  |

### Personal Best Week by Average Z-Score

|                     | Weekday   | Time<br>(Week Avg: 34.1) | Z-Score<br>(Week Avg: -1.1) | Rank<br>(Week Avg: 1.6) |
|---------------------|-----------|--------------------------|-----------------------------|-------------------------|
| <b>Feb 05, 2023</b> | Sunday    | 35                       | -1.51                       | 1                       |
| <b>Feb 06, 2023</b> | Monday    | 25                       | -1.05                       | 1                       |
| <b>Feb 07, 2023</b> | Tuesday   | 45                       | -1.22                       | 1                       |
| <b>Feb 08, 2023</b> | Wednesday | 23                       | -0.29                       | 4                       |
| <b>Feb 09, 2023</b> | Thursday  | 20                       | -0.71                       | 2                       |
| <b>Feb 10, 2023</b> | Friday    | 27                       | -1.32                       | 1                       |
| <b>Feb 11, 2023</b> | Saturday  | 64                       | -1.26                       | 1                       |

## 4.12) matayae1318



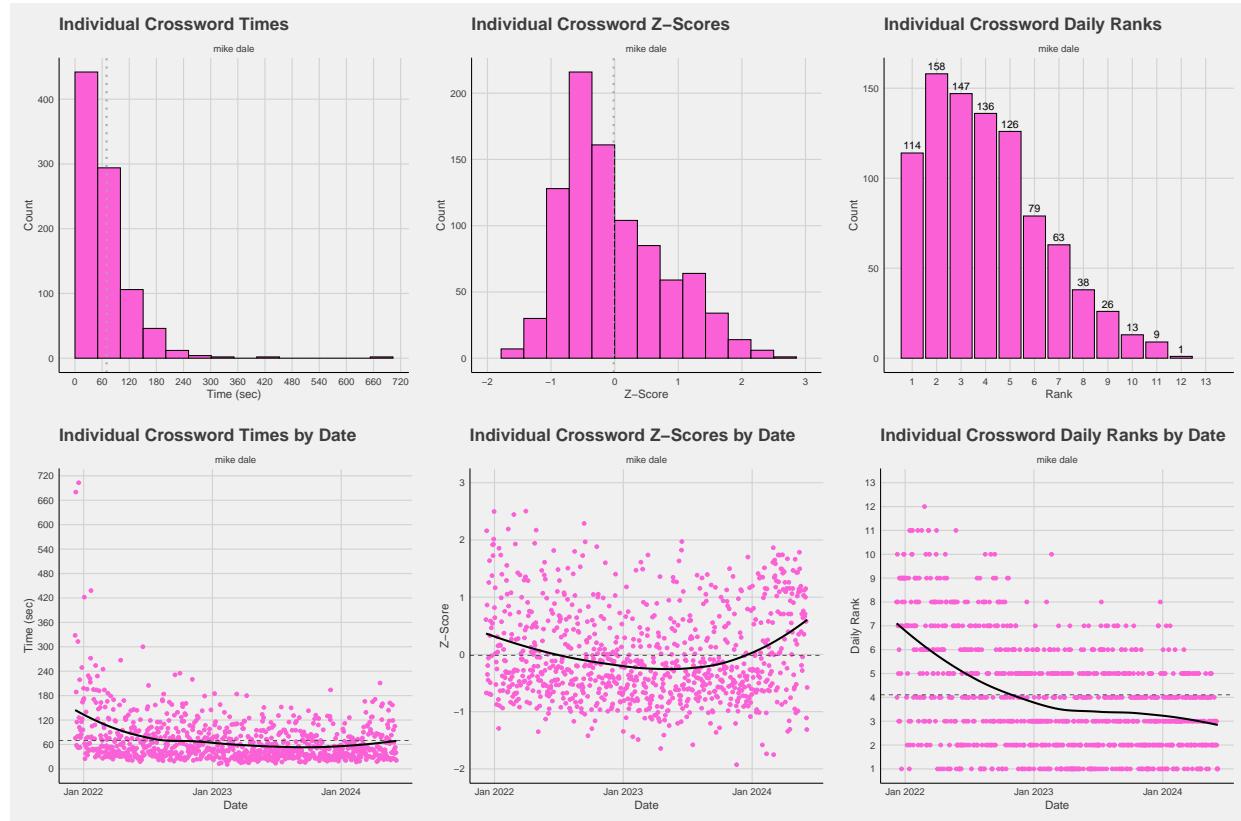
### Summary Statistics

|                | Min.  | 1st Qu. | Median | Mean  | Trimmed Mean | 3rd Qu. | Max.   |
|----------------|-------|---------|--------|-------|--------------|---------|--------|
| <b>Time</b>    | 14.00 | 40.00   | 60.00  | 83.26 | 71.57        | 93.00   | 591.00 |
| <b>Z-Score</b> | -1.59 | -0.19   | 0.46   | 0.58  | 0.57         | 1.34    | 2.68   |
| <b>Rank</b>    | 1.00  | 4.00    | 5.00   | 5.08  |              | 6.00    | 10.00  |

### Personal Best Week by Average Z-Score

|                     | Weekday   | Time<br>(Week Avg: 62) | Z-Score<br>(Week Avg: -0.1) | Rank<br>(Week Avg: 4) |
|---------------------|-----------|------------------------|-----------------------------|-----------------------|
| <b>Oct 01, 2023</b> | Sunday    | 35                     | -0.21                       | 4                     |
| <b>Oct 02, 2023</b> | Monday    | 49                     | -0.49                       | 3                     |
| <b>Oct 03, 2023</b> | Tuesday   | 59                     | 0.34                        | 6                     |
| <b>Oct 04, 2023</b> | Wednesday | 29                     | -0.66                       | 3                     |
| <b>Oct 05, 2023</b> | Thursday  | 79                     | 0.88                        | 5                     |
| <b>Oct 06, 2023</b> | Friday    | 84                     | -0.29                       | 3                     |
| <b>Oct 07, 2023</b> | Saturday  | 99                     | -0.22                       | 4                     |

## 4.13) mike dale



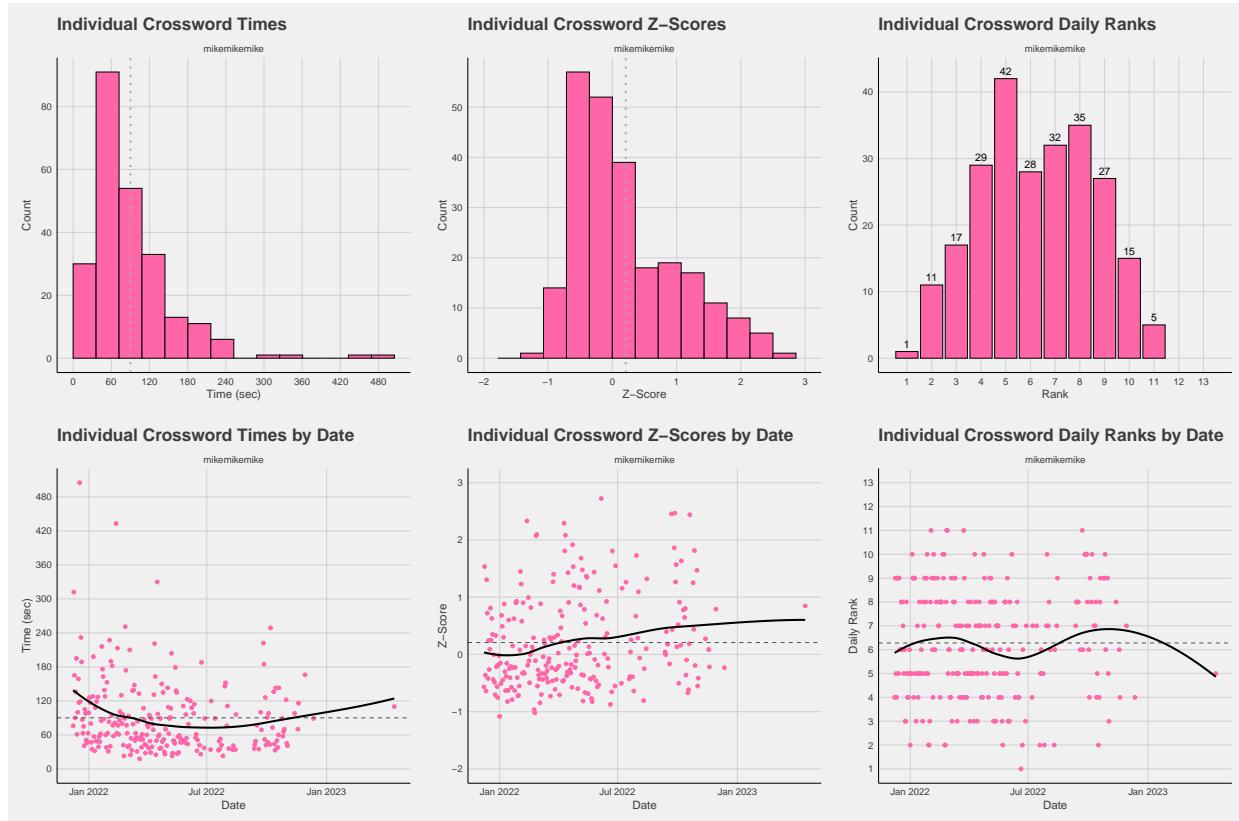
### Summary Statistics

|                | Min.  | 1st Qu. | Median | Mean  | Trimmed Mean | 3rd Qu. | Max.  |
|----------------|-------|---------|--------|-------|--------------|---------|-------|
| <b>Time</b>    | 11.00 | 34.00   | 52.00  | 69.79 | 63.15        | 87.75   | 703.0 |
| <b>Z-Score</b> | -1.93 | -0.61   | -0.21  | -0.02 | -0.05        | 0.53    | 2.5   |
| <b>Rank</b>    | 1.00  | 2.00    | 4.00   | 4.11  |              | 6.00    | 12.0  |

### Personal Best Week by Average Z-Score

|                     | Weekday   | Time<br>(Week Avg: 38.9) | Z-Score<br>(Week Avg: -0.7) | Rank<br>(Week Avg: 1.9) |
|---------------------|-----------|--------------------------|-----------------------------|-------------------------|
| <b>Apr 16, 2023</b> | Sunday    | 19                       | -0.74                       | 2                       |
| <b>Apr 17, 2023</b> | Monday    | 30                       | -1.64                       | 1                       |
| <b>Apr 18, 2023</b> | Tuesday   | 64                       | 0.01                        | 5                       |
| <b>Apr 19, 2023</b> | Wednesday | 31                       | -0.75                       | 1                       |
| <b>Apr 20, 2023</b> | Thursday  | 32                       | -0.92                       | 1                       |
| <b>Apr 21, 2023</b> | Friday    | 23                       | -0.58                       | 1                       |
| <b>Apr 22, 2023</b> | Saturday  | 73                       | -0.43                       | 2                       |

## 4.14) mikemikemike



### Summary Statistics

|                | Min.  | 1st Qu. | Median | Mean  | Trimmed Mean | 3rd Qu. | Max.   |
|----------------|-------|---------|--------|-------|--------------|---------|--------|
| <b>Time</b>    | 18.00 | 47.00   | 71.50  | 90.15 | 83.05        | 116.75  | 505.00 |
| <b>Z-Score</b> | -1.08 | -0.41   | -0.01  | 0.21  | 0.16         | 0.71    | 2.72   |
| <b>Rank</b>    | 1.00  | 5.00    | 6.00   | 6.28  |              | 8.00    | 11.00  |

### Personal Best Week by Average Z-Score

|                     | Weekday   | Time<br>(Week Avg: 72.7) | Z-Score<br>(Week Avg: -0.4) | Rank<br>(Week Avg: 4.9) |
|---------------------|-----------|--------------------------|-----------------------------|-------------------------|
| <b>Dec 26, 2021</b> | Sunday    | 105                      | 0.33                        | 8                       |
| <b>Dec 27, 2021</b> | Monday    | 98                       | -0.21                       | 5                       |
| <b>Dec 28, 2021</b> | Tuesday   | 51                       | -0.56                       | 4                       |
| <b>Dec 29, 2021</b> | Wednesday | 46                       | -0.75                       | 4                       |
| <b>Dec 30, 2021</b> | Thursday  | 47                       | -0.18                       | 5                       |
| <b>Dec 31, 2021</b> | Friday    | 63                       | -0.02                       | 6                       |
| <b>Jan 01, 2022</b> | Saturday  | 99                       | -1.08                       | 2                       |

## **5) Declarations of Funding and Competing Interests**

I accept bribes in the form of Diet Coke and/or letting me be your friend.

## **6) Acknowledgements**

The 6th Edition is dedicated to my late step-grandmother Eva Zeleny Abrams-Hymowitz, who passed away in February. She was probably the kindest person I've ever known. When I visited her and my grandpa in May 2021, she pulled out a shoebox filled to the brim with every letter or crappy piece of artwork I ever wrote to / made for them growing up. She insisted we look through every single item in the box for nearly 2 hours, despite my grandpa clearly wanting to take a nap. Truly one of my favorite memories. Love you Grammy Eva.





## 7) Appendix: Z-Score Explanation, Summary Stats, and Graphs for Each Weekday

### 7.1) Z-Score Explanation

The main statistics I look at in this analysis are time to crossword completion, z-scores of time to completion, and daily ranks. For those who do not know, a z-score is a data transformation that standardizes data to a [Standard Normal Gaussian distribution](#). Many distributions found in nature are assumed (correctly) to follow a Normal distribution. To amend a canonical example, consider:

- Puzzle A
  - Average solve time of 60 seconds to complete
  - You complete in 70 seconds
  - Your z-score is positive, as your solve time is above the mean
- Puzzle B
  - Average solve time of 150 seconds to complete
  - You complete in 130 seconds
  - Your z-score is negative, as your solve time is below the mean

Despite Puzzle B taking you longer to complete, you actually did *better* on that puzzle once we account for its observed difficulty, as you had a lower z-score on Puzzle B than Puzzle A. For further reading, if you're into statistical theory and that whole jazz, take STATS 250 or 280, read the [standard score Wikipedia page](#), or write me a letter. **The tl;dr of this is that a z-score transformation standardizes the data to allow for comparison of completion times across different crossword puzzles relative to the mean and variance of each individual crossword puzzle.**

## 7.2) Summary Stats

The following tables give each person's quartiles with respect to time, z-score, and daily rank. These are the same data presented individually in each person's subsection of the "Profiles" Section.

### 7.2.1) Summary Stats for Time

|                         | Min. | 1st Qu. | Median | Mean  | Trimmed Mean | 3rd Qu. | Max. |
|-------------------------|------|---------|--------|-------|--------------|---------|------|
| <b>addieavery</b>       | 11   | 39.0    | 52.0   | 69.3  | 65.3         | 86.0    | 227  |
| <b>annabeans</b>        | 10   | 34.0    | 49.0   | 63.2  | 58.0         | 76.0    | 362  |
| <b>Bahsdaddy</b>        | 7    | 29.0    | 38.0   | 48.4  | 44.7         | 57.0    | 282  |
| <b>cnewt</b>            | 25   | 114.5   | 172.0  | 214.3 | 201.1        | 272.5   | 709  |
| <b>crossword spank</b>  | 14   | 58.0    | 91.0   | 111.6 | 103.3        | 140.0   | 591  |
| <b>elliefich</b>        | 19   | 60.0    | 86.0   | 106.0 | 99.5         | 132.0   | 461  |
| <b>Els59</b>            | 12   | 35.5    | 48.0   | 61.9  | 56.6         | 72.0    | 351  |
| <b>grapefruit jones</b> | 17   | 34.0    | 51.0   | 63.7  | 59.4         | 80.0    | 285  |
| <b>jakewal99</b>        | 6    | 33.0    | 47.0   | 64.6  | 57.5         | 71.8    | 403  |
| <b>katherine</b>        | 18   | 35.0    | 49.0   | 72.3  | 63.6         | 87.0    | 492  |
| <b>liam</b>             | 6    | 24.0    | 33.5   | 41.9  | 38.2         | 50.0    | 269  |
| <b>matayae1318</b>      | 14   | 40.0    | 60.0   | 83.3  | 71.6         | 93.0    | 591  |
| <b>mike dale</b>        | 11   | 34.0    | 52.0   | 69.8  | 63.2         | 87.8    | 703  |
| <b>mikemikemike</b>     | 18   | 47.0    | 71.5   | 90.1  | 83.0         | 116.8   | 505  |

### 7.2.2) Summary Stats for Z-Score

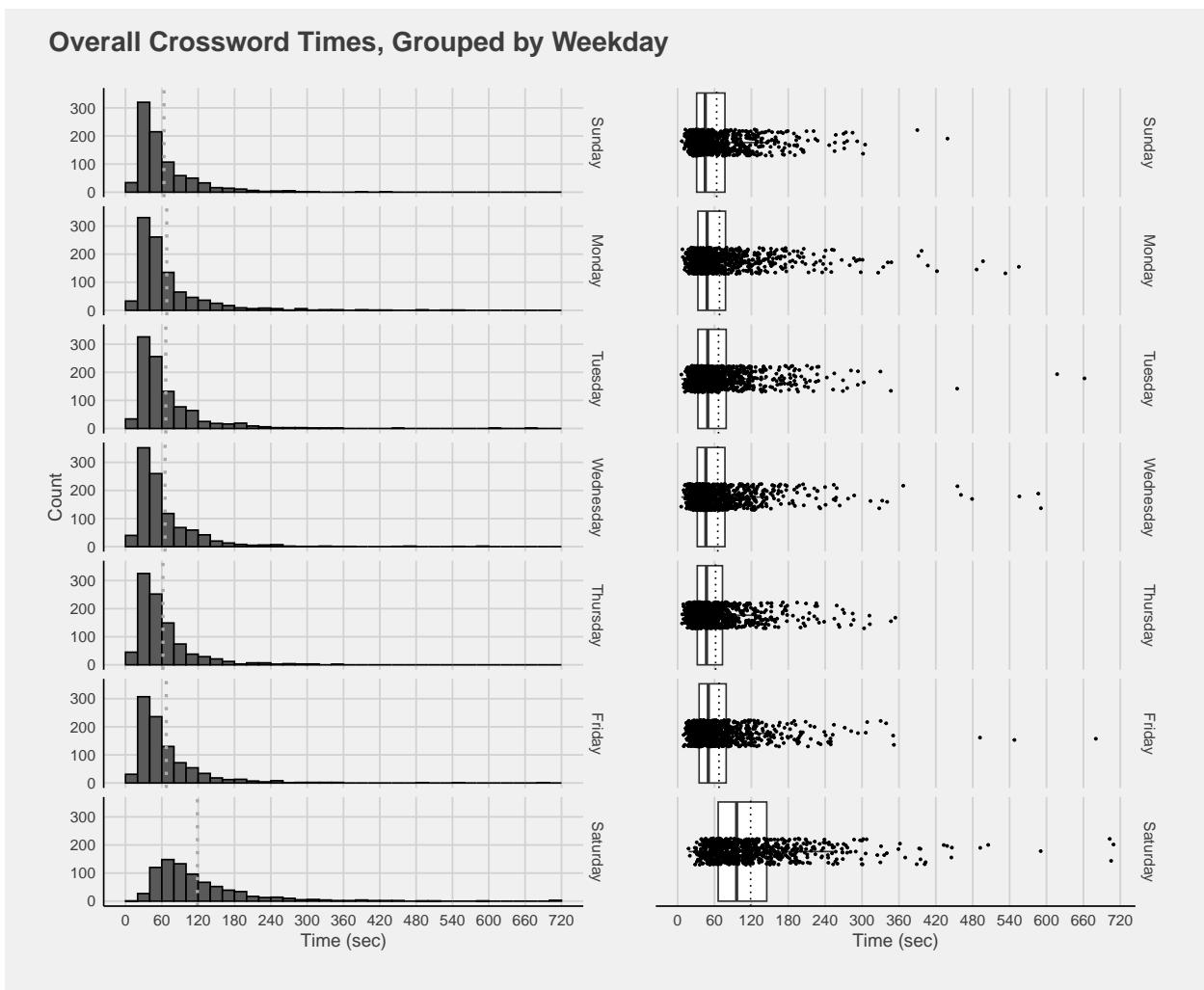
|                         | Min.  | 1st Qu. | Median | Mean  | Trimmed Mean | 3rd Qu. | Max. |
|-------------------------|-------|---------|--------|-------|--------------|---------|------|
| <b>addieavery</b>       | -1.17 | -0.61   | -0.42  | -0.27 | -0.33        | -0.09   | 2.63 |
| <b>annabeans</b>        | -1.65 | -0.68   | -0.40  | -0.24 | -0.28        | 0.09    | 2.14 |
| <b>Bahsdaddy</b>        | -2.03 | -0.88   | -0.64  | -0.53 | -0.57        | -0.31   | 1.81 |
| <b>cnewt</b>            | -0.53 | 1.24    | 1.95   | 1.73  | 1.78         | 2.40    | 2.99 |
| <b>crossword spank</b>  | -1.42 | 0.17    | 0.88   | 0.85  | 0.86         | 1.60    | 2.83 |
| <b>elliefich</b>        | -1.01 | 0.09    | 0.90   | 0.88  | 0.88         | 1.68    | 2.75 |
| <b>Els59</b>            | -1.77 | -0.57   | -0.21  | -0.05 | -0.09        | 0.31    | 2.74 |
| <b>grapefruit jones</b> | -1.44 | -0.73   | -0.43  | -0.27 | -0.33        | -0.01   | 2.88 |
| <b>jakewal99</b>        | -1.74 | -0.82   | -0.47  | -0.31 | -0.37        | 0.01    | 2.50 |
| <b>katherine</b>        | -1.50 | -0.49   | -0.11  | 0.12  | 0.08         | 0.67    | 2.82 |
| <b>liam</b>             | -1.99 | -1.06   | -0.78  | -0.70 | -0.74        | -0.47   | 1.75 |
| <b>matayae1318</b>      | -1.59 | -0.19   | 0.46   | 0.58  | 0.57         | 1.34    | 2.68 |
| <b>mike dale</b>        | -1.93 | -0.61   | -0.21  | -0.02 | -0.05        | 0.53    | 2.50 |
| <b>mikemikemike</b>     | -1.08 | -0.41   | -0.01  | 0.21  | 0.16         | 0.71    | 2.72 |

### 7.2.3) Summary Stats for Rank

|                         | Min. | 1st Qu. | Median | Mean | 3rd Qu. | Max. |
|-------------------------|------|---------|--------|------|---------|------|
| <b>addieavery</b>       | 1    | 4       | 5      | 5.1  | 6       | 11   |
| <b>annabeans</b>        | 1    | 2       | 4      | 4.0  | 5       | 11   |
| <b>Bahsdaddy</b>        | 1    | 1       | 2      | 2.9  | 4       | 11   |
| <b>cnewt</b>            | 3    | 9       | 10     | 9.5  | 11      | 13   |
| <b>crossword spank</b>  | 1    | 6       | 7      | 7.0  | 9       | 13   |
| <b>elliefich</b>        | 1    | 5       | 6      | 6.4  | 8       | 13   |
| <b>Els59</b>            | 1    | 3       | 4      | 4.4  | 6       | 12   |
| <b>grapefruit jones</b> | 1    | 2       | 4      | 4.4  | 6       | 12   |
| <b>jakewal99</b>        | 1    | 2       | 4      | 4.3  | 6       | 12   |
| <b>katherine</b>        | 1    | 3       | 5      | 4.8  | 6       | 13   |
| <b>liam</b>             | 1    | 1       | 2      | 2.4  | 3       | 12   |
| <b>matayaee1318</b>     | 1    | 4       | 5      | 5.1  | 6       | 10   |
| <b>mike dale</b>        | 1    | 2       | 4      | 4.1  | 6       | 12   |
| <b>mikemikemike</b>     | 1    | 5       | 6      | 6.3  | 8       | 11   |

## 7.3) Graphs for Each Weekday

### 7.3.1) Distribution of Overall Times per Weekday



### 7.3.2) Distribution of Individual Ranks per Weekday

