



Tyee Programming Competition Club

2024-2025 Parents & Students Info Night

programcomp@tyeeptsa.org

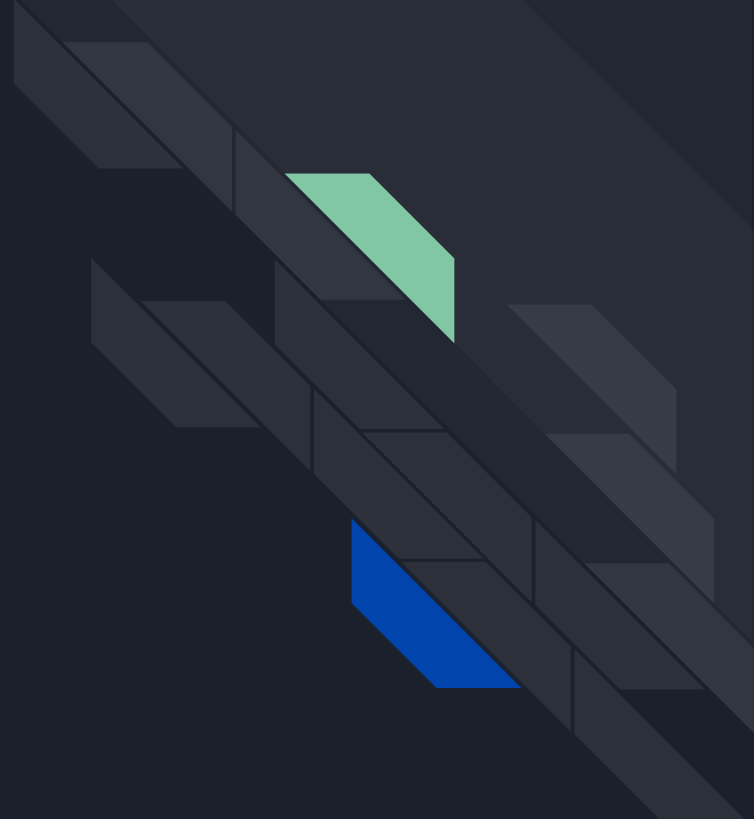


What is this Club About?

- Learn competitive programming
 - Taught by High School Coaches
- Participate in Programming Competitions
 - ACSL
 - USACO
- Meetings: Thursdays at 7pm
 - Virtual
 - Once a month in person

People

Chairs and Coaches



Tyee Programming Competition Club Staff



Johannes Grad

Co-Chair



Mohita Srivastava

Co-Chair



Jason Huh

Founder & Adviser

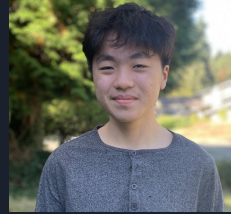
Head Coaches - 3 years Experience

Team Elite



Allen Wu
Newport

Team Advanced



Lewis Huh
Interlake

Team Intermediate



Ethan Do
Newport

Team Beginners



Ryan Chen
Newport

Senior Coaches - 2 years Experience



Jerryl Tong
University Prep

Junior Coaches - 1 year Experience



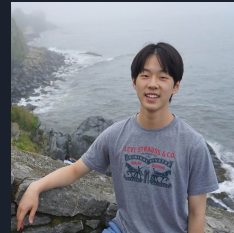
Ethan Lee
Interlake



Ilina Rao
Interlake



William Yoon
Interlake



Ian Jia
Redmond

Assistant Coaches - New this year



Andrew Chen
Interlake



Ethan Hammond
Newport



Raymond Li
Interlake

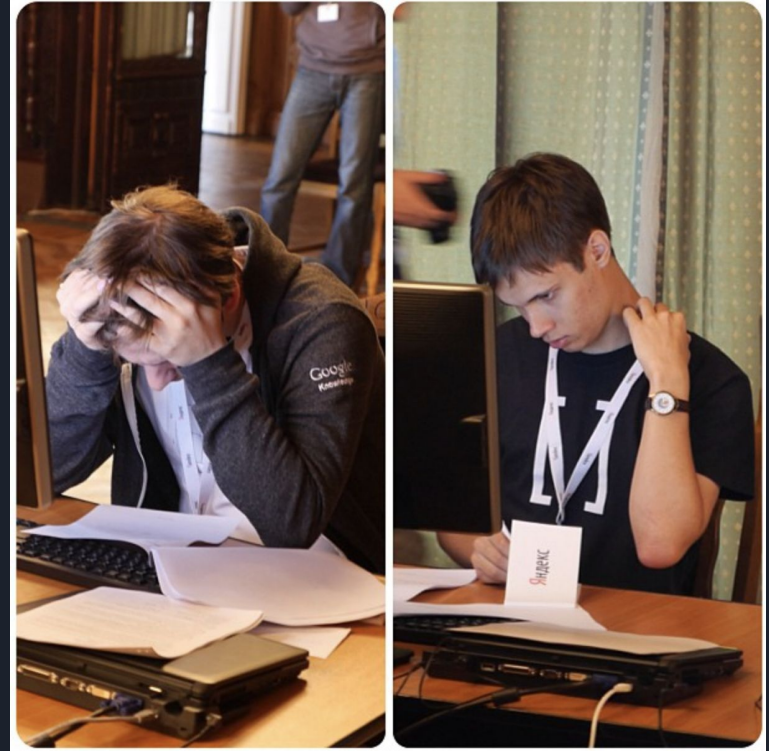
Background

Why Programming Competitions?



Programming Competitions

- Mental Agility and Quick Thinking
- Networking
- Personal growth as a programmer
- Career Prospect
- Python, C++, Java
- Usually auto-graded
- Prizes (sometimes)



Competitions that you will join:

- ACSL
- USACO



American Computer Science League

ACSL

ACSL

American Computer Science League



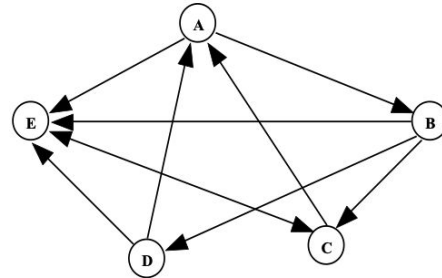
ACSL Sample Problems

Computer Number Systems

Convert $3F6A_{16}$ to octal.

Graph Theory

Draw the adjacency matrix for the directed graph at the right.



4. Recursive Functions

Find $f(12, 21)$ given:

$$f(x, y) = \begin{cases} f(x-1, y+2) - 3 & \text{if } x > y \\ f(y-1, x+2) + 1 & \text{if } x < y \\ x & \text{if } x = y \end{cases}$$

- A. 13
- B. 18
- C. 20
- D. 15
- E. 12

3. Data Structures

Build the binary search tree for the following string:

K E N T U C K Y D E R B Y


List the nodes at depth 3 from left to right.

- A. CKT
- B. BDRU
- C. CDTU
- D. EY
- E. Y



ACSL Logistics

- 4 contests per year
 - December - April
 - 30min for theory part
 - 72 hours for programming part
 - Taken online
- Co-chair will register all students in teams
- Scoring
 - Up to 10 points per contest
 - Students scoring more than 24 points total will be invited to finals



Last year: Tyee was the **only** school in the state competing in the Junior 5 division
13 students advanced to finals

Select division to view: Senior 5 Senior 3 Intermediate 5 Intermediate 3 Junior 5 Junior 3 Elementary 5
 Elementary 3 Classroom 5 Classroom 3

Show entries

Search:

Team	ST	C#1	C#2	C#3	C#4	Total
Tyee Middle School #1	WA	43	48	46	35	172
Tyee Middle School #2	WA	42	41	30	25	138
Tyee Middle School #3	WA	34	34	23	16	107

Showing 1 to 3 of 3 entries (filtered from 99 total entries)

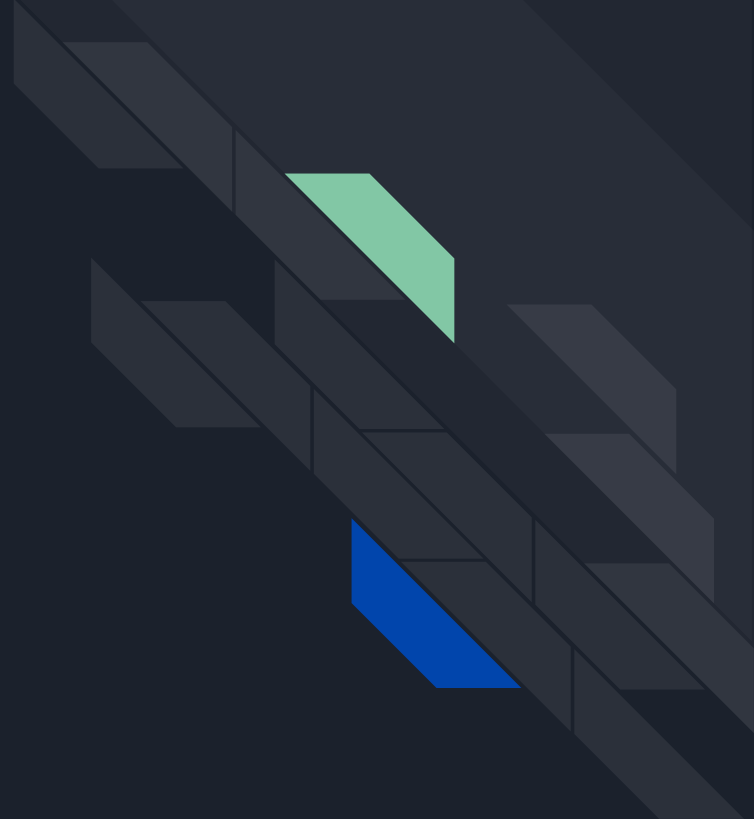
Previous

1

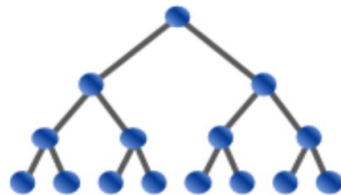
Next

USACO

USA Computing Olympiad



USA Computing Olympiad

[OVERVIEW](#)[TRAINING](#)[CONTESTS](#)[HISTORY](#)[STAFF](#)[RESOURCES](#)

USACO 2024 US OPEN CONTEST, BRONZE PROBLEM 2. WALKING ALONG A FENCE

[Return to Problem List](#)

Contest has ended.

Analysis mode

English (en)

Farmer John's N cows ($1 \leq N \leq 10^5$) each like to take a daily walk around the fence enclosing his pasture.

The fence consists of P posts ($4 \leq P \leq 2 \cdot 10^5$, P even), the location of each being a different 2D point (x, y) on a map of FJ's farm ($0 \leq x, y \leq 1000$). Each post is connected to the two adjacent posts by fences that are either vertical or horizontal line segments, so the entire fence can be considered a polygon whose sides are parallel to the x or y axes (the last post connects back to the first post, ensuring the fence forms a closed loop that encloses the pasture). The fence polygon is "well-behaved" in that fence segments only potentially overlap at their endpoints, each post aligns with exactly two fence segment endpoints, and every two fence segments that meet at an endpoint are perpendicular.

Each cow has a preferred starting and ending position for her daily walk, each being points somewhere along the fence (possibly at posts, possibly not). Each cow walks along the fence for her daily walks, starting from her starting position and ending at her ending position. There are two routes that the cow could take, given that the fence forms a closed loop. Since cows are somewhat lazy creatures, each cow will walk in the direction around the fence that is shorter (if there is a tie, the cow may choose either direction).

INPUT FORMAT (input arrives from the terminal / stdin):

The first line of input contains N and P . Each of the next P lines contains two integers representing the positions of the fence posts in clockwise or counterclockwise order. Each of the next N lines contains four integers $x_1 y_1 x_2 y_2$ representing the starting position (x_1, y_1) and ending position (x_2, y_2) of a cow.

OUTPUT FORMAT (print output to the terminal / stdout):

Write N integers as output, giving the distance that each cow walks.

SAMPLE INPUT:

```
5 4
0 0
2 0
2 2
0 2
0 0 0 2
0 2 1 0
2 1 0 2
1 0 1 2
1 2 1 0
```

Language:

Source File:

Submit Solution

✓ C

C++11

C++17

Java

Python-2.7.17

Python-3.6.9

file selected

Note: Many issues (e.g. variables, output) may require you to run multiple times; if you do, please make sure you save in a manner that avoids these issues. Timing can also differ slightly from run to run. Some issues may run just under the time limit in analysis mode, and v



USACO Logistics

- 4 contests per year:
 - December, January, February, March (US Open)
 - Friday-Monday, pick a 4-hour time frame
 - Taken online, link appears at <http://usaco.org/>
- Students need to register on their own
- Scoring
 - 1000/3 points per problem, the number of points you get for each problem is proportional to the number of test cases you get correct per problem (excluding the sample)
 - You are able to see your score immediately after submitting

Tyee Hackathon

The background features a series of dark grey, 3D-style rectangular blocks arranged in a descending staircase pattern from the top right towards the bottom right. Two blocks in this pattern are highlighted: one is light green and the other is bright blue, both positioned on the right side of the frame.



Hack for Good

[Overview](#)[My projects](#)[Participants \(1\)](#)[Resources](#)[Rules](#)[Project gallery](#)[Updates](#)[Discussions](#)[Manage](#)

Hack for Good (3/19 - 3/24)

Create apps that make the world a better place!

Who can participate

- Above legal age of majority in country of residence - US only
- Middle school students only

[View full rules](#)[View schedule](#)

Opening soon

Online

Public

\$250 in prizes

1 participant

[Tye Middle School Programming Club](#)

Beginner Friendly

Education

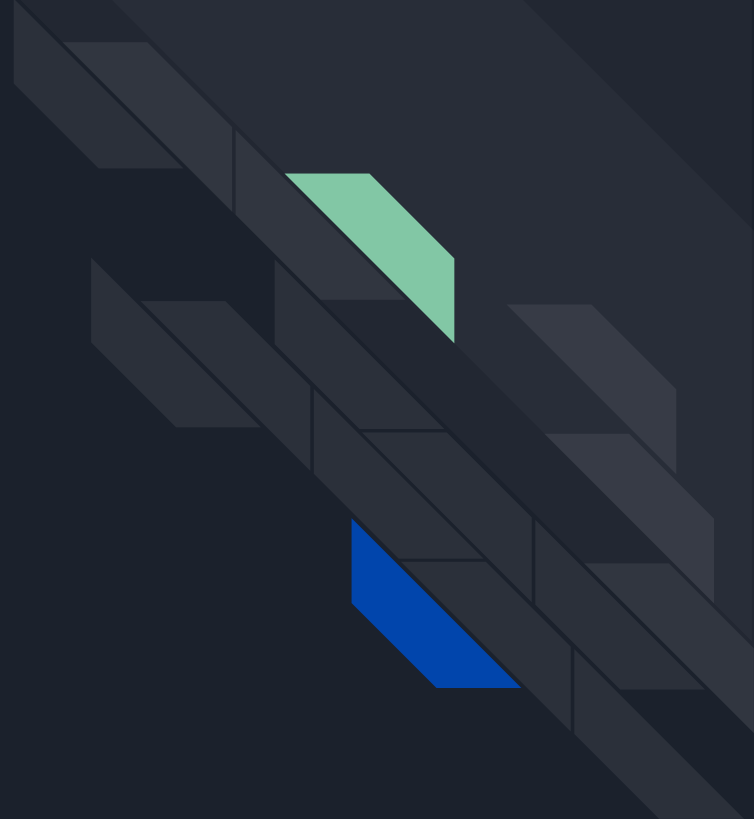
Social Good

<https://hackforgoodbsd.devpost.com/>

Hackathon

- Build a project that matches the theme
- Present your project to the judges
- Win prizes!
- Open to all middle schoolers in the Bellevue school district

Logistics





Prerequisites

- Student must have a personal laptop!
 - Because school laptop blocks most websites
- Students must have some programming experience
 - Python, Java or C++



Minimum Bar

Students should be able to solve these two problems:

<https://www.hackerrank.com/challenges/staircase/problem>

<https://www.hackerrank.com/challenges/diagonal-difference/problem>



Club Activities

- Club meetings: Thursdays 7:00 - 8:30 pm
- Hybrid format
 - Once per month in-person at Tyee
 - Remaining weeks online via Google Meet
- Online community through Discord



Registration

- Registration opens *tonight!* (Membership Fee: \$50)
 - <https://tyeepsa.org/Packet/ProgrammingCompReg2024>
 - Start: 9/26/2024
 - End: 10/5/2024
 - Financial aid available
- Refund Policy
 - Within two weeks from the first meeting
 - Requires Chair's approval



Placement Exam

- Preparation Materials:
 - Practice using Hackerrank: www.hackerrank.com
 - Recommendation:
 - <https://www.hackerrank.com/domains/python>
 - <https://www.hackerrank.com/domains/data-structures>
 - <https://www.hackerrank.com/domains/tutorials/30-days-of-code>
- Placement Exam:
 - Online, 60min
 - Invitation will be emailed after registration closes
 - We will have multiple days, Oct 5-10



Calendar



Tye PTSA



Membership



Fundraising



Programs



Programming Competition Club 2024-2025



Tye PTSA Programming Competition Club

Club Info
Page

Club Chair: Jo
[Chair contact info](#)

- Chess Club
- Competition Math Club
- Finance Club
- Programming Competition
- Python Bytes Club
- Rocketry Club
- Robotics Club
- Science Club
- Speech and Debate Club

- Walk About Program
- Reflections Art Program
- Staff Appreciation
- Tye Makers Market
- Lunar New Year Festival
- 6th Grade Meet & Greet

Programming Competition Club aims to help students to be proficient in computer programming and computer programming for and participating in various local and online programming competitions using a variety of students' choice (Python, Java or C++).

The [ACSL](#) and [USACO](#) competitions are divided into 4 skill levels, and taught by High School student coaches. Students are expected to have some programming knowledge before joining the club. For beginners, please consider the Python Bytes club instead. Meetings are held on Wednesdays at 7pm.

Information Night

November 26, 7-8pm



Parent Involvement

- Pizza Volunteers
 - Signup Genius will be emailed to parents

- We are looking for more parent co-chairs
 - No experience needed

programcomp@tyeepsa.org