✔️ Treasure hunt: part 2

Day 1 - Placement Exam

✔️ Exam: Placement exam (C++)

✔️ Exam: Placement exam (Java)

Day 1

Brief information: USA Computing Olympiad (USACO)

http://usaco.org

- What is USACO?
- USACO levels
- USACO schedule
- Contest format
- How to sign up for USACO?

Problems: Introduction to USACO Silver

1. Another Cow Number Game (acng)
2. Math Practice (mathprac)
3. Adding Commas (commas)
4. Perfect Squares (squares)
5. Hay Expenses (hayexp)
6. Claustrophobic Cows (claust)
7. Parkside's Triangle (pktri1)
8. *(optional) Bovine Bones (bones)*
9. *(optional) Crop Circles (cropcir)*
10. *(optional) Eenie Meenie Miney Moe (eenie)*

✔️ Introduction to USACO Silver (C++) ☑️

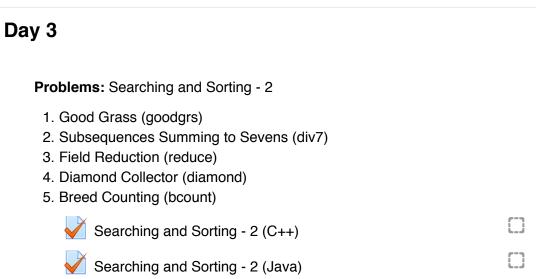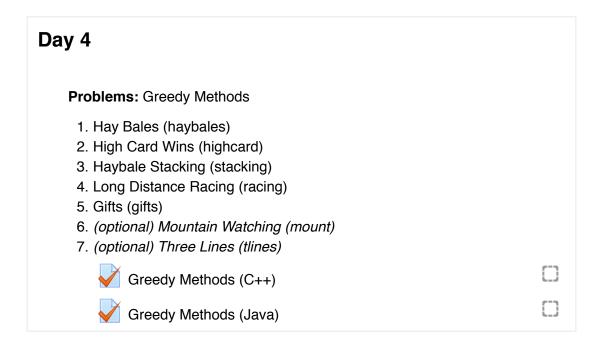✔️ Introduction to USACO Silver (Java) ☐

Day 2

Lecture: Searching and Sorting

Problems: Searching and Sorting - 1

1. Barn Echoes (echo)
2. Serious Cow Tag (cowtag)
3. The Perfect Cow (perfect)
4. Costume Party (costume)
5. Election Time (elect)

6. *(optional) Combination Lock (combo)*
7. *(optional) Ski Course Design (skidesign)*
8. *(optional) Bookshelf (shelf)*
9. *(optional) Moo Sick (moosick)*
10. *(optional) Need For Speed (sboost)*

    ✔️ Searching and Sorting - 1 (C++) ☑️

    ✔️ Searching and Sorting - 1 (Java) ☐

Day 3

Problems: Searching and Sorting - 2

1. Good Grass (goodgrs)
2. Subsequences Summing to Sevens (div7)
3. Field Reduction (reduce)
4. Diamond Collector (diamond)
5. Breed Counting (bcount)

    ✔️ Searching and Sorting - 2 (C++) ☐

    ✔️ Searching and Sorting - 2 (Java) ☐

Day 4

Problems: Greedy Methods

1. Hay Bales (haybales)
2. High Card Wins (highcard)
3. Haybale Stacking (stacking)
4. Long Distance Racing (racing)
5. Gifts (gifts)
6. *(optional) Mountain Watching (mount)*
7. *(optional) Three Lines (tlines)*

    ✔️ Greedy Methods (C++) ☐

    ✔️ Greedy Methods (Java) ☐

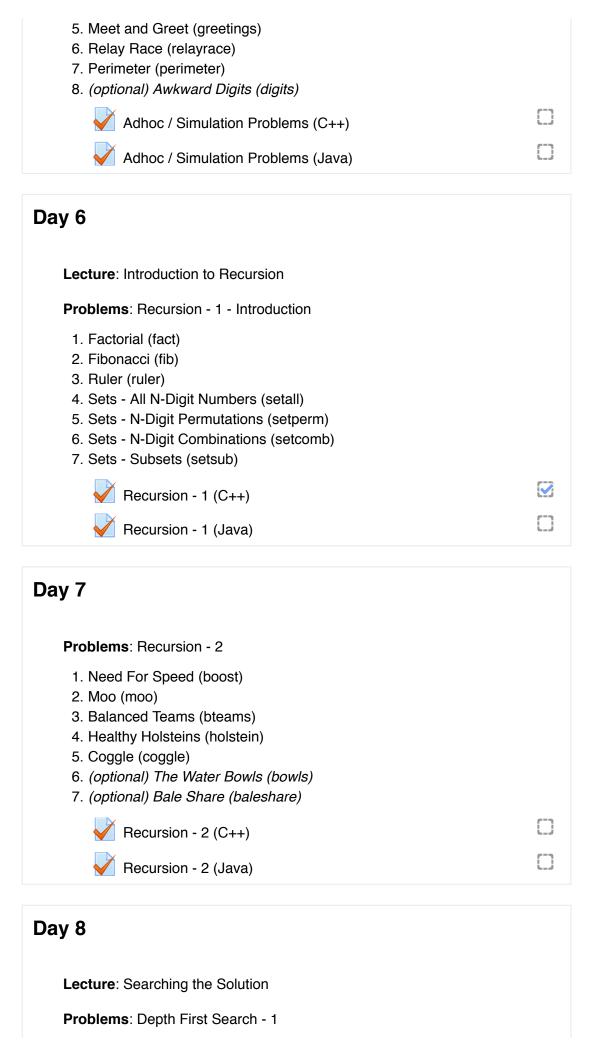## Day 5

Problems: Adhoc / Simulation Problems

1. Lake Making (makelake)
2. Dining Cows (diningb)
3. Broken Necklace (beads)
4. The Bovine Fire Drill (bfire)

5. Meet and Greet (greetings)
6. Relay Race (relayrace)
7. Perimeter (perimeter)
8. *(optional) Awkward Digits (digits)*

✔️ Adhoc / Simulation Problems (C++) ☐

✔️ Adhoc / Simulation Problems (Java) ☐

Day 6

Lecture: Introduction to Recursion

Problems: Recursion - 1 - Introduction

1. Factorial (fact)
2. Fibonacci (fib)
3. Ruler (ruler)
4. Sets - All N-Digit Numbers (setall)
5. Sets - N-Digit Permutations (setperm)
6. Sets - N-Digit Combinations (setcomb)
7. Sets - Subsets (setsub)

✔️ Recursion - 1 (C++) ☑️

✔️ Recursion - 1 (Java) ☐

Day 7

Problems: Recursion - 2

1. Need For Speed (boost)
2. Moo (moo)
3. Balanced Teams (bteams)
4. Healthy Holsteins (holstein)
5. Coggle (coggle)
6. *(optional) The Water Bowls (bowls)*
7. *(optional) Bale Share (baleshare)*

✔️ Recursion - 2 (C++) ☐

✔️ Recursion - 2 (Java) ☐

Day 8

Lecture: Searching the Solution

Problems: Depth First Search - 1

1. Cow Pinball (pachinko)
2. Horseshoes (hshoe)
3. Hopscotch (numgrid)
4. Grazing Patterns (grazing)
5. *(optional) Cow Hopscotch (hopscotch)*
6. *(optional) Checkers (chkr)*

✅ Depth First Search - 1 (C++)

✅ Depth First Search - 1 (Java)

Day 9

Lecture: Floodfill

Problems: Depth First Search - 2

1. Satellite Photographs (satpix)
2. Feeding Time (feedtime)
3. Switching on the Lights (lightson)
4. Build Gates (gates)
5. *(optional) Cow Beauty Pageant (pageant)*

✅ Depth First Search - 2 (C++)

✅ Depth First Search - 2 (Java)

Day 10

Problems: Depth First Search - 3

1. The Leisurely Stroll (stroll)
2. Sudoku (sudoku)
3. Minesweeper (minesweep)

✅ Depth First Search - 3 (C++)

✅ Depth First Search - 3 (Java)

Day 11

Problems: String Processing

1. Cow Cotillion (dance2)
2. Calf Flac (calfflac)
3. Farmer John has no Large Brown Cow (nocow)
4. *(optional) Cow Phrasebook (phrase)*

String Processing (C++)

String Processing (Java)

Lecture: Stack and Queue

Problems: Data Structures

1. Robot World (robo)
2. Cleaning the Dishes (dishes)
3. Registers in the Shop (shoppay)
4. *(optional) Look Up (lookup)*
5. *(optional) Painting the Fence (paint)*

Data Structures (C++)

Data Structures (Java)

Day 12

Problems: Breadth First Search - 1

1. Bronze Lilypad Pond (bronlily)
2. Corn Maze (cornmaze)

Breadth First Search - 1 (C++)

Breadth First Search - 1 (Java)

Day 13

Problems: Breadth First Search - 2

1. Laserphones (lphone)

Breadth First Search - 2 (C++)

Breadth First Search - 2 (Java)