DYALOG

Elsinore 2023

2023 APL Problem Solving Competition

Brian Becker – Chief Problem Maker
Dyalog LTD

Why?

Introduce students to APL

Plant seeds for the next generation of APLers

Increase APL's visibility

Identify potential recruits

The Past

2009

2010-2012

2013-2018

2019-2022

2009

Thank you Brooke Allen!

First 20 ProjectEuler.com problems

Mailing list of over 1600 contacts at universities and schools

2010-2012

Mostly self-written problems

2010 – Rent vs Buy plus 5 RosettaCode problems

Joel Hough, 2011 winner, inspires creation of TryAPL.org

2013-2018

Hosted and promoted by StudentCompetitions.com

Programming → Problem Solving

2 Phases

    Phase 1 – ten "one-liner" problems

    Phase 2 – more complex problems

2014 – non-student prize introduced

2016 – domain-specific Phase 2

2019-2023

2019 – Dogfooding

Dogfooding

Dogfooding (using your own products)

MiServer – web server

HttpCommand – remote system integration

SMTP – email utility class

Dyalog Crypto Library – password hashing

Conga – TCP/IP library used by MiServer, HttpCommand, SMTP

DrA – error logging utility

SQAPL – database access

Adám's Executor – Phase I validation

Git/GitHub – source code mgmt

Docker - containers

Jenkins – continuous integration
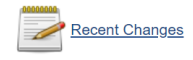
Rancher - deployment

HAProxy – HTTPS

reCAPTCHA – anti-spam

2023 APL Problem Solving Competition

2019-2023

2019 – Dogfooding

https://contest.dyalog.com

Phase 1 – automated validation yields silver and gold

Phase 2 – syntax validation

Simplifying Phase 2

Notable Winners

Ronald Chan – interned at Dyalog, interpreter work

Joel Hough – TryAPL inspiration; co-presented with Morten at InfoQ

Marinus Oosters – PyNAPL

Josh David – The Carlisle Group; Dyalog, LTD

Zack Batik – Riskflow Group; contributed problems for 2018 competition

Alve Björk – contributed problems for the 2019 competition

APL Problem Solving Competition

The Past

The Present

The Present (2023)
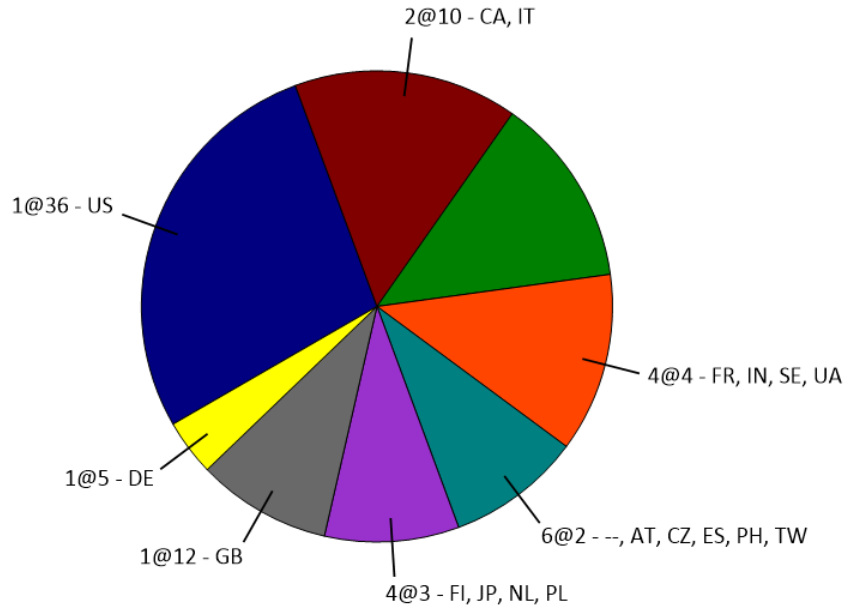
161 new registrants of whom 80 submitted solutions

130 participants from 36 countries submitted solutions

928 correct Phase 1 solutions submitted (>7/participant)
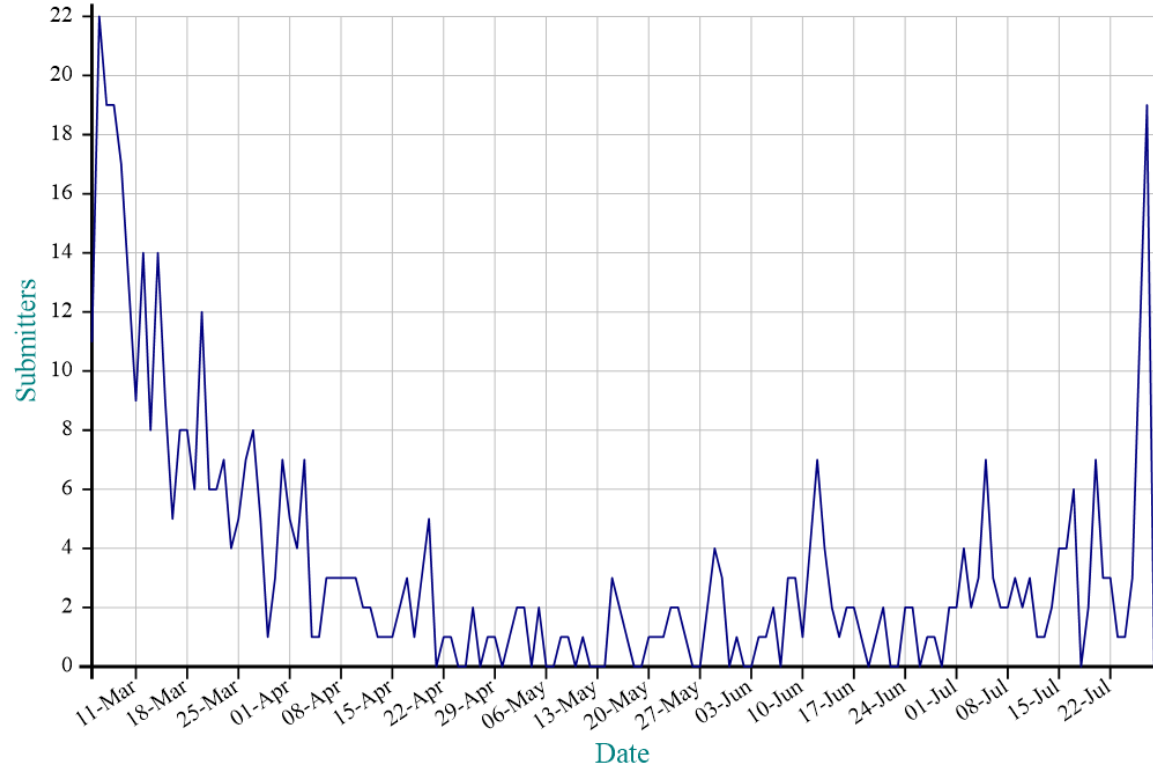
43 participants submitted 72 Phase 2 solutions

130 Participants in 36 Countries

- 2@10 - CA, IT
- 1@36 - US
- 4@4 - FR, IN, SE, UA
- 6@2 - --, AT, CZ, ES, PH, TW
- 4@3 - FI, JP, NL, PL
- 1@12 - GB
- 1@5 - DE

2023 APL Problem Solving Competition

Submitters by Date

2023 APL Problem Solving Competition

Submissions and Submitters by Date

2023 APL Problem Solving Competition
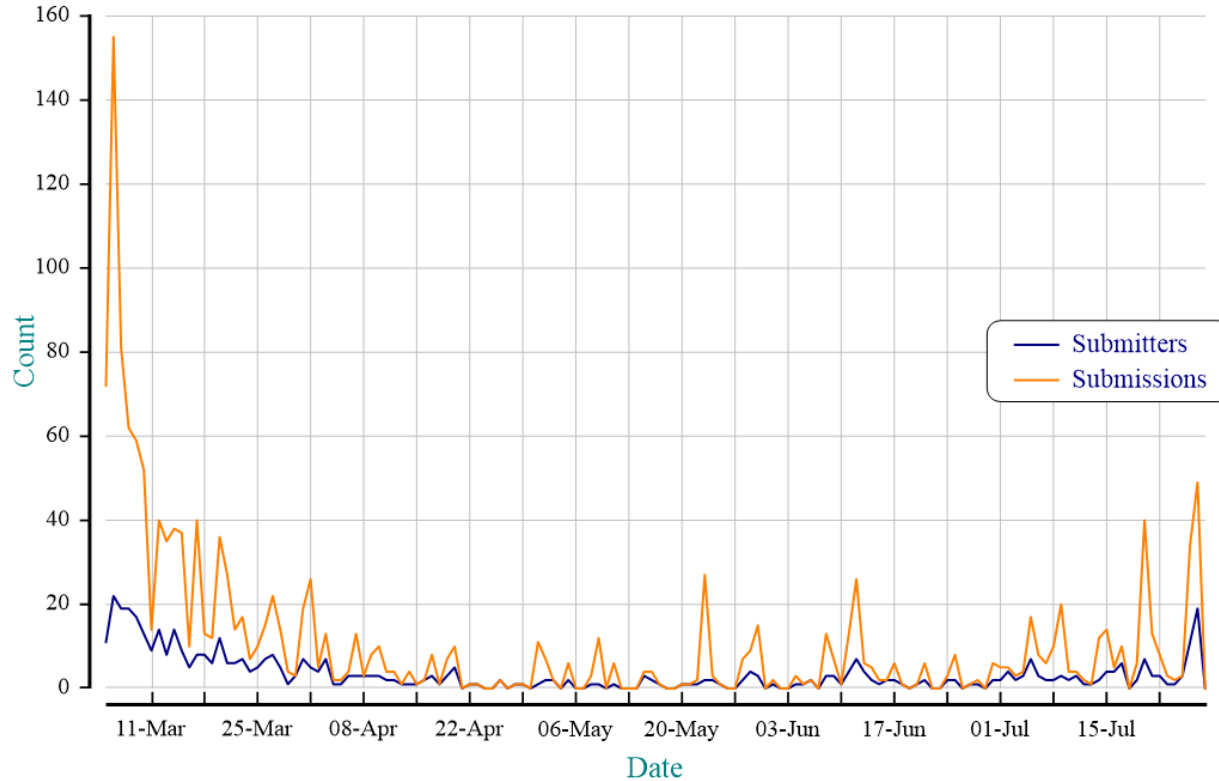
Cumulative Solutions Submitted

2023 APL Problem Solving Competition
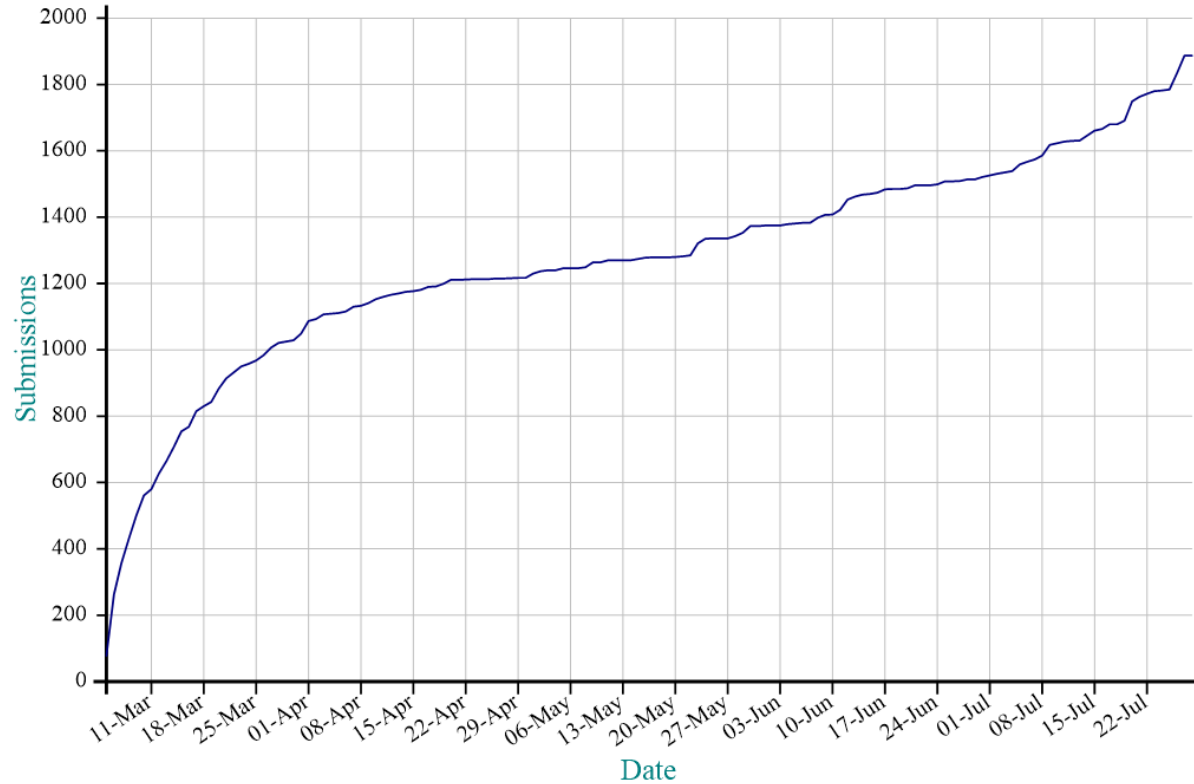
Phase 1 Solutions by Problem #

2023 APL Problem Solving Competition
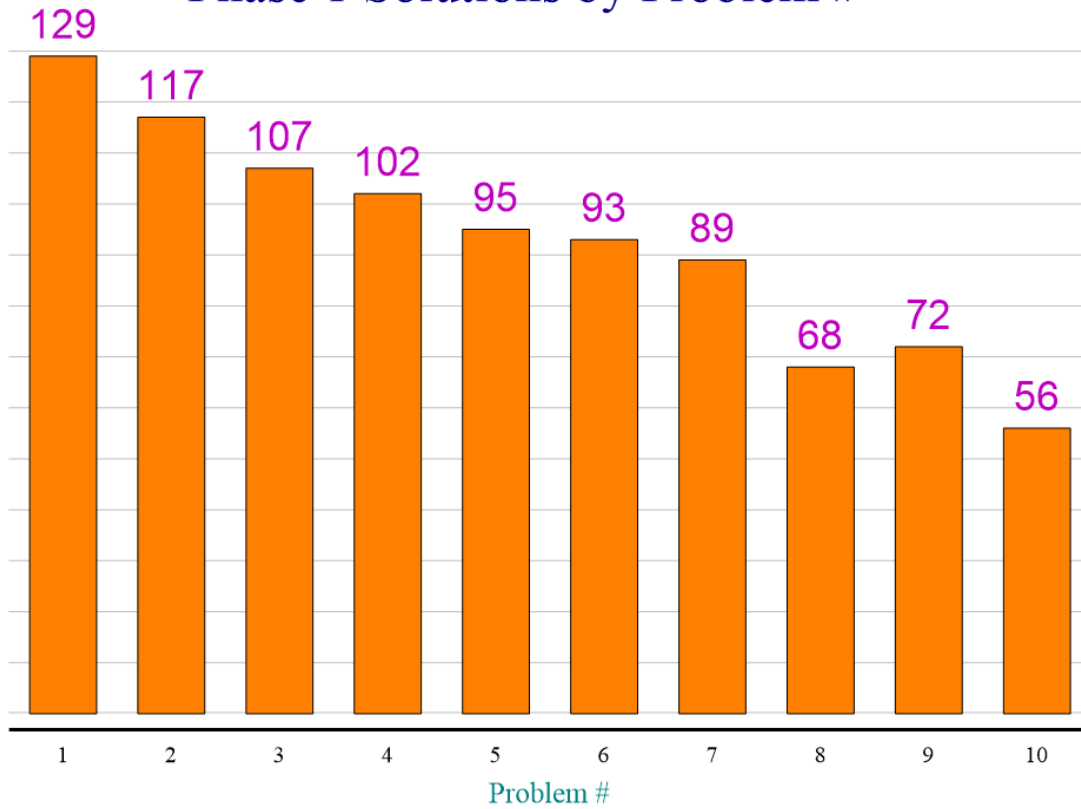
APL Problem Solving Competition

The Past

The Present

The Future

The Future

Details are being worked out

Goals

    Lower the bar

    Encourage more participation

2-4 Competitions Per Year

Anyone can win – not just students

Phase 2 disappears (sort of)

The Future

10 Phase 1-type questions only

     3 trivial (e.g. produce a list of integers from α to ω)

     3 easy (e.g. given a Boolean vector, turn all 1's after the first to 0)

     4 harder (e.g. given a list of integers, return (odds)(evens))

Automated testing, immediate feedback

Participant gets one "entry" into cash prize drawing per correct solution

The Future

We're working out what replaces Phase 2

Domain-specific projects?

Bigger prizes

In 15 Years...

We've introduced APL to hundreds of newcomers

Got inspiration for

    https://TryAPL.org (thank you Joel Hough!)

    https://problems.tryapl.org

    https://aplwiki.com/wiki/APL_Quest

Enjoyed some brilliant winner presentations

Want to help?

Become a sponsor

Contribute problem ideas

Be a beta-tester

Refer participants

Spread the word

Thank you!

- Our Sponsors

SimCorp

investcloud

Anonymous

Thank you!

- Our Sponsors

- Beta Testers

- The Team

This year's winners...

Non-student First Place - Alexander Block

Student Third Place - Dzintars Klušs (Riga Technical University)

Student Second Place - Rory Kemp (Oxford University)

Student Grand Prize – Andrea Piseri (University of Milan)

Please welcome Andrea and Alexander as they receive their awards.