DYALOG

2021

2021 APL Problem Solving Competition

Brian Becker

Our 13th Year…

- Third year running self-hosted
  - MiServer-based website - contest.dyalog.com
- Two Phases
  - Ten Phase 1 Problems
    - One-liners with interactive validation
  - Seven Phase 2 Problems (11 Tasks)
    - Generally more complex problems

contest.dyalog.com

- Standard "off the shelf" Docker dyalog/miserver container
  - Running MiServer v3.1 under Dyalog v18.0
  - Using Dyalog utilities
    - HttpCommand – remote system integration
    - Dyalog Cryptographic Library – password hashing
    - Conga – used by MiServer, HttpCommand, and SMTP
    - DrA – error logging
    - SQAPL – relational database access
    - SMTP – sending email
  - Plus
    - Adám's Safe Executor – safely test Phase 1 submissions in real time

Industry Standard

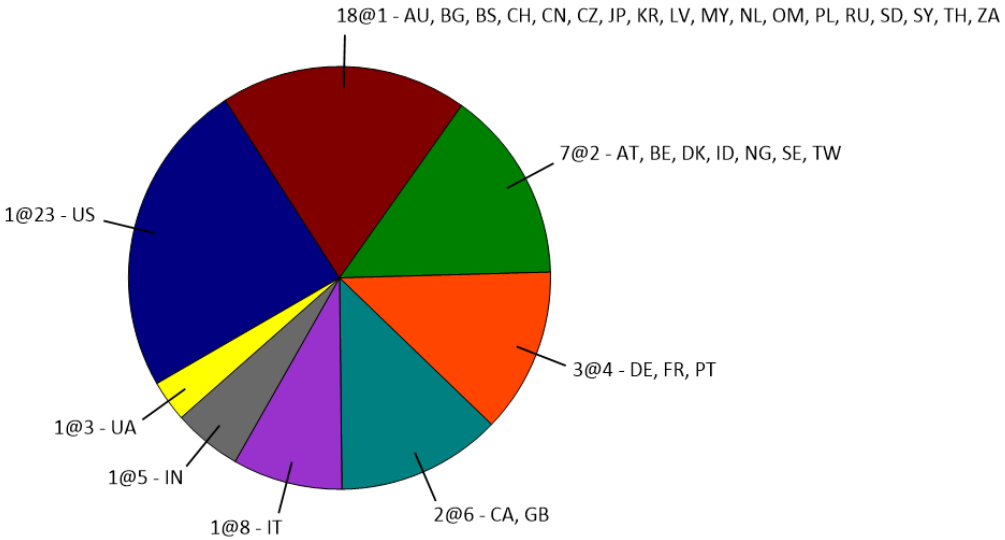
- Docker
- Git/GitHub
- Jenkins
- Rancher
- HAProxy
- reCAPTCHA

Stats

- Where were the participants from?

Stats

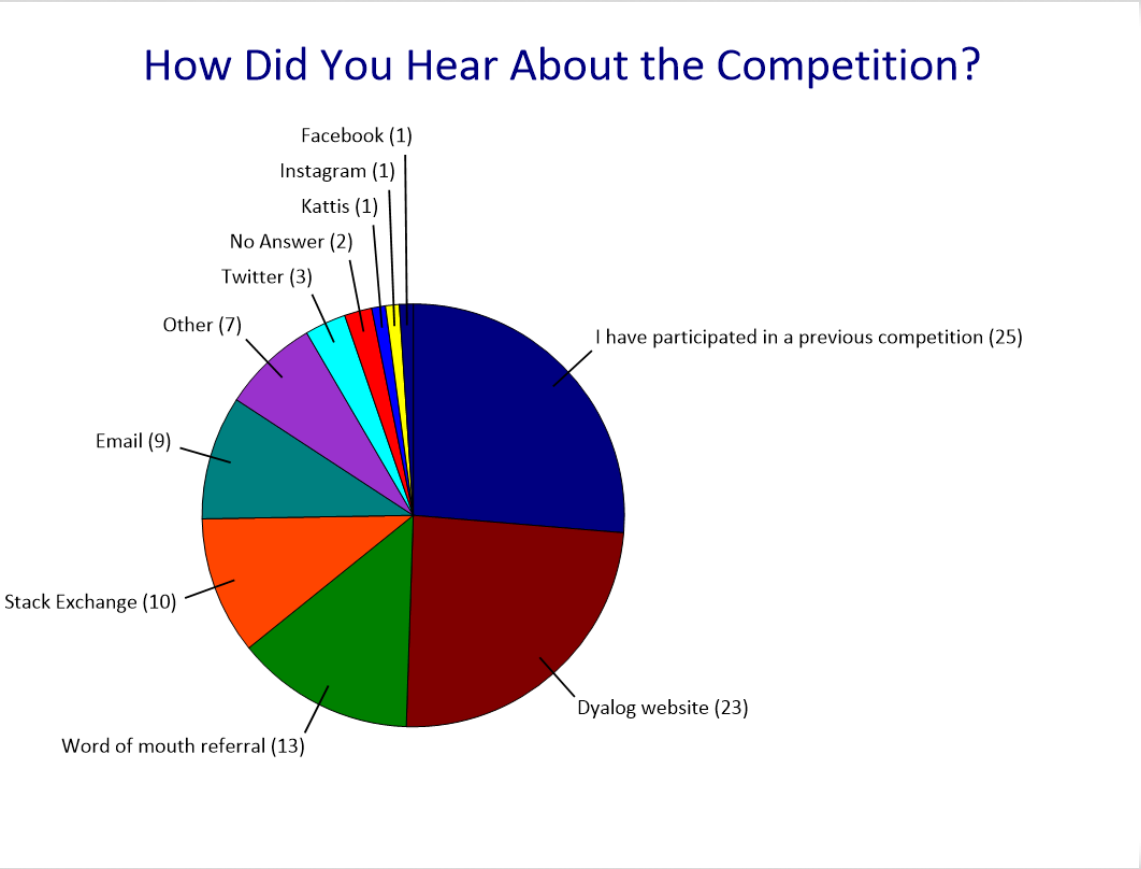
95 Participants in 34 Countries



Stats

- Where were the participants from?
- How did they hear about the competition?

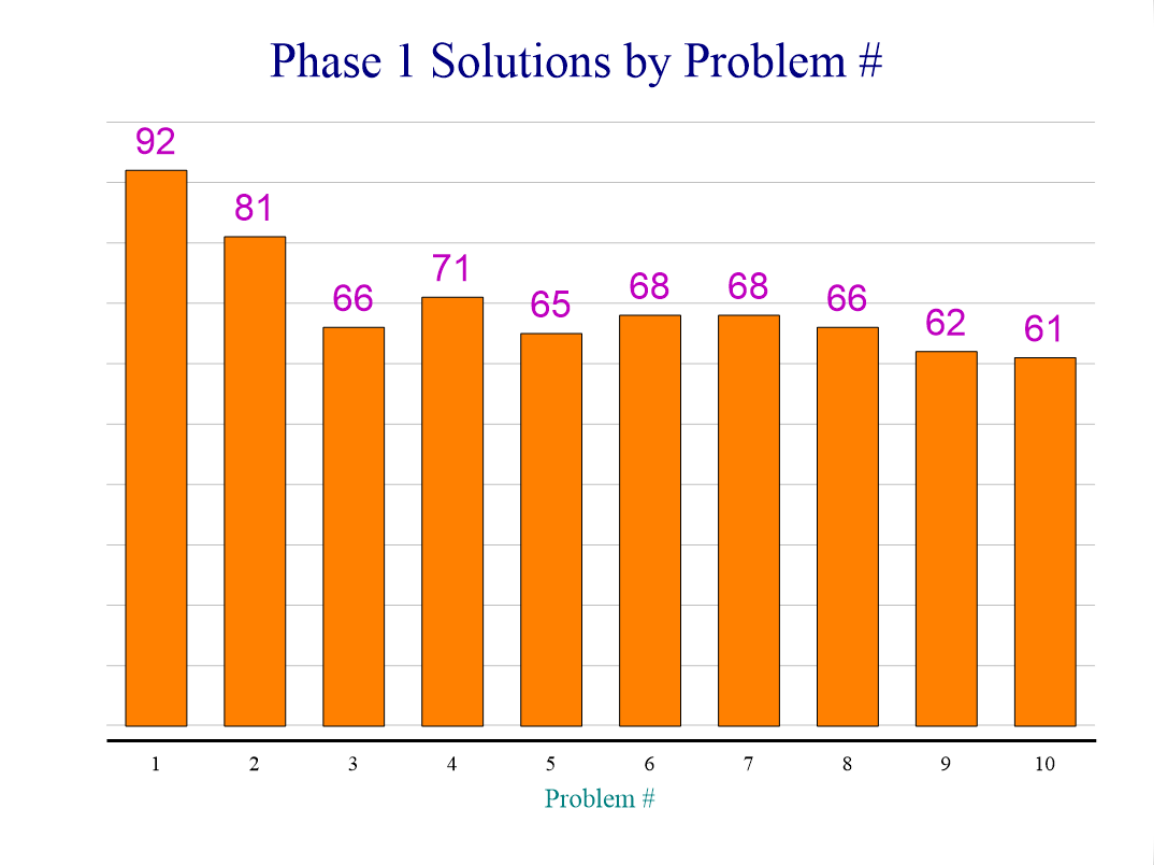
Stats


How Did You Hear About the Competition?
Facebook (1)
Instagram (1)
Kattis (1)
No Answer (2)
Twitter (3)
Other (7)
Email (9)
Stack Exchange (10)
Word of mouth referral (13)
Dyalog website (23)
I have participated in a previous competition (25)

Stats

- Where were the participants from?
- How did they hear about the competition?
- 2020
  - 71 people submitted 597 correct Phase 1 solutions
  - 40 people submitted Phase 2 submissions
- 2021
  - 95 (+34%) people submitted 700 (+17%) correct Phase 1 solutions
  - 36 people submitted Phase 2 solutions

Stats


Phase 1 Solutions by Problem #
92
81
66
71
65
68
68
66
62
61
1
2
3
4
5
6
7
8
9
10
Problem #

2020 Predictions

- Earlier start (1st quarter 2021)
  - We've been drafting candidate problems for months
- Revamped Phase 2
  - More like Phase 1 with interactive, basic validation
- Brian predicts...
  - 90+ Phase 1 participants (30+% growth)
  - 53+ Phase 2 participants (33+% growth)

2020 Predictions

- Earlier start (1st quarter 2021) ✓ Launched 8 Feb 2021
  - We've been drafting candidate problems for months
- Revamped Phase 2
  - More like Phase 1 with interactive, basic validation ✓
- Brian predicts...
  - 90+ Phase 1 participants (30+% growth) ✓ 95 (+34%)
  - 53+ Phase 2 participants (33+% growth) ☹ 36 (-10%)

Reactions from Participants

I enjoy the competition. Right amount of problems. I learned things about scoring bowling and computational biology, so it was real fun!!!!

I appreciate Dyalog's effort in organizing such a competition, so I do thank all the organizers and sponsors to give us the opportunity to spend time thinking, coding with APL. We are lucky participants. I wish good health to all of you ! Long life also to APL !

Reactions from Participants

I really liked that phase I and II were both on the website this year.
As always, there was a good selection of interesting problems.

Reactions from Participants

This is the 2nd time I take part in this competition.
I've enjoyed solving the problem this year even more than the past one because I've improved my coding skills and so I could spend more time on thinking about the optimal approach to the problem instead of how to write it.
I hope I can participate in the next year competition too.

Reactions from Participants

I'm having a blast answering these questions.

The challenges are interesting and non-trivial, the descriptions are detailed but still easily understood, and the test cases are very helpful to understanding the question and debugging my code.

It helps that there's a lot of documentation out there in the standalone Dyalog APL application's docs, the online docs, the APLcart, and the APL Orchard chat.

I haven't used APL in a few years, but these resources have really helped me refresh my knowledge. Glad to be back!

Reactions from Participants

Brilliant language, and the problems have been a great way to learn it.

Reactions from Participants

I think it is an opportunity to incentivize the learning of a truly remarkable language, learning it has been truly re-orienting.

Be a Part of the Effort

- Submit problem ideas
  - Contact me (brian@dyalog.com) for guidelines
- Encourage and refer students to participate
  - If a student you refer wins a cash prize, you receive the same amount
    You can receive multiple referral awards
- Spread the word
  - At local schools and universities, computer clubs, friends, neighbors, random people on the street
  - Previous Phase 1 and Phase 2 problem sets are available on the Dyalog website
  - Richard Park has led an effort to put interactively-validated previous Phase 1 sets online at https://problems.tryapl.org
- Be a sponsor
- Be a Beta Tester

Thank you!

- Our Sponsors

SimCorp

investcloud®

Anonymous

Thank you!

- Our Sponsors
- Beta Testers
- The Team

And the winners are…

- The full list of winners is available on the Dyalog website
- 10 - $100 prizes to the top Phase 1 participants
- 5 - $200 prizes to random Phase 2 participants
- 3rd Place $750
  - Aaron Paterson (Quinnipiac University, Connecticut, U.S.A.)
- 2nd Place $1250
  - Victor Ogunlokun (Obafemi Awolowo University, Nigeria)
- Top non-student entry wins a delegate package to Dyalog'22 in Portugal
  - Julian Witte (Germany)
- Grand Prize $2500 and an expenses-paid delegate package to Dyalog'22
  - Dzintars Klušs (Riga State Gymnasium No. 1, Latvia)

Please welcome Victor…